

25th-26th, Sept. 2021

eSOUVENIR

18th Annual National Conference of

Indian Association of Forensic Odontology Innovations & Trends in Forensic Odontology



Organizing Secretariat: Dept. of Forensic Medicine, GS Medical College & KEM Hospital, Mumbai

Message from Desk of Organizing Secretary

Dear Colleague,

Greetings from the Organizing Committee!

Welcome to the 18th Annual National Conference of the Indian Association of Forensic Odontology organized by the Department of Forensic Medicine, GS Medical College & KEM Hospital, Mumbai In Collaboration with the Department of Oral Pathology, Nair Hospital Dental College, Mumbai on 25th and 26th September 2021.



Founded in 1926, the Seth Gordhandas Sunderdas Medical College (GSMC) and the King Edward Memorial (KEM) Hospital are amongst the foremost teaching and medical care providing institutions in India. The achievements of the institutions that hit the national headlines or won awards such as the Lasker or Padma Bhushan, include the contribution on *Rauwolfia serpentina* by Dr Rustom Jal Vakil, the first heart transplant in India by Dr P. K. Sen and the first documented Indian test-tube baby by Dr Indira Hinduja. It is also the First Government Medical Hospital in India to have a fully functional Forensic Odontology and Human Identification Laboratory at the Department of Forensic Medicine.

The outbreak of COVID-19 has disrupted the lives, livelihoods, and communities in the past year. To curb its effect, countries all over the world have been forced to adopt social distancing norms and travel restrictions. While most people did not contract the infection, all our lives were dramatically disrupted as the lockdown locked away our everyday contacts and activities. In this extreme situation, for the well-being and safety of everyone involved, the IAFO Office has taken the conscientious decision to hold a Virtual Conference this year.

It was our honor to host the 18th Annual National Conference of the Indian Association of Forensic Odontology with excitement and, bring to you a host of experts from around the world, keynote lectures, scientific extravaganza, a unique Online platform for scientific deliberations, and time for networking with old and new colleagues.

> Warm Regards, Dr. Hemlata Pandey Organizing Secretary 18th IAFO Conference, Mumbai

Organizing Secretary









Chief Guest

Dr. S. K. Jain

Director & Chief Forensic Scientist Govt. of India









L +91 8879066856

🖂 📘 iafo2021mumbai@gmail.com



Welcome Address

Dr. Harish Pathak Organizing Chairman



Presidential Address

Dr. S. Balagopal President, IAFO



Secretary's Report

Dr. Ashith Acharya Hon. Secretary, IAFO









Padmashri Prof. (Dr.) Mahesh Verma

Vice Chancellor, GGSIP University



Dr. Asha Shrivastava

Director. CBI CFSL, New Delhi



Dr. Akhter Husain

Dean Yenepoya Dental College Manglore







Dr. Selina Leow Deputy Chairperson, Forensic Odontology sub-working Group, INTERPOL DVI Committee



Dr. Emilio Nuzzolese

Director, Human Identification Lab., Prof. in Legal Medicine, University of Turin Italy



Dr. Sangeeta Talwar

Dean. Maulana Azad Inst. Dental Science



Dr. Omkar Shetty

Dean, DY Patil School of Dentistry Navi Mumbai

iafo2021mumbai@gmail.com

\$ | +91 8879066856

 \bowtie



Introduction & Welcome of Chief Guest

Dr. T. Samraj Founder President, IAFO



Chief Guest Address

Dr. S. K. Jain

Director & Chief Forensic Scientist Govt. of India



Vote of Thanks

Dr. Hemlata Pandey Organizing Secretary







Keynote Speakers



🖂 📘 iafo2021mumbai@gmail.com

Speakers Profile

Ricardo Henrique Alves da Silva, BRAZIL

Ricardo Henrique Alves da Silva finished his dental studies (DDS) at USP – Bauru Dental School. He completed his Master at USP – Bauru Dental School in 2005 and his PhD at USP – São Paulo Dental School in 2007, both related to Forensic Odontology. Since 2003, he has been working in different fields in Forensic Odontology about teaching, dental malpractice litigants expert witness, human identification cases and professional guidance related to



legal and ethical aspects in Dentistry. He is the Professor in charge of Forensic Odontology at USP – School of Dentistry of Ribeirão Preto since 2008 and has been teaching at the undergraduate and graduate (MSc and PhD) programs, including the coordination of the Forensic Odontology Specialization Program, as well as performs forensic odontological expertise. His primary research topics are human identification, forensic anthropology, dental age estimation and lawsuits in Dentistry (professional liability). He has actively participated in numerous Brazilian and international conferences, and he has published several scientific papers, books, and book chapters. Among other activities related to Forensic Odontology, he is the Editor-in-Chief of the Brazilian Journal of Forensic Odontology, Brazilian Representative in the Forensic Odontology INTERPOL DVI Working Group, Past President of the Brazilian Association of Forensic Odontology (2012-2014), and Secretary of IOFOS - International Organization for Forensic Odonto-Stomatology.

Ma Teresa G. de Guzman, PHILIPPINES

Ma Teresa G. de Guzman is currently serving as Associate Dean for Planning and Development at College of Arts and Sciences, University of the Philippines, Manila. She is also working as a consultant in cultural anthropologist at Lichel Technologies. She served as Department Chairperson at Behavioral Sciences, College of Arts and Sciences, University of the Philippines, Manila. She had enormous working experience as an Associate professor, instructor,



and Senior lecturer. She has completed her Doctorate in Anthropology from College of Social Science and Philosophy, University of the Philippines, Diliman, Quezon City. She has a membership of professional associations as PI Gamma Mu International Honor Society, Philippine Alpha Chapter and Beta Chapter, Center for Social Science Research Inc (CASSRDi), and Philippine Anthropological Association (Ugnayan ng Agham Pantao UGAT). She has conducted and was involved in various training to better society and develop student growth. She has overall experience working in different countries like the Philippines, Thailand, Myanmar, and Indonesia. She has completed various work under her name that represents best illustrates her capability to handle any task assigned.









Salem Altalie, ABU DHABI

Salem Altalie received a BA, UHS, DDS, MSc, FACLM in Forensic Odontology and Legal Medicine from West Virginia University and the Catholic University of Leuven. He is currently investigating medico-legal cases at the Medical Examiner's Office of Abu Dhabi Police GHQ. His professional interests focus on evidence-based, legal and healthcare excellence, and biostatistics and data mining. His current projects include improving forensic and medical



science, utilizing innovative non-invasive technology, and adopting best practices improvements. He is the founder of Dental iD to enhance the quality of the legal medicine system-Age Assessment-to optimize value and improve outcomes through quality review, KPI, and process improvement. Also, he serves as a consultant and assistant Professor at Rabdan Academy. He is a fellow of Australasian College of Legal Medicine and a member of the Editorial Board, International Organization of Forensic Odonto-Stomatology Journal. He patented a provisional medical instrument at the US patent office called Vacuumirror. He published scientific research papers in peer-reviewed journals. He was recently honoured with the Abu Dhabi Excellence Award in Government Performance for his contributions to specialization.

Dr. Roland Kouble, UNITED KINGDOM

Dr. Roland Kouble PhD BDS MFDSRCS MFGDP(UK) PG Dip (Endodontology) MFFLM President of the British Association for Forensic Odontology. He is currently a partner in a general dental practice in Sheffield, providing both general treatment and endodontic referrals after completing a Postgraduate Diploma in Endodontology. He has also worked in Jersey providing endodontic treatment and SimplyEndo in Altrincham, Cheshire providing



endodontic treatment in their referral & training centre. He also undertakes referrals for Endodontics in Leeds. His PhD focused on bite mark analysis, specifically looking at dental characteristics, their measurement and frequency in the population. His forensic work involves bite mark casework involving human and dog bite injuries (approximately 100 cases per year) and identifications for Prosecution, Defence and the Family Courts locally and further afield. I have lectured on forensic odontology nationally and internationally and provided forensic Odontology lectures at the University of Sheffield. He has served on the BAFO committee since 2007 and currently is acting as President of BAFO for 2020 to 2022. I am also a Member of the Forensic and Legal Medicine (Royal College of Physicians, London).









Dr. Elif Eskikoy, ICRC INDIA

Dr. Elif Eskikoy got her Postgraduate degree in dentistry from Marmara University and PhD in Forensic Sciences from Istanbul University in Turkey. She has over 20 years of experience in forensic identification and emergency and mass fatality response management. Before joining the ICRC in December 2017, she was an Adjunct Professor at Western University and McMaster University in Ontario, Canada. She was a Regional Forensic Coordinator for the



ICRC in Manila in 2018, covering the Philippines, Malaysia, Indonesia, Timor Leste, Fiji, Papua New Guinea and the Pacific Islands. She was the Coordinator for ICRC's forensic programs in Nigeria from February 2019 to February 2020. Currently, she oversees the forensic programs and activities of the ICRC Delhi Regional Delegation covering India, Nepal, Bhutan and the Maldives. She acts as Head of the International Centre for Humanitarian Forensics at the National Forensic Science University for the ICRC.

Dr. Sudheer B. Balla, INDIA

Dr. Sudheer B. Balla is currently serving as a Assistant Professor and Head of Department of Forensic Odontology in Panineeya Institute of Dental Sciences and Research Centre, Hyderabad. He has acquired his masters' degree in forensic odontology (MFOdont) from the University of Dundee, Scotland, United Kingdom. He teaches forensic odontology to undergraduate students and guides postgraduate students with their research work and MDS



thesis in forensics. He provides expert opinions for the cases referred to the department from police and the Forensic medicine & toxicology department of Osmania Medical College & Hospital, Hyderabad. He has delivered more than six guest lectures in various CDE programs and forensic seminars. He also conducted hands-on programmes on dental identification and age estimation for postgraduates of various dental institutions. He is carrying out research work constantly and has published articles both in national and international journals. Few research studies are going on in collaboration with the Department of Forensic Medicine, Osmania Medical College.









└ | +91 8879066856
 ☑ | iafo2021mumbai@gmail.com

Dr. Eddy De Valck, BELGIUM

Dr. Eddy De Valck has been a Forensic Odontologist since 1979 and has participated in 20 major disasters since 1987 (train- plane – boat disasters, Tsunami 2004 Phuket, 2014 MH 17, 2016 Brussels Terrorist attacks). He is a Lecturer/ Examinator at the Academy of Forensic Medical Sciences, London, UK, and manages the Odontology section of DVI Federal Police Belgium as Chief Forensic Odontologist. He has given various lectures on DVI management for



Georgetown University's International Executive Emergency and Disaster Management Program in Paris (USA), on "Forensic Odontology and Human Identification" for DVI in Specialization Course at University di Torino (Italy). He has delivered his talk as a keynote speaker on forensic odontology at different international congresses in Asia, Europe, the USA, and Africa. He worked as a trainer in various DVI management programs (Malta Police, South Africa Police, Cameroun Police, Interpol). He appeared as a Court expert for civil and penal courts on litigation cases and dental damage evaluation. Dr. Eddy De Valck was an Editor (from 1993 to 1996) as well as President (from 1999 to 2002) of IOFOS (International Association Forensic Odonto-Stomatology). He was a Founding Member and President of the Flemish Association of Dental Experts. He is a published author and co-author of several textbooks concerning forensic odontology and legal medicine in French, English, and Dutch. Also, he has given different articles in various national and international scientific journals and magazines. He is even a reviewer for international scientific journals.

Dr. Douglas R Sheasby, UNITED KINGDOM

Dr. Douglas R Sheasby BDS DDS MFFLM is Honorary Clinical Senior Lecturer in Forensic Odontology at the University of Glasgow, United Kingdom. He has published researches on the forensic aspects of posture distortion in female breasts. He is the author of various reputed forensic textbooks published in India, the UK, and Switzerland. He is an External Examiner for the University of Glamorgan, University of Dundee. He serves as Adviser for the Royal



College of Pediatrics and Child Health and National Crime Agency Expert Advisers Database Crown and Defense expert witness. He is the Reviewer for International forensic journals. He was the Past President and Academic Adviser for The British Association for Forensic Odontology.







Dr. Cristiana Palmela, PORTUGAL

Dr. Cristiana Palmela Pereira received her DDS degree in Dental Medicine from Dental Faculty, Lisbon University in 2000, and M.Sc. and a PhD degree in Legal Medicine and Forensic Sciences from Medical Faculty, Lisbon University, Portugal, in 2005 and 2010, respectively. She is an Assistant Professor at the Dental Faculty, University of Lisbon. During this period, she worked as a Forensic Advisor (Forensic Consultant of Forensic Dentistry) at the



Portuguese Institute of Legal Medicine and Forensic Sciences, South Branch in Lisbon. She has been a Principal Investigator of the research group FORENSEMED from the research unit UICOB since 2019. She is Integrate Researcher in Investigation Center CEAUL, Forensic Analysis Group. She is a Forensic Odontologist of the DVI (Disaster Victim Identification) Portuguese Team. She has published national and international peer-reviewed papers, several national and international book chapters, and a textbook in Forensic Dentistry. She is a co-author of the manual proceedings of criminal investigation from the Portuguese Judicial Police. She has been invited as an editorial board member of several journals. She has been invited as an Ad Hoc Review of several other journals, such as the Journal of Comparative Human Biology, International Journal of Clinical Pathology and Forensic Medicine, and the International Association for Palaeontology Bulletin. She was awarded national and international awards, such as the IOFOS highest award, the Ferdinand STRÖM. Her research relates primarily to forensic dentistry in the main fields of forensic pathology (human identification and identifying other variables related to the circumstances of death) and clinical forensic medicine (bite marks and age estimation). She has received several national and international research grants as well.











Workshop: 25th September 2021, 12:00PM to 3:00PM

WORKSHOP ON DVI & UMPI

DISASTER VICTIM IDENTIFICATION AND UNIDENTIFIED MISSING PERSONS IDENTIFICATION, WITH INTRODUCTION TO INTERPOL DVI GUIDELINES



Dr. Evi Untoro

Forensic Pathologist (MD), Sp.FM, HoD Forensic MedicoLegal & Sciences, Fac of Med. TRISAKTI Univ. Jakarta. INDONESIA



Dr. Emilio Nuzzolese

(DDS, MSc, LLB, PhD), Forensic Odontologist, Professor in Legal Medicine, University of Turin (Italy) Head of Human Identification Laboratory, Medico-legal Institute of Turin



Dr. Ranjeet Singh

(MSc, PhD), Fingerprint Expert, Founder & Managing Director of SIFS India Private limited









🖂 📔 iafo2021mumbai@gmail.com

Workshop

Esteemed Chairpersons

- Prof. (Dr.) Raji Viola Solomon, Professor, Department of Conservative Dentistry and Endodontics, Panineeya Institute of Dental Sciences and Research Centre, Hyderabad
- Dr. Ashith Acharya, Professor and Head, Department of Forensic Odontology, SDM College of Dental Sciences and Hospital, Dharwad
- Dr. Sudeendra Prabhu, Professor, Department of Oral Pathology, Yeneyopa Dental College, Mangalore
- Dr. Manisha Khorate, Professor and Head, Department of Oral Medicine & Radiology, Goa Dental College and Hospital, Goa
- Prof. (Dr.) A Ravi Prakash, Professor and Head, Oral & Maxillofacial Pathology, G. Pulla Reddy Dental College, Kurnool, Andhra Pradesh
- Prof. (Dr.) Pradhuman Verma, Chairman and Professor, Department of Oral Pathology/Oral Medicine & Radiology, Dr. Ziauddin Ahmad Dental College and Hospital, Aligarh Muslim University, Aligarh
- Dr. Mohan Kumar K P, Professor, Department of Oral Pathology & Microbiology, College of Dental Sciences, Karnataka
- Dr. Preeti P Nair, Professor and Head, Dept. of Oral Medicine and Radiology, People's College of Dental Sciences, Bhopal







Esteemed Jury Members

- Dr. Prasanna Kumar Rao, Professor, Oral Medicine and Radiology, A.
 J. Institute of Dental Sciences, Mangalore
- Dr. A. Vikram Simha Reddy, Professor, Oral Pathology, G.Pulla Reddy Dental College, Kurnool, Andhra Pradesh
- Dr. Pankaj M Shirsat, Associate Professor, Oral Pathology & Microbiology, Nair Hospital Dental College, Mumbai
- Dr. Andamuthu Sivakumar Arthanarieswaran, Head of the Department, Conservative Dentistry and Endodontics, Vivekananda Dental College for Women, Tamil Nadu
- Dr. Prashanth Vishwakarma, Professor, Department of Public Health Dentistry, ACPM Dental College, Dhule
- Dr. Maya Ramesh, Professor and Head, Oral Pathology, Vinayaka Missions Sankarachariyar Dental College, Tamil Nadu
- Dr. Manpreet Arora, Professor, Oral Pathology & Microbiology, SGT
 Dental College, Gurugram
- Dr. Reet Kamal, Professor, Oral Pathology, H. P. Govt. Dental College, Shimla
- Dr. Shashank Tyagi, Assistant Professor, Forensic Medicine, Lady Hardinge Medical College & Associate Hospitals, New Delhi
- Dr. Anup Bose, Forensic Odontologist, Pvt Dental Practitioner & Freelance Forensic Odontologist









- Dr. Raghvendra Singh Shekhawat, Associate Professor, Forensic Medicine and Toxicology, All India Institute of Medical Sciences, Jodhpur
- Dr. Sivapathasundharam B, Managing Director, Oral pathology, Chief Editor, JFDS
- > Dr. Anil Singh, Professor, Oral Pathology, Private Practitioner
- Dr. G. Ashalata, Professor, Oral and Maxillofacial Pathology, Panineeya Institute of Dental Sciences
- Dr. Karpagavalli Shanmugasundaram, Professor & HOD, Oral Medicine and Radiology, Seema Dental College and Hospital, Rishikesh
- Dr. Smitha K, Associate Professor, Centre for Forensic Odontology, Yenepoya Dental College, Mangalore
- Dr. Rashmi Metgud, Professor and HOD, Oral Pathology, Pacific Dental College and Hospital, Rajasthan
- Dr. Deshpande Ashwini Suresh, Professor and HOD, Oral Medicine and Radiology, GSL Dental College, Andhra Pradesh
- Dr. Amit Byatnal, Professor and HOD, Department of Dentistry, Zydus
 Medical College and Hospital, Dahod Gujarat
- Dr. Arun Dodamani, Professor, HOD, Department of Public Health Dentistry, ACPM Dental College, Dhule
- Dr. Basavaraj T Bhagawati, Professor and HOD, Oral Medicine and Radiology, Surendera Dental College and Research Institute Sriganganagar, Rajasthan







- Dr. Raju Biswas, Professional, Pediatric Dentistry, Dr R Ahmed Dental
 College and Hospital, West Bengal
- Dr. Ravikanth Manyam, Professor and HOD, Oral & Maxillofacial Pathology, Vishnu Dental College, Andhra Pradesh
- Dr. Manoj Bhausaheb Parchake, Associate Professor, Forensic Medicine, Seth GS Medical College & KEM Hospital, Mumbai
- Dr. Pankaj Suresh Ghormade, Associate Professor, Forensic Medicine and Toxicology, All India Institute of Medical Sciences, Raipur
- Dr. Rachana Prabhu, Professor, Oral Medicine & Radiology, Yenepoya
 Dental College, Mangalore
- Dr. Shruti Nayak, Associate Professor, Centre for Forensic Odontology, Yenepoya Dental College, Mangalore
- Dr. Balwinder Singh, Associate Professor, Oral Medicine Diagnosis and Radiology, SGRD Institute Of Dental Sciences & Research, Amritsar
- Dr. V Anand, Professor & HOD, Oral Medicine & Radiology, Meenakshi Medical College Hospital & Research Institute, Tamil Nadu
- Dr. Maria Priscilla David, HOD, Oral Medicine and Radiology, Mathushri Ramabai Ambedkar Dental College and Hospital, Karnataka
- Dr. Jayasankar P. Pillai, Lecturer, Forensic Odontology, Government Dental College and Hospital, Ahmedabad
- Dr. Madhusudan Astekar, HOD, Oral Pathology, Institute of Dental Sciences, Bareilly







♥ | +91 8879066856
 ☑ | iafo2021mumbai@gmail.com

- Dr. Syed Mohammed Miqdad, Associate Professor, Centre for Forensic Odontology, Yenepoya Dental College, Mangalore
- Dr. Shalini Gupta, Professor, Oral Pathology, Forensic Odontology,
 King George Medical University, Lucknow
- Dr. Dinkar Desai, Professor and HOD, Oral pathology & Microbiology,
 - A. J. Institute of Dental Sciences, Mangalore
- Prof. (Dr.) Sunira Chandra, Professor and Head, Oral Medicine and Radiology, Saraswati Dental College, Lucknow
- Dr. Shivani Bansal, Associate Professor, Oral Pathology and Microbiology, Nair Hospital Dental College, Mumbai
- Dr. Jigna Pathak, Professor, Oral and Maxillofacial Pathology, MGM
 Dental College and Hospital, Mumbai
- Prof. (Dr.) Kunal Sah, Professor and Head, Oral & Maxillofacial Pathology and Oral Microbiology, Saraswati Dental College, Lucknow
- Dr. Sivakumar Gopalakrishnan, Professor & Head, Oral Pathology, Madha Dental College, Chennai
- Dr. Amit Aggarwal, Professor and Head, Oral Medicine and Radiology,
 M.M. College of Dental Sciences and Research, Mullana
- Dr. Sangeeta Malik, Professor, Oral Medicine and Radiology, Subharti Dental College, Meerut
- Dr. Ramakant Gupta, Private Practitioner, Oral Pathology, Dr. Jatinder Gupta's Gupta Cinic and Opticals, Faridabad
- Dr. Deepti Adappa N, Centre for Forensic Odontology, Yenepoya Dental College, Mangalore







▶ | +91 8879066856
 ⋈ | iafo2021mumbai@gmail.com

- Dr. Umme Amarah, Centre for Forensic Odontology, Yenepoya Dental College, Mangalore
- Dr. Abhijeet Hosmani, Medical Officer, Forensic Medicine, HBT Cooper Hospital, Mumbai
- Dr. Abhishek Khare, Professor and HOD, Department of Oral Pathology, Career Dental College, Lucknow
- Dr. Jagadish Rajguru, Professor, Oral & Maxillofacial Pathology, Hitech Dental College & Hospital, Odisha
- Dr. Vikas Meshram, Associate Professor, Forensic Medicine, All India Institute of Medical Sciences, Jodhpur
- Dr. Sonalee J Shah, Professor and HOD, Oral Pathology, Government Dental College, Raipur
- Dr. Harshvardhan Khartade, Associate Professor and Head, Department of Forensic Medicine, Shyam Shah Medical College, Rewa, Madhya Pradesh
- Dr. Deepak T A, Professor and HOD, Department of Oral Medicine and Radiology, VS Dental College and Hospital, Bangalore
- Dr. Jeyaseelan Augustine, Associate Professor, Oral Pathology and Forensic Odontology, Maulana Azad Institute of Dental Sciences, New Delhi
- Dr. S Aravind Warrier, Professor and Head, Oral Medicine and Radiology, Sri Ramachandra Dental College, Chennai







Chief Patron	Dr. Mahesh Verma, Dr. Hemant Deshmukh, Dr. Neelam Andrade	
Organizing Chairman	Dr. Harish Pathak	
Organizing Co-Chairperson	Dr. Rajiv Desai, Dr. Nanda Pai	
Organizing Secretary	Dr. Hemlata Pandey	
Joint Organizing Secretary	Dr. Shivani Bansal, Dr. Ranjeet Singh	
Treasurer	Dr. Manoj B. Parchake	
Scientific Committee	Dr. Raji Solomon, Dr. Marin Vodanovic, Dr. Girish Tasgaonkar, Dr. Jayasankar Pillai, Dr. Pradhuman Verma, Dr. Manisha Khorate Dr. Mohan Kumar K P, Dr. Ramakant Gupta, Dr. Ravi Prakash, Dr. Jeyaseelan Augustine, Dr. Preeti Nair	7
Advisors	Dr. S.C. Mohite, Dr. R.C. Dere, Dr. R. B. Sukhadeve, Dr. S. M. Patil, Dr. R. B. Deokar, Dr. Pawan Sabale, Dr. Sachin Patil	
Registration Committee	Dr. Mayura Chande Mahajan, Dr. Swati Kumareswa	r
Co-Ordinators	Kratika Mishra, Arti Varshney	

E Souvenir Committee Dr. Deepashree Sawkar, Dr. Anoli Agrawal

Dr. Lokapriya Manickam







▶ +91 8879066856
 ▶ iafo2021mumbai@gmail.com

Founder President Dr. J.G. Kannappan

President & Founder Secretary Dr. S. BalaGopal

President-Elect

Dr. K. Nagesh

Immed. Past President Dr. Theogaraj Samraj

Vice Presidents

Dr. Raji Viola Solomon & Dr. Anil Singh

Honorary Secretary

Dr. Ashith B. Acharya

Joint Secretary

Dr. JayaSankar P. Pillai

Editor of the Journal of Forensic Dental Sciences

Dr. Sivapathasundharam B

Treasurer

Dr. Sudeendra Prabhu









WINNERS

Paper Faculty

FIRST POSITION

> IAFO/2021/400

Dr. Gopaldas Madhulatha: Rare Presence to Identify Common

► IAFO/2021/120

Dr. Rachana Prabhu: Applicability of Cameriere's Italian Model and Indian Specific Model in Dental Age Estimation - A Pilot Study

> IAFO/2021/447

Dr. Deepti Adappa: Gender Determination by Using a Simple Formulae and Measurements of 2 Mandibular Landmarks in Radiographic Imaging in the Indian Population

> IAFO/2021/493

Dr. Suhasini. GP: Age Estimation in Western Uttar Pradesh Population Based On the Atlas of Dental Development

> IAFO/2021/066

Dr. Shoborose Tantray: DNA Extraction and Sex Determination from Teeth by Subjecting It to Various Chemical Solutions: A Guide In Forensic Identification

> IAFO/2021/231

Prof. (Dr.) Pradhuman Verma: Sexual Dimorphism Using Maxillary Sinus Morphometrical Analysis And Bizygomatic Width: A Cone Beam Computed Tomographic Study

SECOND POSITION

> IAFO/2021/487

Dr. Rachna Rath: Sexual Dimorphism of Inferior Alveolar Canal Location in an Eastern Indian Population- A Cone Beam Computed Tomography Study

➢ IAFO/2021/259

Dr. Eenal Bhambri: Palatal Rugae- Reliable or Debatable: An Orthodontist's Perspective

> IAFO/2021/019

Dr. Shruti Gupta: Knowledge, Awareness and Attitude of Dental Professionals Regarding Child Maltreatment

> IAFO/2021/324







└ | +91 8879066856 ⊠ | iafo2021mumbai@gmail.com **Dr. Arathi K**: Barr body In Gender Determination Using Acridine Orange and Pap – A Comparative Study

> IAFO/2021/526

Dr. Tasneem S. Ain: Mandibular Canine as Aid in Gender Determinant: A Study On the Population of Srinagar, Kashmir, India

► IAFO/2021/117

Dr. Srikant N: 3D Geomorphometric Shape Analysis Of Maxillary First Premolar: An Indicator Of Sexual Dimorphism

> IAFO/2021/347

Dr. Deepa Jatti Patil: Determination of Age Based On Radiographic Visibility of Periodontal Ligament and Root Canal in Lower Third Molars on Panoramic Radiograph in Indian Population

> IAFO/2021/418

Dr. K. V. Swathi: Morphometric Analysis of Coronoid Process and Mandibular Angle in Gender Determination- A Retrospective Study

Paper Student

FIRST POSITION

> IAFO/2021/357

Dr. R Keerthika: Comparative Manual and Digital Analysis of Gonial Angle in Lateral Cephalographs for Gender Determination

> IAFO/2021/099

Dr. Himani Grover: Bone Histochemical and Micro architectural Characterization in Species Identification: Hallmark Of Forensic Significance

> IAFO/2021/398

Nikhil Kumar Madari: Diagnostic Criteria for Cutaneous Injuries in Child Abuse

► IAFO/2021/241

Dr. Priyanka Madhavan: Awareness of Forensic Odontology among the Legal Professionals and the Police in Karnataka

- > IAFO/2021/594
 - Dr. Gajanan Devidas Rathod: Bite Mark Evidence in Case of Child Abuse
- ➢ IAFO/2021/234

Mungala Shivani: Testing the Influence of Impaction on Third Molar Development: An Orthopantomographic Study in South Indian Children

> IAFO/2021/168







Dr. Vanguru Ravi Teja: Heritability and Correlation of Lip and Palm Prints among West Godavari Population

> IAFO/2021/173

Dr. Anwesha Saha: Efficacy of Mastoid Morphometry in Sex Determination Using CBCT

> IAFO/2021/360

Dr. Purva Rasane: Age Estimation Using The Crypt To Tooth Ratio: A Novel Technique For Estimating The Age Of Adolescents

> IAFO/2021/136

Dr. Lokapriya M: Challenges in Bite Mark Assessment

> IAFO/2021/218

Dr. Vaidehi G.V.: Facial Reconstruction to Support Criminal Investigation

> IAFO/2021/185

Samreen Fatima: Age Estimation Using The Crypt To Tooth Ratio: A Novel Technique For Estimating The Age Of Adolescents.

> IAFO/2021/103

Satakshi Sharma: Inter Observer and Intra Observer Variations in the Assessment of Stages of Tooth Development with Orthopantomogram

➢ IAFO/2021/435

Dr. Radhika Goyal: Frontal Sinus: An Adjuvant In Identifying Unknown Person-A Review

> IAFO/2021/464

Dr. Priyadarshini S.: Era of Neuronal Intelligence in Forensic Odontology

> IAFO/2021/512

Dr. Anoli Agrawal: Dentistry In Course Of Disaster Victim Identification

SECOND POSITION

> IAFO/2021/489

Dr. N. Alice Josaphine Rani: Morphometric Assessment of Greater Palatine Canal in Age & Gender Determination - A CBCT Retrospective Study

> IAFO/2021/125

Dr. G. Sangeeta: Comparison of Three Different Bite Analysis Methods for Gender Determination - A Pilot Study

> IAFO/2021/180

Rhea Fernandes: Comparative Evaluation of Arch Form Amongst the Indian Population: A Morphological Study







4 | +91 8879066856

🖂 🖡 iafo2021mumbai@gmail.com

> IAFO/2021/216

Dr. Anjali Ravi: Tongue Prints as an Emerging Biometric Tool

> IAFO/2021/174

Dr. Mahana Bhoraskar: Morphometric and Volumetric Evaluation of Maxillary Sinus As An Aid In Gender Determination In Forensic Odontology - A CBCT Study

➢ IAFO/2021/229

Somya Sain: The Application of Multi-Baseline Digital Calliper and ABFO Photo Metric as Qualitative & Quantitative Comparison in Forensic Odontology

> IAFO/2021/461

Dr. Reena Pabri: A Comparative Analysis Of Mandibular Ramus And Mental Foramen In Sex Determination Among The Population Of Rajasthan Using CBCT Technology: An Institutional Study

> IAFO/2021/380

Dr. Meghana Gandham: Tooth Size: Insight For Facial Reconstruction In Forensic Odontology

> IAFO/2021/199

Simran Gupta: Comparative Evaluation of Arch Form Amongst the Nepalese Population: A Morphological Study

► IAFO/2021/484

Dr. R. Preethi: Morphometric Evaluation of Frontal Sinus, Nasal Septum and Intermaxillary Distance in Personal Identification in Forensic

> IAFO/2021/169

Dr. Sreelakshmi R: Use of an Innovative Index for Personal Identification – A Pilot Study

> IAFO/2021/409

Dr. C. Narmadha: Significance & Correlation of Paranasal Sinus Volume with Morphometrics of Foramen Magnum in Age and Gender Determination Using Cone Beam Computed

> IAFO/2021/213

Dr. P. Maitreyi: Prevalence Of Third Molar Agenesis: An Institutional Study

> IAFO/2021/262

Dr. Manpreeth. M: Morphometric Variation of Coronoid, Condyle and Sigmoid Notch of Mandible in Personal Identification in South Indian Population

> IAFO/2021/189

Dr. S. Kavya: Age Estimation in Coastal Karnataka from Extracted Teeth







> IAFO/2021/379

Dr. Soni Solanke: Accuracy Of Gender Prediction In Three Modalities: A Cross Sectional Study

Poster Faculty

FIRST POSITION

> IAFO/2021/033

Dr. Vidya G Doddawad: Sterilization Methods on Extracted Human Teeth - A Comparative Study on Evaluation of Efficacy

SECOND POSITION

> IAFO/2021/163

Dr. Vandana Reddy: Current and Evolving Applications of Artificial Intelligence in Forensic Odontology: A Review

► IAFO/2021/466

Dr. Manisha S. Ahire: Tongue Print as an Authentic Biometric Tool – A Review

Poster Student

FIRST POSITION

> IAFO/2021/303

Dr. Dhanalakshmi: Stuck Out The Tongue To Know Yourself.

> IAFO/2021/325

Dr. Hemangi Jadhav: Artificial Intelligence in Forensic Odontology -The Future in Dentistry

► IAFO/2021/421

Dr. Shashi Bala: Estimation Of Age By Oral Exfoliative Cytology: Newer Perspectives In Forensic

> IAFO/2021/239

Dr. Sudarvizhi T: Impact of Innovative Teaching Methodologies among Dental and Faculties: An Institution Based Study

> IAFO/2021/140

Dr. Dakshayani Vijay Patil: Your Tongue Will Never Lie









🖂 🖡 iafo2021mumbai@gmail.com

SECOND POSITION

> IAFO/2021/397

Dr. Richa Rathore: Importance of Ante-mortem Data in Dental Records in Forensic Odontology: A Review

> IAFO/2021/383

Dr. Pradnay Premnath Satye: Artificial Intelligence In Forensics: Adding Brilliance to Investigation in the Current Scenario

> IAFO/2021/394

Dr. Alice: Pilca Palatine - Ideal Method of Human Identification

> IAFO/2021/281

Dr. Sarah Afaque: Cheiloscopy – A Hidden Cloak for Diabetes Mellitus Type 2









• | +91 8879066856

🖂 📔 iafo2021mumbai@gmail.com











▶ | +91 8879066856
 ⋈ | iafo2021mumbai@gmail.com

Registration No.	Торіс
IAFO/2021/016	Exploring Trends In Forensic Odontology
IAFO/2021/019	Knowledge, Awareness And Attitude Of Dental Professionals Regarding Child Maltreatment
IAFO/2021/024	Challenges Of Age Estimation From The Teeth
IAFO/2021/054	Correlation Between Strature And Odonto-Facial Parameters - A Crossectional, Regression Analysis Study
IAFO/2021/066	DNA Extraction And Sex Determination From Teeth By Subjecting It To Various Chemical Solutions : A Guide In Forensic Identification
IAFO/2021/071	A X-ray vision to Forensic Odontology – Review
IAFO/2021/073	Adsorption Elusion Technique To Determine Blood Group From The Extracted Tooth Tissues - In Vitro Investigation.
IAFO/2021/075	Sex Determination In Kerala Population Using Morphometric Analysis Of Orbital And Mandibular Height: An Institutional Based Study
IAFO/2021/88	Utilization Of 3D Printing – 'State Of The Art Additive Manufacturing Technology' In The Reproduction & Preservation Of Human Bite Mark Evidence - An In Vitro Original Research Study Analysis
IAFO/2021/092	Cheiloscopy: A Diagnostic Tool In Identification Of An Individual
IAFO/2021/110	Eyeonising Through









IAFO/2021/117	3D Geomorphometric Shape Analysis Of Maxillary First Premolar: An Indicator Of Sexual Dimorphism
IAFO/2021/120	Applicability Of Cameriere's Italian Model And Indian Specific Model In Dental Age Estimation – A Pilot Study
IAFO/2021/124	Child Abuse And Neglect: A Forensic Odontological Outlook
IAFO/2021/146	Dentist Role In Post-Mortem Death Interval Assessment – A Systematic Review
IAFO/2021/162	Accuracy Of Chaillet And Demirjian's 8-Teeth Method In Dental Age Estimation Of Central Indian Population Using India Specific Regression Formulae
IAFO/2021/171	Denture Labeling Using Unique Identification Number And Barcode – Call Of The Hour
IAFO/2021/175	Estimation Of Age In Indian Soldiers Using Pulp/Tooth Volume Ratio Of Maxillary Anterior Teeth Obtained From Cone Beam Computed Tomography- A Pilot Study
IAFO/2021/179	Cloud Forensics: The Challenges Ahead
IAFO/2021/182	Study On Correlation Of Lip Print And Finger Print Pattern For Gender Identification
IAFO/2021/221	The Role Of The Forensic Odontologist In Disaster Victim Identification: A Review
IAFO/2021/231	Sexual Dimorphism Using Maxillary Sinus Morphometrical Analysis And Bizygomatic Width: A Cone Beam Computed Tomographic Study









IAFO/2021/254	Morphometric Analysis Of Hard Palate For Evaluation Of Sexual Dimorphism In A Population Of Maharashtrian Ancestry-A Cross-Sectional Study
IAFO/2021/259	Palatal Rugae- Reliable Or Debatable: An Orthodontist's Perspective
IAFO/2021/286	Reliability Of Age Estimation By Measuring Pulp Tooth Area Ratio On Cone-Beam Computed Tomography Images
IAFO/2021/309	Comparative Evaluation Of The Efficacy Of Various Dental Radiological Indices Used For Age Estimation
IAFO/2021/310	The Conundrum Of Association Between Dermatoglyphics And Malocclusion- A Systematic Review
IAFO/2021/313	Decoding The Cementum Annulations
IAFO/2021/318	Gonial Angle, Bigonial Width And Mandibular Ramus Height As A Tool In Age Determination- A Cross Sectional Study
IAFO/2021/324	Barr Body In Gender Determination Using Acridine Orange And Pap – A Comparative Study
IAFO/2021/334	Morphological Variations Of Shape Of Lingula In Dry Mandible-A Study
IAFO/2021/344	Virtopsy – Bidding The Dead A Decent Farewell
IAFO/2021/347	Determination Of Age Based On Radiographic Visibility Of Periodontal Ligament And Root Canal In Lower Third Molars On Panoramic Radiograph In Indian Population
IAFO/2021/400	Rare Presence To Identify Common







IAFO/2021/416	Age Estimation Using Cephalometrics – A Cross Sectional Study Among Teanagers Of Salem District, Tamil Nadu
IAFO/2021/418	Morphometric Analysis Of Coronoid Process And Mandibular Angle In Gender Determination- A Retrospective Study
IAFO/2021/433	A Spearheading Tool As Biometric Authentication - The "Tongue Prints"- A Review
IAFO/2021/445	Forensic Odontology: (A Boon To Medicolegal Cases) : A Review Of Past Cases
IAFO/2021/447	Gender Determination By Using A Simple Formulae And Measurements Of 2 Mandibular Landmarks In Radiographic Imaging In The Indian Population
IAFO/2021/474	Odontometric Aproach To Stature Estimation In Children
IAFO/2021/486	Application Of Integrated Rugoscopy Chart For Gender Determination: A Pilot Study
IAFO/2021/487	Sexual Dimorphism of Inferior Alveolar Canal location in an Eastern Indian population- A Cone Beam Computed Tomography Study
IAFO/2021/493	Age Estimation In Western Uttar Pradesh Population Based On The Atlas Of Dental Development
IAFO/2021/495	Facial Reconstruction – Art Of Re-Creation Of The Silent Witness
IAFO/2021/526	Mandibular Canine As Aid In Gender Determinant: A Study On The Population Of Srinagar, Kashmir, India









IAFO/2021/551	Comparative Evaluation Of The Accuracy Of Radiographic And Histologic Age Estimation Methods In Adult Indians
IAFO/2021/614	Is Your Dental Clinic Prepared To Solve A Case?









Registration No. - IAFO/2021/016

EXPLORING TRENDS IN FORENSIC ODONTOLOGY

Dr. Owais Gowhar¹

¹Senior Resident, Department of Oral Pathology and Microbiology, Government Dental College & Hospital, Srinagar, Jammu & Kashmir

Abstract

Forensic odontology nowadays has become a developing science and is of great importance to society. It is important that dental practitioners should have a proper knowledge of forensics as the need has increased greatly over the last decades due to the unprecedented demand from the criminal justice. Data was collected based on questionnaire survey among qualified dental practitioners related to their awareness of forensic odontology. Results showed that there was not much confidence, in handling of forensic odontology related cases among dental practitioners and majority of dental practitioners were not having any formal training in forensic odontology. Each dental practitioner has a responsibility to understand the forensic implications associated with the practice of his profession and thus he should work sincerely enough so as to ensure his contribution in the field of forensic odontology.

Keywords: Bite marks, Child abuse, Dental practitioners, Mass disaster.









└ | +91 8879066856
 ⊠ | iafo2021mumbai@gmail.com

Registration No. - IAFO/2021/019

KNOWLEDGE, AWARENESS AND ATTITUDE OF DENTAL PROFESSIONALS REGARDING CHILD MALTREATMENT

Dr. Shruti Gupta¹, Dr. Anju Devi², Dr. Anita Hooda³

¹Assistant Professor, Department of Oral Anatomy, Post Graduate Institute of Dental Sciences, Rohtak, Haryana

²Associate Professor, Department of Oral Pathology, Post Graduate Institute of Dental Sciences, Rohtak, Haryana.

³Senior Professor, Department of Oral Anatomy, Post Graduate Institute of Dental Sciences, Rohtak, Haryana

Abstract

Child maltreatment is global public health predicament that can likely affect life of the victims devoid of proper treatment. Children may be exposed to various types of maltreatments that can manifest in the oral cavity and thus, indicating that dental professionals could play an important role in identification, documentation and reporting about child maltreatment to appropriate authorities. The aim of this paper is to assess the level of knowledge, awareness and attitude among dental professional regarding child maltreatment and to identify the barriers that prevent reporting of the same. The present cross-sectional questionnaire-based study was conducted on dental professionals practicing in India. The self-structured questionnaire to assess the knowledge, awareness and attitude of dental professionals regarding child maltreatment was sent through e-mail. 422 dental professionals participated in the survey of which 270 were females. A significant difference was observed in mean knowledge score (p=0.015), awareness score (p=0.014) of participants with regard to place of work and mean knowledge score (p=0.024) of participants with regard to educational qualification. 300 participants reported that lack of adequate knowledge and awareness about the role of dental professionals regarding child maltreatment is one of the major barriers that prevent reporting about child maltreatment. Findings of the study showed that 43.8% of participants have good knowledge and 44.8% are fairly aware regarding child maltreatment. 86.7% of participants showed very good attitude towards learning more about role of dental professionals on the subject of child maltreatment.

Keywords: Child maltreatment, Dentistry, Questionnaire, Dental Awareness.









└ | +91 8879066856
 ⊠ | iafo2021mumbai@gmail.com

Registration No. - IAFO/2021/024

CHALLENGES OF AGE ESTIMATION FROM THE TEETH

Dr. Anup Bose¹

¹Private Dental Practitioner, Freelance Forensic Odontologist

Abstract

Owing to different unique characteristic features, the teeth are often used to estimate the age of a person alive or dead. Different methods are chosen as per requirement and availability of the resources. Some widely used methods are in use for a number of decades while few are relatively newer. There are some circumstantial hurdles encountered during the age estimation process. A few well practiced methods of age estimation from human teeth have some inherent limitations as well. A few methods lack proper explanation of some doubts in its original publication. Selection of right method for the concerned case, availability of population specific formulas and a few other practical considerations can influence the outcome in a great deal. The presentation will share some critical insights on the different grey areas of the age estimation from the teeth.

Keywords: Age Estimation, Forensic Odontology, Human Teeth, Dentistry.









└ | +91 8879066856
 ⊠ | iafo2021mumbai@gmail.com
CORRELATION BETWEEN STRATURE AND ODONTO-FACIAL PARAMETERS -A CROSSECTIONAL, REGRESSION ANALYSIS STUDY

Dr. Harsha. M¹

¹Senior Lecturer, Department of Oral Pathology, Lenora Institute of Dental Sciences, Rajahnagaram, Andhra Pradesh

Abstract

Stature, the height of a person in the upright posture, needs to be estimated as a preliminary investigation while identifying unknown skeletal remains. For establishing identity, stature is an important parameter in medicolegal and forensic examination. Craniofacial & odontometrics parameters have been vital in estimating the height of an individual. With this background relationship between height & cephalo-facialodontometric parameters is being evaluated in the present study. To investigate, possibility of stature estimation of an individual using cephalo-facial and odontometry measurements in forensic investigations. The study consists of 100 individuals, above 20 years of age. Height & cephalo-facial parameters are measured using standard protocol. For odontometric analysis master cast of an individual made and analysis made using digital Vernier caliper. The data analyzed using regression analysis. On combined assessment for correlation of parameters height maximum cranial length (p=0.0001) was found to be the most significant independent parameter in correlation. As observed none of the dental parameters (p & gt; 0.05) were found to have significant correlation with height. Independent parameters of facial measurement and skull measurement of population were found to be significantly related with Height on initial assessment by ANOVA, further analysis of coefficients in linear logistic regression revealed maximum cranial length (p=0.007) interzygomatic width (p=0.023) are significant parameters among all parameters. Maximum cranial length the most significant and reliable parameter in estimating height irrespective of the population. Cranial parameters can evolve as indispensable tool in person identification.

Keywords: Odontometric Analysis, Stature, Odontometric Parameters, Dental Measurements.









DNA EXTRACTION AND SEX DETERMINATION FROM TEETH BY SUBJECTING IT TO VARIOUS CHEMICAL SOLUTIONS: A GUIDE IN FORENSIC IDENTIFICATION

Dr. Shoborose Tantray¹, Dr. Keerti Chauhan²

¹Senior Lecturer Oral and Maxillofacial Pathology and Microbiology Santosh Dental College, Ghaziabad, Uttar Pradesh

²Senior Lecturer, Oral and Maxillofacial Pathology and Microbiology ITS Dental College, Ghaziabad, Uttar Pradesh

Abstract

Forensic science relies mainly on three scientific pathways for human identification. Fingerprints, Teeth and DNA analysis (Senn & Weems, 2013). Dental DNA analysis is not only a quick and low cost procedure, but it also has the advantage of relying on the integrity of the teeth which are the most indestructible part of the human body. Over the last decade, this approach has become the gold standard for human identification. DNA extraction is an integral part of DNA analysis. Testing the collection of DNA from the human teeth in adverse conditions could contribute significantly to the field of forensic genetics. The aim of this study is to evaluate the extraction of dental DNA exposed to different chemical solutions. The experimental study was performed with a sample of 15 subjects who underwent tooth extraction. The extracted teeth were used to extract the dental DNA. Samples of oral mucosal cells from these subjects were taken as controls. The samples were divided into 3 groups which were exposed to different chemical solutions namely Nitric acid 25%, Acetic acid 25% and Formaldehyde 33%. Dental DNA was extracted and amplified by PCR and sequenced through capillary electrophoresis. From our study we could observe that there was degradation of DNA tooth which were immersed in 25% Nitric acid, thus the identification, amplification and sex determination was not possible. The teeth that were immersed in formaldehyde & acetic acid were having intact DNA, which we were able to isolate, amplify and we could determine the sex in all the samples. Sex determination of teeth by means of PCR is considered to be extremely useful for identification of markedly decayed or skeletonized bodies. Thereby as a forensic expert one has to be aware of different methods of post mortem alterations & their effect on DNA isolation and sex determination.

Keywords: Dental DNA, Sex Determination, Human Identification, DNA Analysis.











A X-RAY VISION TO FORENSIC ODONTOLOGY – REVIEW

Dr. Sowmya J Rao¹, Dr Jagadish Rao P P², Dr. Ravichandra Udupa³

¹Reader, Sharavathi Dental College and Hospital, Shimogga,

²Associate Professor, Department of Forensic Medicine and Toxicology, Kasturba Medical College, Mangalore, Manipal Academy of Higher Education, Manipal

³Senior Lecturer, Srinivas Institute of Dental Sciences, Mangalore

Abstract

Confirming the identity of deceased is important for emotional, humanitarian aspects as well as for legal requirements. (Pretty & Sweet) When corpse is badly mutilated or when only skeletal remains are recovered, forensic odontology team plays a pivotal role in identification. (KL Girish) Forensic radiology offers a great tool while collecting good quality dental evidences. Radiological evidences are of paramount importance in both comparative dental identification as well as for dental profiling. (Thali J Michel) It plays role in determination of age, gender, stature, dental status, and ethnicity of an individual. (Antonietta Maria). This paper on Forensic radiology reviews uses of radiology in forensic dentistry, its advantages, limitations, difficulties encountered while collecting the evidences and the methods learned to overcome those difficulties so that precise, informative radiographic evidence is made possible.

Keywords: Forensic Radiology, Forensic Odontology, Comparative Dental Identification, Dental Profiling.









ADSORPTION ELUSION TECHNIQUE TO DETERMINE BLOOD GROUP FROM THE EXTRACTED TOOTH TISSUES - IN VITRO INVESTIGATION

Dr. Sunitha. S¹

¹Associate Professor, Department of Public Health Dentistry JSS Dental College and Hospital, JSS Academy of Higher Education and Research

Abstract

The routine method of investigating the blood group of an individual is by drawing of fresh blood from a live person and subjecting it to agglutination test using anti ABO antigens. But in certain situations, where the victim's body has been totally mutilated or decomposed, such as in cases of disasters and crimes, it becomes difficult. Blood grouping on teeth is not a straight forward technique, the concentration of blood group antigens is low and there is always a risk of bacterial contamination. In such a case, a method called adsorption- elusion technique is being used. To determine blood groups on dental tissues using Adsorption-Elution technique. Comparison with blood group of blood stained compress of the respective patient. In-vitro experimental study design using adsorption elusion technique. In the teeth, the presence of blood group antigens is based on infusion sedimentation theory i.e., infusion of water soluble antigens from saliva and blood vessels invading the pulp could be the agents. In our study, we found that the pulp tissue was accurate in the interpretation of A B O blood group, but limited for the hard tissues of the tooth. Blood grouping using tooth material especially pulp can be of a great help in crime detection. This technique can be the source of information in forensic odontological practice.

Keywords: Adsorption-Elution Technique, Blood Grouping, Forensic Odontology, Tooth.









SEX DETERMINATION IN KERALA POPULATION USING MORPHOMETRIC ANALYSIS OF ORBITAL AND MANDIBULAR HEIGHT: AN INSTITUTIONAL BASED STUDY

Dr. Pallavi Sabarad¹, Dr. Sudeendra Prabhu²

¹Assistant Professor, Dept. of Oral Pathology & Microbiology, Yenepoya dental college, Yenepoya deemed to be university, Deralakatte, Mangalore, Karnataka

²Professor & In charge head, Centre for Forensic Odontology, Dept. of Oral Pathology & Microbiology, Yenepoya dental college, Yenepoya deemed to be university, Deralakatte, Mangalore, Karnataka

Abstract

Sex determination of unknown human skeletal remains is one of the identifying method used in forensic odontology. It can be assessed using data from morphology of skull and mandible, also other methods are used like tooth measurements and DNA analyses from teeth. Sex determination is done to know biological profile of the human body. The present study is done to determine gender of an individual using lateral cephalogram having 100 sample size (50 males & 50 females) in which orbital and mandibular height will be measured. The aim of the present study is to determine height of the orbit and mandible in both males & females, also to compare height of the orbit and mandible in male and female sex. The present retrospective study is done using lateral cephalograms in which measurement of orbital height (right, left) is made from supra orbital margin to infra orbital margin, height of mandible is measured from condylar process to angle of the mandible using GIMPS software. Markings are made on radiographs using markers available in the software. Though the mandibular height & orbital height play a significant role in classifying gender (when these parameters considered together), they fail to discriminate among males & females, when considered independently.

Keywords: Sex Determination, Morphometric Analysis, Mandibular Height, Odontology.









UTILIZATION OF 3D PRINTING – 'STATE OF THE ART ADDITIVE MANUFACTURING TECHNOLOGY' IN THE REPRODUCTION & PRESERVATION OF HUMAN BITE MARK EVIDENCE - AN IN VITRO ORIGINAL RESEARCH STUDY ANALYSIS

Dr. Raji Viola Solomon¹

¹Professor, Dept. of Conservative Dentistry & Endodontics, Panineeya Institute of Dental Sciences & Research Centre, Hyderabad

Abstract

To evaluate the efficacy of various methods of sterilization on extracted human teeth. 100 non-carious teeth were collected and sterilized using physical and chemical methods. Ten samples each were placed in seven different chemical disinfectants for 7 days, at room temperature. The disinfectants used were 10% formalin, 3% hydrogen peroxide, 5.25% sodium hypochlorite, 70% alcohol, vinegar, thymol, and Normal saline. 10 teeth each were treated with three physical methods namely: microwave irradiation at 650 W for 3 min, boiling water at 100 0 C and autoclaving at 121 0 C for 20 minutes at 16 lbs pressure. It was found that autoclaving at 121 0 C for 20 minutes at 16 lbs pressure, 5.25% sodium hypochlorite solution and10% formalin were 100% effective sterilization methods for extracted human teeth. Autoclaving, 5.25% sodium hypochlorite, and 10% formalin are the best methods for sterilization of extracted human teeth for research and preservation purposes.

Keywords: 3D Printing, Human Teeth Extraction, Sterilization Methods, Odontology.









CHEILOSCOPY: A DIAGNOSTIC TOOL IN IDENTIFICATION OF AN INDIVIDUAL

Dr. Sonia Gupta¹

¹Senior Resident, Department of Oral Pathology, Govt. Dental College & Hospital, Srinagar

Abstract

Identification of an individual, dead or alive is a challenging task. Every individual has some unique traits in him/her, which can help in their identification. Now a days, various methods such as fingerprints, DNA analysis, dental profiling, cheiloscopy and rugoscopy are being used for identification of an individual, however, the study of lip prints is known as cheiloscopy. The distinctive pattern of grooves and wrinkles in lips has made cheiloscopy a reliable procedure for antemortem personal identification. To ascertain the authenticity and evidentiary value of lip-prints as a tool in identification of the gender of an individual and also correlate it with the blood group of an individual. The study was conducted among 500 randomly selected undergraduates & postgraduates students after obtaining clearance from the Institutional ethical committee. Students with known hypersensitivity to lip sticks, with any active or passive lip lesions were excluded from the study. Lip prints were recorded with the help of a cellophane tape strip and analyzed according to Suzuki and Tsuchihashi classification. The most predominant pattern in the entire study population was found to be Type I in females and Type III in males with highly significant statistical values. Cheiloscopy can be used to identify an individual and considered as an important antemortem tool which may aid in justice to the victim.

Keywords: Cheiloscopy, Personal Identification, Lip Prints, Forensic Odontology.









EYEONISING THROUGH

Dr. Preeti P Nair¹

¹Professor& Head, Department of Oral Medicine & Radiology, People's College of Dental Sciences, Bhopal.

Abstract

Micro Computed Tomography is a 3D imaging technique where the inside of an object can be visualized, using X-rays. The image slices are captured in pixels and then, processed into 3-D images, actually enabling one to see inside the specimen. The principle involved is that multiple images are recorded, by a series of rotations of the specimen, rendering volumetric images. It provides first-hand information on porosity, particle size, structure / bone thickness, volume fraction, defects. The unaltered state of the specimen makes this a highly useful technique. Micro-CT has greatly increased resolution compared to medical CT. The main components include an x-ray tube, a radiation filter and collimator, a specimen stand, and a phosphor-detector/chargecoupled device camera. The sample is rotated to generate a series of 2 D images which are the reconstructed to form of a 3D image. Age estimation where volume ratio of enamel, dentin, pulp to the entire crown can be calculated. Phenotyping of bony injuries to match wounds with potential instruments. Examination of wounds and gunshot residue in forensics. Estimation of death interval, through the features of larvae present on a body.

Keywords: Tomography, Forensic Odontology, 3D Image.









3D GEOMORPHOMETRIC SHAPE ANALYSIS OF MAXILLARY FIRST PREMOLAR: AN INDICATOR OF SEXUAL DIMORPHISM

Dr. Srikant N¹, Dr. Junaid Ahmed²

¹Professor, Department of Oral Pathology and Microbiology, Manipal College of Dental Sciences, Mangalore, Manipal

²Professor, Associate Dean, Department of Oral Medicine and Radiology, Manipal College of Dental Sciences, Mangalore, Manipal

Abstract

Sexual dimorphism of shape of tooth exists. Geometric morphometry is a statistical tool used to assess shape irrespective of the size of the biological entity. The present study was carried out on 3D scanned images of Maxillary first and second premolars from 120 dental casts (60 male and 60 females). Twenty landmarks on I Premolar and Nineteen landmarks on II premolar (based on geometric and anatomic evidence) were marked on the tooth using SlicerMorph software and analysed using Morpho J applying procrustes analysis and discriminant function analysis The results showed similar centroid sizes in both gender (p = 0.7643). Procrustes ANOVA for shape analysis showed a greater variation with an f value of 1.4 and p value of 0.1048, indicating an increased variation in shape of the teeth among gender when compared to size. Discriminant function analysis based on the procrustes coordinates showed an overall accuracy of 89.47 % in classifying gender based on the landmark coordinates in first premolar (52/60 (86.66%) among females and 50/54(92.59) among males). Shape of a biological entity has been an integral part of Forensic Anthropology. Shape of the tooth can be measured objectively using geometric morphometric methods which can be utilized to identify the sex of an individual. The tooth':s structure and shape are determined by the sex chromosomes, which is well represented as sexual dimorphism.

Keywords: Sexual Dimorphism, Geometric Morphometry, Procrustes Analysis, Maxillary First Premolar, Principle Component Analysis, Tooth Form, Tooth Shape.









APPLICABILITY OF CAMERIERE'S ITALIAN MODEL AND INDIAN SPECIFIC MODEL IN DENTAL AGE ESTIMATION – A PILOT STUDY

Dr. Rachana Prabhu¹

¹Professor, Yenepoya Dental College Yenepoya (Deemed to be) University, Mangalore Karnataka

Abstract

Age estimation is a very important aspect of Forensic science especially when information relating to the deceased is unavailable. Its importance is priceless in a country like India where in, on one hand birth records of 10 million children every year go unregistered and on the other hand there is significant rise in involvement of minors in various crimes. Delivery of justice can be appropriately made if the age is determined accurately and hence the accurate method of age estimation plays a pivotal role in correct justice being done. To assess the accuracy of Cameriere's Italian model and Indian specific model of dental age estimation among the children in Dakshina Kanada. 54 digital OPGs (30 male, 24 female) from the archives of OMR dept were analyzed using Cameriere's Italian model and Indian specific model of dental age estimation based on normalized open apices method. The mean absolute error with Cameriere's Italian model was 36.50 months and the mean error with Indian specific model was 32.49 months. Whereas the mean absolute error noticed with the population specific pilot model was 13.83 months. Population specific model is more appropriate than Cameriere's Italian model and Indian specific model for the present population.

Keywords: Age Estimation, Cameriere's Italian Model, Forensic Odontology, Dental Age Estimation.









CHILD ABUSE AND NEGLECT: A FORENSIC ODONTOLOGICAL OUTLOOK

Dr. S. Praveen¹

¹Fellow in Forensic Odontology, Private Dental Practitioner, VGS Dental Clinic, Namakkal

Abstract

Child abuse and neglect is a complex and multifaceted problem. Child abuse is defined as any non- accidental trauma, failure to meet basic needs or abuse inflicted upon a child by the caretaker that is beyond the norms of child care in our culture. Child neglect is deprivation of basic needs of the child including providing insufficient food, shelter, medical attention including dental care. A dental neglect is the wilful failure of a parent or guardian to seek and follow necessary treatment to ensure a level of oral health essential for adequate function and freedom from pain and infection. In child abuse, children are exposed to sexual abuse, physical abuse, emotional abuse and neglect. The forensic odontologist should take a lead role in creating awareness to general dentist, public and government. They also should play an important role in assessing physical injuries and sexual abuse related to dentistry and give them a fairness. A study also indicate most of the injuries in child abuse occurs in facial region and dentist are most likely to report the child abuse about five times than any other fraternity if they have proper knowledge in signs, symptoms and reporting mechanisms of abuse. Thus this paper shall give a reasonable role of forensic odontologist in child abuse and neglect.

Keywords: Child Abuse, Forensic Odontology, Neglect, Physical Injuries, Sexual Abuse.









DENTIST ROLE IN POST-MORTEM DEATH INTERVAL ASSESSMENT – A SYSTEMATIC REVIEW

¹Dr. S. Rajkumari

¹Senior Lecturer, Sathyabama University Dental College and Hospital, Chennai

Abstract

Post-mortem death interval assessment is an enigmatic task for forensic medical expert. However, time since death is essential part of forensic medical reporting. Though there exists variety of physical examination methods such as drop in body temperature, algor mortis, rigor mortis, livor mortis, the exactness of these are questionable. Hence the histological assessment had captured the recent past in establishing time of death. The cellular events that occur after death is brought about by multiple enzymatic activity and the cells of oral tissue also undergo similar changes which may be effectively noticed and reported by oral pathologist. These changes may contribute to the estimation of post-mortem death interval. The aim of the present study is to assess the role of dentist in concluding the post-mortem death interval. Pubmed search was carried out using appropriate keyword. Literature reports very few research on this topic, also realtime implication in this regard is lacking. Still, the oral tissues analogous to other body tissue can effectively contribute to the determination of post-mortem death interval.

Keywords: Dentistry, Forensic Science, Post-mortem, Oral Pathologist









ACCURACY OF CHAILLET AND DEMIRJIAN'S 8-TEETH METHOD IN DENTAL AGE ESTIMATION OF CENTRAL INDIAN POPULATION USING INDIA SPECIFIC REGRESSION FORMULAE

Dr. Sovna Shivani Mishra¹

¹Lecturer, Department of Oral Medicine and Radiology Government Dental College, Raipur, Chhattisgarh

Abstract

Demirjian's original method for dental age estimation has undergone various modifications, owing to the wide discrepancies when applied on different population samples. The objective of this study was to apply the India-specific regression formulae on a Central Indian sample and assess the ability of these formulae to predict age accurately. The study sample consisted of orthopantomograms of 400 subjects, categorized into four groups: Group A (7-16-year-old males), Group B (17-25-yearold males), Group C (7–16-year-old females) and Group D (17–25-year-old females). Based on the radiographic developmental stage of each tooth in the mandibular left quadrant, their respective maturity scores were allotted and a total maturity score for all the 8 teeth was determined for each subject. This value was then substituted in the India specific regression formulae, separately for males and females, to estimate the dental age. Difference between the chronological age and estimated age was then calculated. The mean absolute error ranged between 0.7 ± 2.05 years for males and 0.4 ± 1.86 years for female subjects, implying greater accuracy in females. Further, 78.5 % of the sample showed negligible error of less than ± 1 year. In case of male subjects aged between 7-16 years, least mean absolute error of 0.34 years was obtained. Higher error rates in Group B (17-25-year-old males) and Group D (17-25year-old females) indicated reduced tendency for accurate age prediction in subjects beyond 16 years of age. The results derived in this study, showed improved accuracy of India specific regression formulae in predicting the dental age of the population of central India.

Keywords: Demirjian's Method, Dental Age Estimation, Forensic Odontology, Personal Identification.









DENTURE LABELING USING UNIQUE IDENTIFICATION NUMBER AND **BARCODE – CALL OF THE HOUR**

Dr. Neha Sikka¹, Dr. Shashi Bala², Dr. Lavina Taneja³

Abstract

Individual identification is of prime importance for forensic and medicolegal purposes especially in circumstances of natural calamities, accidents, state of unconsciousness, or loss of memory. The denture labeling is an essential step which has been acknowledged by the field of dentistry. Various denture labeling techniques have been developed but none of them is universal. Aadhaar is the promptly verifiable national identification number assigned to residents of India, which is currently being used vastly by the Government of India. The article describes a simple, economical, and permanent method for inclusion of Unique Identification Number and bar code in dentures for labeling.

Keywords: Individual Identification, Denture Labeling, Identification, Unique Identification Number.









+91 8879066856 iafo2021mumbai@gmail.com \bowtie

ESTIMATION OF AGE IN INDIAN SOLDIERS USING PULP/TOOTH VOLUME RATIO OF MAXILLARY ANTERIOR TEETH OBTAINED FROM CONE BEAM COMPUTED TOMOGRAPHY- A PILOT STUDY

Lt. Col. (Dr.) Poonam Prakash¹

¹Associate Professor, Prosthodontics and crown & bridge Command Military Dental Centre, Udhampur, Jammu & Kashmir

Abstract

To investigate the relation between the chronological age and ratio of pulp volume (PV) to tooth volume (TV) measurements made using CBCT of single rooted maxillary teeth. The objective was to develop a prediction model for estimation of age by analysis of PV/TV. A prospective study was designed and approval obtained from IEC. CBCT scans of patients in the age group of 20 to 40 years were collected from the central imaging data between 2019 and 2021. linclusion criteria was subjects with atleast six fully developed and intact maxillary central incisors, lateral incisors and canines with closed apices and teeth with one root and single canal. Subjects with dental caries, occlusal trauma, periodontal disease, history of trauma in anterior teeth and teeth with restorative, endodontic, prosthetic and orthodontic treatment in anterior teeth were excluded. Also teeth with excessive tooth wear, internal or external teeth resorption and any other conditions that affected the pulp/tooth area or dental formation, such as systemic conditions and syndromes. Based on inclusion and exclusion criteria, approximately 200 patients were selected. 6 CBCT images of each patient were collected making a total of approximately 1200 Images. The PV and the TV of each tooth was measured and then the PV/TV ratio was calculated using HOROS software. Pearson correlation coefficient was used to evaluate the correlation between chronological age and pulp-to-tooth volume ratio. Simple linear regression analysis was performed to predict age estimation using PV/TV. PV/TV of all teeth ranged between 0.01 and 0.08. Statistically significant correlation was found between PV/TV for maxillary lateral incisor and canine. (p &It; 0.05). The regression analysis showed highest Pearson correlation for maxillary lateral incisor (0.214) and canine (0.206). This study revealed that the strongest correlation was found between the age and PV/TV ratio measured on maxillary lateral incisors and canine than other teeth.

Keywords: Age estimation, CBCT, Pulp-tooth volume ratio, Secondary dentine.









CLOUD FORENSICS: THE CHALLENGES AHEAD

Dr. Rupinder Kaur Multani¹, Dr. Swati Gautam², Dr. Karandeep Singh Arora³

¹Professor, Department of Oral Pathology & Microbiology, Bhojia Dental College and Hospital, Bhud, Baddi HP

²Reader, Department of Oral Pathology & Microbiology, Bhojia Dental College & Hospital, Bhud, Baddi HP

³Reader, Department of Oral Medicine & Radiology, Bhojia Dental College & Hospital, Bhud, Baddi HP

Abstract

Cloud forensics is an application of scientific principles, practices, and methods to reorganize the events through identification, collection, preservation, examination, and reporting of digital evidence. Evidence can reside anywhere in the cloud and it is more complex to identify the traces located in the cloud server. Cloud forensics has been introduced to help forensic investigators find potential evidence against cloud criminal activities and maintain the security and integrity of the information stored in the cloud. While great research in the area has been carried out concerning challenges and solutions, the research on methodologies and frameworks is still in its infancy. This paper focuses on the challenges faced in cloud forensics.

Keywords: Cloud Forensics, Forensic Science, Evidences, Forensic Investigation.









STUDY ON CORRELATION OF LIP PRINT AND FINGER PRINT PATTERN FOR GENDER IDENTIFICATION

Dr. Abhishek Tiwari¹

¹Assistant Professor, Dept. of Oral Pathology & Microbiology, Career Post Graduate Institute of Dental Sciences & Hospital, Lucknow

Abstract

Gender discrimination is the important aspect of the human identification procedures that help in the establishment of biological profile from dental and skeletal remains. Study of lip prints or cheiloscopy and finger prints or dactyloscopy claimed to be instrumental in identifying a person positively and were linked to the fact they are unique, permanent and unchangeable to one person. Our study aims to identify the lip and finger print pattern and to correlate lip and finger print pattern for gender identification. A total of 120 students, 60 male and 60 female from dental institution were included in this study. Their age ranged between 20 and 30 years with a mean age of 22.57 years. The physiological rest position of the lip print was recorded by the application of red or dark pink colored lipstick over the lips and the imprint was transferred over a white chart sheet through a transparent sheet. The imprint of the finger was taken directly on a white chart sheet. The lip and finger print pattern was examined with magnifying lens. The results were analyzed and will be presented as a descriptive statistics. A correlation test.

Keywords: Cheiloscopy, Dactyloscopy, Gender Discrimination, Lip prints.









THE ROLE OF THE FORENSIC ODONTOLOGIST IN DISASTER VICTIM IDENTIFICATION: A REVIEW

Dr. Roopashri¹

¹Associate Professor, Rajiv Gandhi University of Health and Sciences, Bengaluru, Karnataka

Abstract

Disaster Victim Identification (DVI), is a method used to identify victims of mass casualty incidents, either man-made or natural. Disaster Victim Identification is a culmination of several individuals that include rescue teams, recovery teams, forensic pathologists, odontologists and anthropologists. All these personnel work collaboratively to bring together their respective fields to identifying victims in a disaster. Factors needing consideration after a disaster include the number of victims, condition of remains including the location of the disaster acceptable scientific methods of identification, safe data collection and storage, presence of electrical grids, water supply and proper waste disposal arrangements. This review focuses the discussion on identification using dental evidence and the key learnings of the past and the future techniques that may be used to make the identification process easier and efficient in terms of manpower and technology.

Keywords: Forensic Odontology, Disaster Management, DVI, Identification.









SEXUAL DIMORPHISM USING MAXILLARY SINUS MORPHOMETRICAL ANALYSIS AND BIZYGOMATIC WIDTH: A CONE BEAM COMPUTED TOMOGRAPHIC STUDY

Prof. (Dr.) Pradhuman Verma¹

¹Chairman, Department of Oral Medicine & Radiology/ Oral Pathology & Microbiology, Dr. Ziauddin Ahmad Dental College & Hospital, Aligarh Muslim University (AMU), Aligarh, Uttar Pradesh, India

Abstract

Gender determination is an important step in forensic sciences form identification, which is mainly determined by anthropometric evaluation of the human hard tissues. The size and shape of maxillary sinus and zygomatic bones remain intact even in badly disfigured corpses. CBCT provides an excellent method for anthropometric evaluation of maxillary sinuses. To evaluate the accuracy and reliability of CBCT in determining the length, width, height & volume of the maxillary sinuses, bizygomatic width, intermaxillary distance and total distance across the both maxillary sinuses as a method for gender identification. The study included randomly selected CBCT scans of maxillary sinuses, (n= 40 males and n=40 females) between 20- 60 years age, retrieved retrospectively from the database of the private diagnostic centre. All the scans were taken by CS 9300 (Carestream Health India Private Limited) CBCT machine adjusted at 80 KVP, 15mA, Voxel size 0.3x0.3x0.3 mm and FOV of 10x5 mm. The acquired images were reconstructed into orthogonal planes for evaluation using CS 3D Imaging v3.7.1 Carestream Health inc. and MIPAV Software. All the measurements were performed by two oral and maxillofacial radiologists independently. The data thus collected was tabulated and subjected for further statistical analysis using SPSS software. Overall mean age of the subjects was found to be 57.63±14.49 years with males having slightly more age. The inter-observer reliability showed a good correlation between two observers for the studied parameters. The mean bizygomatic distance, height & volume of both maxillary sinuses were noted significantly more in male subjects. The mean intermaxillary distance, total distance across maxillary sinuses, length & width of maxillary sinuses showed no significant difference between both genders. The overall accuracy for gender determination from maxillary sinus measurements using CBCT was found to be 56.25% and bimaxillary distance parameter showed the maximum sexual dimorphism with an overall accuracy of 66.9%. Our study concludes that in a given cranium of unknown origin, gender determination can be done using maxillary sinus dimensions through Cone Beam Computed Tomography.

Keywords: Gender Determination, CBCT, Tomography, Maxillary Sinuses.









MORPHOMETRIC ANALYSIS OF HARD PALATE FOR EVALUATION OF SEXUAL DIMORPHISM IN A POPULATION OF MAHARASHTRIAN ANCESTRY-A CROSS-SECTIONAL STUDY

Dr Jigna Pathak¹, Dr Manasi Kale²

¹Professor, MGM Dental College and Hospital, Kamothe, Navi Mumbai

Abstract

The value of forensic dentistry in sex estimation and individual identification is beyond debate. This is related to the suggested stability and individuality of the dental and palatal structures. It is corroborated by the fact that palatal structures resist postmortem decomposition for several days and more so for the dental tissues. Moreover, palatal and dental structures are protected within the oral cavity which makes them resistant to damage by massive trauma and thermal insults. Palatal dimensions can be used as predictors of sex because it has many characteristic anatomical points which allow easy and reproducible measurements. Further work has led researchers to propose that metric measurements of the palate might be reliable sex determinants. The degree of sexual dimorphism is influenced by genetic and environmental factors, and thus differs in each population. Thus, the present study was undertaken to evaluate sexual dimorphism by morphometric analysis of hard palate from dental casts, in a population of Maharashtrian ancestry. 500 Maxillary dental casts of subjects of Maharashtrian ancestry were obtained based on the inclusion and exclusion criteria. The investigator was blinded to the sex of the patient to avoid observation bias. The evaluation parameters of palatal length, width and depth were assessed, on the basis of which palatal index and palatal height index were calculated. Data collected was compiled on to a MS Office excel worksheet & subjected to statistical analysis.

Keywords: Forensic Dentistry, Morphometric Analysis, Sexual Dimorphism, Palate.









PALATAL RUGAE- RELIABLE OR DEBATABLE: AN ORTHODONTIST'S PERSPECTIVE

Dr. Eenal Bhambri¹

¹Professor, Dept. of Orthodontics & Dentofacial Orthopaedics Surendera Dental College, Sriganganagar, Rajasthan

Abstract

Forensics has always considered palatal rugae as a reliable landmark for identification in cases of mishap which needs forensic intervention. There are many studies which claim that palatal design and structure is not altered during growth as its position protects it from external trauma. However, Hauser et al suggested that the mean rugae count changes moderately in adolescence and then increases markedly from the age of 35-40 years. Lysell considered that the number of rugae decreased from 23 years of age onwards. Also, few studies conducted on orthodontic patients have reported that orthodontic treatment and tooth movement have a significant effect on the stability of rugae. These studies were based on the features first noted by Peavy and Kendrick who said that the closer the rugae are to the teeth, the more prone they are to stretch in the direction that their associated teeth move. Considering the various debates surrounding the applicability of palatal rugae in personal identification, this paper aims to review the stability or variability of palatal rugae from an Orthodontist's viewpoint.

Keywords: Palatal Rugae, Forensics, Odontology, Personal Identification.









RELIABILITY OF AGE ESTIMATION BY MEASURING PULP TOOTH AREA RATIO ON CONE-BEAM COMPUTED TOMOGRAPHY IMAGES

Dr. Preeti Sharma¹

¹Professor, Oral & Maxillofacial Pathology, Subharti Dental College, Swami Vivekanand Subharti University, Meerut (UP)

Abstract

In assessing accurate age, teeth are the most suitable means of investigation as they are unaffected by environmental conditions. With advancing age, secondary dentin formation occurs and there is reduction in the size of the pulp. Thus, this study was planned to assess the accuracy of age determination by measuring pulp tooth area ratio using cone-beam computed tomography (CBCT) images. In this retrospective study, CBCT images were retrieved from the Oral Medicine & Radiology Departmental archives (from 2016 till 2019). Maxillary and mandibular canine teeth were used for measurements as they have a single, large root canal and are least likely to be decayed and very rare to be extracted for pathologic reasons. One hundred sixty patients (80 males and 80 females) were included in this study with an age range between 16 and 80 years. Chronological age of the patients was calculated by subtracting the date of birth from the CBCT procurement/accession date. Measurements of pulp and teeth area were performed on Adobe Photoshop using Auto CAD software. Linear regression equations will be derived separately for maxillary, mandibular and both canines. The study is under progress and preliminary results show that CBCT images can be used for age estimation using Kvaal's method and the pulp/tooth area ratios of canines are a reliable method for age estimation in North Indian population.

Keywords: Age Determination, Tomography, CBCT Images, Tooth Pulp.









COMPARATIVE EVALUATION OF THE EFFICACY OF VARIOUS DENTAL RADIOLOGICAL INDICES USED FOR AGE ESTIMATION

Dr. Mrunal G. Meshram¹

¹Assistant Professor, Department Of Oral Medicine and Radiology, Sharad Pawar Dental College, DMIMSDU, Sawangi, Wardha, Maharashtra

Abstract

Age estimation is an important factor in forensic medicine and odontology for identification of deceased victims and also for crimes and accidents. Dental maturity has played an important role in estimating the chronological age of individuals because of the low variability of dental indicators. Aim and Objective: To evaluate the significance and methods of age estimation in the area of forensic odontology. An extensive literature review was performed in "PUBMED" and "Google search"; using key words as: forensic odontology, age estimation methods, forensic dentistry, antemortem, post-mortem evidences. 55 articles were collected on the topic and literature survey was done. There are many ways to identify a human age but each method has its own pros and cons. This paper focuses on reliability, significance and comparison of different methods of dental age, chronological age, skeletal age determination and it's in identification, criminal investigation and the application and importance of radiological methods in human age assessment.

Keywords: Forensic Odontology, Teeth, Ante-Mortem, Post-Mortem Evidences, Age Estimation.









THE CONUNDRUM OF ASSOCIATION BETWEEN DERMATOGLYPHICS AND MALOCCLUSION- A SYSTEMATIC REVIEW

Dr. Yesoda Aniyan K¹

¹Senior lecturer, SRM Dental College, Ramapuram

Abstract

The exclusive study of convoluted designs and fingerprints from palms, fingers, soles, and toes is termed as "Dermatoglyphics". These patterns are characteristic to an individual and are unaltered from birth until death. The fingerprints tend to be dissimilar even in monozygotic twins. To review the observational studies for associations of dermatoglyphic features with malocclusion and ascertain a significant link between dermatoglyphics and malocclusion. A thorough literature review was done from electronic database of Cochrane, EMBASE and Pubmed for the timeline, from 1st Jan 1969 to 1st August 2020. The search strategy involved the corresponding search words (MeSh): "Dermatoglyphics", or "malocclusion". Manual search was performed after perusing the references of the relevant studies. Study selection was done independently in the subsequent stages: (a) screening of titles and abstracts meeting the inclusion criteria and (b) screening of the full article identified as relevant. The data is under process. Dermatoglyphic analysis at an early age can indicator of malocclusion. This would aid in putting into interceptive orthodontics and aid in the natural development of a favorable occlusion.

Keywords: Dermatoglyphics, Malocclusion, Identification, Fingerprints.









DECODING THE CEMENTUM ANNULATIONS

Dr. Priyanka Shetty¹

¹Assistant Professor, Oral Pathology, A.J Institute of Dental Sciences, Mangalore, Karnataka

Abstract

The hard tissues of bone and teeth are able to resist decay and degradation long after soft tissues have deceased. Cementum bands in teeth provide reliable and accurate data on the season of death and age of death. Cementum is continuously deposited at the root end and seen as incremental lines. In addition to age, hypomineralized bands in these incremental lines gave an indication of events such as pregnancies, skeletal trauma, renal disorders and other diseases which could be accurately dated to an individual's life-history, thus facilitating identification.

Keywords: Cementum, Teeth, Dentistry, Identification.









GONIAL ANGLE, BIGONIAL WIDTH AND MANDIBULAR RAMUS HEIGHT AS A TOOL IN AGE DETERMINATION - A CROSS SECTIONAL STUDY

Dr. V. Aarthi Nisha¹

¹Senior Assistant Professor, Department of Oral Medicine and Radiology, Tamil Nadu Government Dental College and Hospital, Chennai

Abstract

Age estimation is very much gaining its importance in the field of forensic sciences and dentistry. The various reasons making age estimation necessary are identification of criminals and also in child labor issues, birth certificates, job opportunities, etc. It is also useful to identify individuals who provide inaccurate details of age, as in case of illegal immigrants, or a corpse with an unknown identity. In the field of dentistry panoramic radiography plays a vital role in diagnosis, management and follow up of various orofacial diseases. Panoramic radiographs are easily available for providing data anytime. They can serve as a vital tool to study the morphological changes that occur with age. Parameters like gonial angle, bigonial width and mandibular ramus height keep changing as age advances. These above measurements can be useful in determination of age in individuals. Hence this study is to determine the age with measured mandibular parameters. The aim of the present study is to determine the age using mandibular parameters measured on a panoramic radiograph. Mandibular parameters like gonial angle, bigonial width and mandibular ramus height are measured on 50 panoramic radiographs. The measured angles and width are tabulated. Linear regression analysis will be done statistically to arrive at an equation to estimate the age of the individual. The results would be published after the completion of the study. The equation obtained from the above study would be perceived for feasibility to estimate the dental age of individuals.

Keywords: Age Estimation, Gonial Angle, Forensic Odontology, Mandibular Parameters.









BARR BODY IN GENDER DETERMINATION USING ACRIDINE ORANGE AND PAP – A COMPARATIVE STUDY

Dr. Arathi K¹

¹Reader, Oral Pathology, A.J Institute of Dental Sciences, Mangalore, Karnataka, India

Abstract

Buccal epithelial cells in saliva traces found at crime scenes can be used for sex determination by examining the presence of Barr bodies in the nucleus. This study aims to assess the efficacy of sex determination using Acridine orange and PAP stains for the detection of Barr bodies in buccal mucosal scrapes. Buccal mucosal scrapings were collected from 120 healthy individuals (60 males and 60 females). They were stained with Acridine orange and PAP. Fifty cells in each sample were analyzed for identification of Barr bodies. Samples with a presence of Barr bodies $\leq 5\%$ were recorded as male and those with > 5% were recorded as female. The percentage accuracy in determining sex using both stains was evaluated. The percentage of Barr bodies in Acridine orange -stained slides ranged from 4 to 31 among females and 0–6 in males (p & It; 0.001). The sensitivity and specificity of Acridine orange for detecting sex accurately was around 97.9 and 96.2% for PAP.

Keywords: Acridine Orange, Barr Bodies, Sex Determination, Forensic Odontology.









MORPHOLOGICAL VARIATIONS OF SHAPE OF LINGULA IN DRY MANDIBLE-A STUDY

Dr.Md.Asdullah¹

¹Assistant Professor, Department Of Oral Pathology/Oral Medicine & Radiology, Dr. Z.A Dental College & Hospital, A.M.U Aligarh (U.P)

Abstract

The lingula is used for identifying the site for injection of local anesthetics and for excision of nerve in facial neuralgia. The relationship between lingula and lingual nerves may aid in risk associated with an impacted third molar. Due to its connection to nerve and vascular structures, the study of the lingula provides important information related to oral and maxillofacial surgical procedures, such as the sagittal split ramus osteotomy and the intraoral verticosagittal ramus osteotomy carried out to correct dento facial deformities. Intraoperative complications such as hemorrhage, fracture, and nerve injury may occur if lingula is not correctly identified. This study was conducted in renowned academic institute of north India an on fifty (100 sides) dry adult human mandibles to determine the different shapes of lingula. The shapes of the lingule were classified as triangular, truncated, nodular, and assimilated. Data were collected and subjected to statical analysis. The most common shape found in the study was the triangular (61.6%) while the least common shape was the assimilated (11.6%). All types of lingule were more prevalent unilaterally. The present study provides information regarding different shapes of lingule and in the populations of North India. The findings of the present study are very helpful to orodental surgeons, anthropologists, and forensic practice experts.

Keywords: Lingula, Mandible, Odontology, Dental Shapes.









VIRTOPSY – BIDDING THE DEAD A DECENT FAREWELL

Dr. Suganya. B¹

¹MDS (Oral Medicine and Radiology), Private Practitioner, M.R. Ambedkar Dental College and Hospital, Bangalore

Abstract

Forensic science is the application of science to criminal and civil laws, during criminal investigation, as governed by the legal standards of admissible evidence and criminal procedure. An autopsy is a surgical procedure that consists of a thorough examination of a corpse by dissection to determine the cause, mode, and manner of death or to evaluate any disease or injury that may be present for research or educational purposes. Virtopsy is a virtual alternative to a traditional autopsy, conducted with scanning and imaging technology. It is a minimally invasive, observer-independent new-age technique in postmortem examination. This article is an overview of the advancing methodology and its potential application in forensic odontology and advocates multidisciplinary research and to develop improved tools and protocols for virtual autopsy.

Keywords: Virtopsy, Autopsy, Virtual Autopsy, Postmortem Examination.









DETERMINATION OF AGE BASED ON RADIOGRAPHIC VISIBILITY OF PERIODONTAL LIGAMENT AND ROOT CANAL IN LOWER THIRD MOLARS ON PANORAMIC RADIOGRAPH IN INDIAN POPULATION

Dr. Deepa Jatti Patil¹

¹Professor, Department of Oral Medicine and Radiology, K.M. Shah Dental College and Hospital, Sumandeep Vidyapeeth Deemed to be University, Vadodara, Gujarat

Abstract

The aim of the present study was to determine chronological age based on the use of the radiographic visibility of the periodontal ligament and the root pulp in lower third molars in Indian population between the age group of 18-21 years. A retrospective radiographic study was conducted on panoramic radiographs of patients aged between 16 to 40 years. 1453 panoramic radiographs were screened for age determination. The radiographic visibility of the periodontal ligament space and root pulp in the lower third molars with completed mineralization were studied according to stage classifications proposed by Olze et al. (2010) as stages 0, 1, 2 and 3. Stage 0 first appeared at the age of 17 years in females and at the age of 18 years in males. Stage 1 was first achieved by females between 18 and 20 years and by males between 20 and 22 years. The earliest appearance of stage 2 was between 21 and 23 years in females and at 22-24 years in males. The occurrence of stage 3 was first found between 24 and 25 years in females and between 25 and 27 years in males. Similarly, the visibility of root canal in stages 0, 1, 2 and 3 was also studied for age determination. Stage 0 first appeared at the age of 17 years in females and at the age of 18 years in males. Stage 1 appeared in all the age groups from 18 to 40 years. Stage 2 and 3 could not be validated on the panoramic radiographs in Indian Population. The radiographic visibility of periodontal ligament space and root canal can be used to categorise individuals between age 18 and 21 years. The radiographic method proposed by Olze etal can be applied to the Indian population.

Keywords: Age Determination, Root Canal, Molars, Dentistry.









RARE PRESENCE TO IDENTIFY COMMON

Dr. Gopaladas Madhulatha¹

¹Reader, Meghna Institute of Dental Sciences Varni Road, Mallaram, Nizamabad

Abstract

The Medial Sigmoid Depression (MSD) is a normal anatomical depression observed on the medial side of the upper ramus just below and anterior to the greatest depth of the sigmoid notch. The depression may be unilateral or bilateral and may be misinterpreted as a pathological condition. The present study was conducted to evaluate the presence of Medial Sigmoid Depression and its role in gender dimorphism. 300 subjects, were taken as retrospective data from 300 OPG to identify MSD and also its side of preference, gender preference and its shape. The data obtained was analyzed using SPSS 21 software. Though it is not commonly observed still its observation is unique in gender identification. The recognition of MSD was quite competent in anatomic specimen, panoramic radiograph of the specimen and patients. Its appearance may be considered as a normal variants on the panoramic radiographs and on further research can be used in gender identification.

Keywords: Medial Sigmoid Depression, Depression, Gender Dimorphism, Gender Identification.









AGE ESTIMATION USING CEPHALOMETRICS – A CROSS SECTIONAL STUDY AMONG TEENAGERS OF SALEM DISTRICT, TAMIL NADU

Dr. M. Kruthika¹

¹Associate Professor, Department of Pediatric and Preventive Dentistry Vinayaka Missions Sankarachariyar Dental College, Salem.

Abstract

Age estimation is important not only in identifying dead body of a person but also in living persons since there is an increasing rate of juvenile delinguencies recorded every year. To avoid foul play by age fabrication, legal age estimation becomes important. Facial growth alteration takes place in the jaw bones as age advances which can be observed with lateral cephalometry. Thus the aim of the study is to create a regression formula for age estimation using cephalometrics of teenagers of Salem population. A cross sectional study was done using 770 lateral cephalometrics of teenagers (13 to 19 yrs) of Salem population. 9 cephalometric points with 2 linear hard tissue measurements (condylion to mandibular plane (AFH) and palatal plane to menton (PFH)) and 1 angular soft tissue measurement (z angle) were recorded as predictor variables using a digital lateral cephalometric software (Carestream CS8100 SC) which were subjected to regression analysis using SPSS version 21.0 to develop a formula for age estimation. Significant association on age was obtained for the two linear measurements. The regression formula generated for estimating the age was Age = 7.146 + 0.044 (AFH) + 0.146 (PFH) with R 2 value = 0.674. Within the limitations of the present study, age estimation of teenagers in Salem population can be estimated. The predictability of the age can be increased by taking more cephalometric variables in generating the formula with increase in sample size.

Keywords: Cephalometry, Age Estimation, Cephalometrics, Dentistry.









MORPHOMETRIC ANALYSIS OF CORONOID PROCESS AND MANDIBULAR ANGLE IN GENDER DETERMINATION- A RETROSPECTIVE STUDY

Dr. K.V. Swathi¹

¹Lecturer, Oral Medicine and Radiology, SRM Dental College, Ramapuram, Chennai

Abstract

To retrospectively analyze the various morphological configurations of the coronid process and also determine the mandibular angle using digital orthopantograms (OPGs) for the identification of the gender of an individual. The study was carried out by randomly analyzing the retrospective data of 50 digital orthopantomograms and the different shapes of the coronid process were traced along with the bilateral measurements of the mandibular angle for all the data sets. The most commonly observed outline form of the coronid processes were triangular form in males and round form with respect to females. The average mandibular angle measurement was found to 99.8 degrees in males whereas it was found to be slightly increased in females around 105.3 degrees. Although there were variations among both the right and left coronoid processes of the individual with different outline configurations such as round, triangular, flat and beak like, the most commonly observed outline form of the coronid process can be used in the tentative identification of the gender of an individual. With respect to the variations in the measurements of the mandibular angle, the average measurements revealed a more obtuse inclination for males compared to males, which suggest that with these parameters the gender can be determined to a certain extent thus playing an important role in forensic sciences for the personal identification of an individual.

Keywords: Orthopantograms, Mandibular Angle, Gender Determination, Forensic Science









A SPEARHEADING TOOL AS BIOMETRIC AUTHENTICATION -THE "TONGUE PRINTS"- A REVIEW

Dr. Sameera Shamim Khan¹

¹Associate Professor, Department of Oral Pathology and Microbiology, Career Postgraduate Institute of Dental Sciences and Hospital, Lucknow, UP

Abstract

Tongue diagnosis is an important diagnostic method for evaluating the condition of internal organ by looking at the image of tongue. It is well encased within the oral cavity and protected from the environment. Biometric authentication is an important process for the identification and verification of individuals for security purposes. There are many biometric systems that are currently in use and also being researched. Tongue print is a new biometric authentication tool that is unique and cannot be easily forged because no two tongue prints are similar. It has unique features which differ from individual to individual and even between identical twins. The colour, shape and surface features are characteristic of every individual, and this serves as a tool for identification. Many modes of biometric systems have come into existence such as fingerprint, iris scan, signature verification, voice recognition and face recognition. Tongue characteristics exhibit sexual dimorphism thus aiding in the identification of the person. Emerging as a novel biometric tool, tongue prints also hold the promise of a potential forensic tool. This review highlights the uniqueness of tongue prints and its superiority over other biometric identification systems.

Keywords: Biometric authentication, forensic dentistry, lingual impression, print, tongue









FORENSIC ODONTOLOGY: (A BOON TO MEDICOLEGAL CASES): A REVIEW OF PAST CASES

Dr. Juhi Gupta¹

¹Assistant Professor in Dr.Z.A.Dental College, A.M.U, Aligarh

Abstract

Forensic odontology is a sub-discipline of dental science which involves the relationship between dentistry and the law. It is an important area of investigation & provides an important service in both the civil and criminal jurisdictions. Whenever a crime takes place identification of deceased becomes a challenging task, because criminals try to destroy evidences after committing the crime. But teeth are one among few unique features in human beings that could lead to identification of an individual. Forensic odontology has played a chief role in solving cold cases and proved to be strong evidence in the court of law. Systematic collection of an individual. The role of forensic odontology in identification of an individual in mass disaster (manmade or natural) is invaluable. With this background a review of medico legal past cases will be done where forensic odontology has played a crucial role in providing justice to the victim. This review of cases will also highlight the importance of maintaining the dental records.

Keywords: Forensic Odontology, Investigation, Dental Records, Dentistry.









GENDER DETERMINATION BY USING A SIMPLE FORMULAE AND MEASUREMENTS OF 2 MANDIBULAR LANDMARKS IN RADIOGRAPHIC IMAGING IN THE INDIAN POPULATION

Dr. Deepthi Adappa N¹

¹Senior Lecturer, Dept. of Oral Medicine and Radiology, Yenepoya Dental College, Mangalore, Karnataka

Abstract

Mandible exhibits high gender dimorphism in the human body and is also a more durable bone during calamities as it has a dense compact layer of bone. Lateral cephalogram has no image magnification, hence measurement will be same as directly assessing on the bone, thereby leading to future study with large sample size without relying on a large number of actual bones to support the study. Lateral Cephalogram offers quick results, cost effective and is easily available. During emergencies mandible could also be immediately scanned and sent across to the forensic experts who may not available on site. Gender determination by incorporating our formulae which requires length of 2 mandibular landmarks using lateral cephalograms. A retrospective study was conducted on Indian population using 40 lateral cephalograms (20 males and 20 females) selected off the radiograph archives Measurements (HMS – Height Of Mental Symphysis and HAR – Height of Ascending Ramus) was carried out and subjected to discriminate analysis, and finally a formulae was derived . The derived formulae showed 80% accuracy. The lateral cephalograms and the formulae employed in the study are simple and reliable tools to show evidence of gender determination in the mandible for forensic analysis. The same method can be applied directly on the bone as well. Currently we are pursuing the same study with a larger sample size.

Keywords: Cephalogram, Gender Determination, Odontology, Dental Measurements.








ODONTOMETRIC APROACH TO STATURE ESTIMATION IN CHILDREN

Dr. Nimma Vijayalaxmi¹

¹Associate Professor, Oral Medicine and Radiology, Government Dental College Mumbai

Abstract

There has been a marked increase in the number of crimes against children and young adults in the last decade, hence calling for an increase in the methods of identification of remains using forensic odontology. Dental morphometrics is a subject of great significance in forensic odontology in the identification of an individual. Use of teeth to represent a physical profile is valuable for identification of and individual. The aim of the study is to check the reliability and accuracy of Carrea's index in young permanent dentition. The study will consist of 50 children in the age group 2-6 years and 50 children in the age group of 12-20 will be selected based on the inclusion and exclusion criteria. The arch and chord values will be measured intra orally using digital vernier calipers and the stature will be measured using a standardized measuring tape. All this data will be used to validate the Carrea's formula and the results will be analyzed statistically. The result of the study was that use of Carrea's index was not found to be statistically significant in deciduous dentition whereas it was statistically significant in young permanent dentition. In females it was more accurate as compared to males. Left side was more accurate as compared to right side in young permanent dentition. Our study concluded that Carrea's index can be successfully used in young permanent dentition for stature estimation whereas in deciduous dentition it cannot be applied.

Keywords: Stature Estimation, Dental Morphometrics, Carrea's Index, Forensic Odontology.









APPLICATION OF INTEGRATED RUGOSCOPY CHART FOR GENDER DETERMINATION: A PILOT STUDY

Yusra Khan¹, Aman Chowdhry², Priyanka Kapoor²

¹ Tutor, Faculty of Dentistry, Jamia Millia Islamia, New Delhi

² Professor, Faculty of Dentistry, Jamia Millia Islamia, New Delhi

Abstract

The study of palatal rugae is called as rugoscopy and has been studied for the human identification, genetics, biometric and demographic studies. It is established that rugae are stable and are unaffected by tooth extraction, growth, ageing and disease. Since many classifications for rugae exist, Integrated Rugoscopy Chart (IRC) was first proposed in 2016. IRC is a simple and precise method for compiling vast data on rugae in one chart. Studies on rugae are limited, especially in Indian context. To compare the gender specific palatal rugae patterns in subjects from a dental college in New Delhi. The study is planned on orthodontic record of patients (age 15-28 years) undergoing treatment in Dental College of New Delhi. A convenient sample of 50 patients (25 male and 25 female) were recruited with due informed consent in the case history sheet. The maxillary dental casts of all included subjects were analyzed for palatal rugae in IRC chart. All the results are being tabulated in IRC and statistically analyzed. The present study is ongoing and the results are awaited.

Keywords: Rugoscopy, Human Identification, IRC, Gender Determination.









└ + 91 8879066856
☑ i iafo2021mumbai@gmail.com

SEXUAL DIMORPHISM OF INFERIOR ALVEOLAR CANAL LOCATION IN AN EASTERN INDIAN POPULATION- A CONE BEAM COMPUTED TOMOGRAPHY STUDY

Dr. Rachna Rath¹, Dr. Sangamesh NC², Dr. Rashmi Rekha Acharya³

¹MDS, Assoc. Professor, Department of Oral & Maxillofacial Pathology, SCB Govt. Dental College & Hospital, Manglabag, Cuttack

Abstract

Sex determination from unidentified skeletal remains is a challenging task in forensic odontology. Though mandible is the strongest and most durable of bones available for post mortem profiling, there is scarce literature exploring its morphometric characteristics such as the location of the mandibular canal, especially in the Indian subpopulations. Few other populations have shown gender dimorphism in relation to position of the Inferior alveolar canal. The present cross sectional study explores sexual dimorphism in an urban Eastern Indian population of Odisha by analyzing CBCT images for relative position of mandibular canal and its foramina. 120 CBCT images from both genders of adult individuals aged 18-60 years were investigated for relative position of the mandibular canal. Ten measurements were performed in relation to the mandibular canal; at the level of mandibular foramen, mandibular first molar and mental foramen. Unpaired Student t-test was employed to compare variables between the sexes at p & It; 0.05 level of significance. Statistically significant differences were found (p & It; 0.05) between the genders, with higher mean values in males compared to females except in distance between mandibular foramen and anterior border of ramus (2.648 ± 0.67 mm in females, 2.527 ± 0.75 mm in males) and in distance between the mandibular canal & lingual cortical plate in the region of first molar (14.515 ± 1.33 mm in females, 14.288 ± 2.01 mm in males). The relative position of the mandibular canal and its associated foramina show sexual dimorphism in the adult population of Odisha.

Keywords: Sexual Dimorphism, Tomography, CBCT Image, Forensic Odontology.









AGE ESTIMATION IN WESTERN UTTAR PRADESH POPULATION BASED ON THE ATLAS OF DENTAL DEVELOPMENT

Dr. Suhasini. GP¹, Dr. Vijay Wadhwan², Dr. Nagaraju. K³

¹Assistant Professor, Dept. of Oral Pathology and Microbiology, Subharti Dental College, Swami Vivekanand Subharti University, Uttar Pradesh

²Professor & Head, Dept. of Oral Pathology and Microbiology, Subharti Dental College, Swami Vivekanand Subharti University, Uttar Pradesh

³Professor & Head, Dept. of Oral Medicine and Radiology, Subharti Dental College, Swami Vivekanand Subharti University, Uttar Pradesh

Abstract

Dental development is widely considered the most accurate indicator of chronological age in sub-adults. Owing to diverse ethnic differences in Indian population most of the currently available methods are less reliable and requires further validation and modifications before legal and forensic applications. This study presents a new method and compares the accuracy of the new method with two other age estimation methods in Western Uttar Pradesh population children/ Adolescent. This study presents a new method and evaluates other methods that utilize dental development to estimate the age of Western Uttar Pradesh population. Archived digitised panoramic radiographs of 336 young western Uttar Pradesh population aged 5-25 years old will be analyzed for deciduous tooth root resorption, permanent tooth calcification, and eruption. The extent of tooth root resorption will be determined based on AlQahtani's modified Moorrees et al. method. Tooth calcification will be classified based on a Acharya 's Indian-specific formula. Tooth eruption will be evaluated using the AlQahtani's modified Bengston systems. The differences between males and females, between maxillary and mandibular teeth, and between right and left teeth will also be analyzed statistically and a population specific chart will be developed for western Uttar Pradesh population based on sequence of tooth root resorption, permanent tooth calcification and eruption. Another 100 archived digitised panoramic radiographs of known-age and sex individuals from Western Uttar Pradesh population will be assessed to compare the accuracy of newly developed Atlas for western Uttar Pradesh population, the Atlas of Dental Development in the Indonesian Population proposed by Putri et al and the Age Estimation Guide-Modern Australia population by Blenkin-Taylor. Study is under progress and the results are awaited.

Keywords: Age Estimation, Radiographs, Dental Development, Tooth Calcification









FACIAL RECONSTRUCTION – ART OF RE-CREATION OF THE SILENT WITNESS

Dr. C. Sreepradha¹

¹Assistant professor, Oral Medicine and Radiology Government Dental College and Research Institute (GDCRI), Bellary, Karnataka

Abstract

Identification connotes determination or establishment of individuality of a person living or dead. The call for forensic identification arises for humanitarian reasons, in mass disasters, to resolve criminal investigations and legal problems of insurance settlements, inheritance, funeral rites and for grief resolution of family and friends. The big four of forensic identification are determination of age, sex, stature, and ethnicity. Various methods used in forensic identification includes finger prints, anthropological examinations, dental records, DNA analysis and so on. Facial reconstruction is the process of re-creating the face of an individual from their skeletal remains through an amalgamation of artistry, anthropology, osteology and anatomy. The Skull has the edge of being relatively indestructible and is usually better preserved. Facial reconstruction allows visual identification by the individual's family and associates to become easier and more definite. This poster projects the spotlight on conventional 2D, 3D, craniofacial video superimposition as well as recent advances in digitalized 3D imaging facial reconstruction for personal identification.

Keywords: Facial Reconstruction, Forensic Identification, Personal Identification, 3D Image.









MANDIBULAR CANINE AS AID IN GENDER DETERMINANT: A STUDY ON THE POPULATION OF SRINAGAR, KASHMIR, INDIA

Dr. Tasneem S. Ain¹

¹Assistant Professor, Division of Preventive Dentistry King Khalid University College of Dentistry, Abha, Saudi Arabia

Abstract

Establishing person's identity is important for both legal and humanitarian purposes. Gender determination is one of the prime factors employed to assist with the identification of an individual. The present study was conducted to evaluate the mandibular canine index in predicting gender at Srinagar, India. 150 subjects residing at Srinagar, Kashmir population (80 males; 70 females) in the age group of 20-30 years were included for the study after obtaining their informed consent. Impressions were made using alginate and study models were prepared with dental stone. Mesiodistal diameter of mandibular canines and distance between tips of mandibular canines were measured using a Vernier caliper. Mandibular canine index was calculated as the ratio between the maximum mesiodistal width of mandibular canine and canine arc width. Overall, the values obtained for the intercanine distance, right canine width, left canine width, right MCI (Mandibular canine Index), and left MCI was found to be significantly higher in males than females. Moreover, left canine exhibited greater sexual dimorphism compared with right canine. The study concludes that there was a possibility to detect gender on the basis of canine dimorphism and thus can be considered as a quick and easy method for determination of gender of an individual.

Keywords: Canine, Gender, Forensic, Identification, Width.









COMPARATIVE EVALUATION OF THE ACCURACY OF RADIOGRAPHIC AND HISTOLOGIC AGE ESTIMATION METHODS IN ADULT INDIANS

Dr. Manoj Kumar¹, Dr. Aadithya B Urs², Dr. J. Augustine³

¹Ex Post Graduate Student, Dept. of Oral Pathology and Forensic dentistry Maulana Azad Institute of Dental Sciences, Delhi

²Professor and Head, Dept. of Oral Pathology and Forensic dentistry Maulana Azad Institute of Dental Sciences, Delhi

³Associate Professor, Dept. of Oral Pathology and Forensic dentistry Maulana Azad Institute of Dental Sciences, Delhi

Abstract

The aim of study was to estimate the age using histological method by counting odontoblasts and to compare the estimated age with that obtained by radiographic method using mandibular premolars and to derive formulae for dental age estimation for adult Indians. Hundred extracted mandibular premolars of known chronological age were collected along with their radiovisiographs. Teeth were demineralized and histological sections were prepared for counting odontoblasts. Regression equation was used to obtain the histological age proposed by Hossain et al. Radiovisiographs of same patients were analyzed to obtain pulp-tooth area ratio to obtain the radiographic age using regression equations proposed by Cameriere et al. The age obtained by two methods was then compared with chronological age. Paired sample test showed a lesser mean difference of 0.44±10.76 between actual age and histologically estimated age as compared to the mean difference of 5.76±8.76 between actual age and radiographically estimated age. Correlation analysis revealed a strong positive correlation (0.625) between actual & radiographic age than between actual & histological age. Thus, radiographic method appears marginally better method of age determination as it shows less standard deviation too. Radiological age estimation method showed better correlation with actual age than histological age estimation method combined with the ease of performing the radiological method in living subjects, it may be considered preferable.

Keywords: Odontoblast, Pulp Tooth Area Ratio, Dental Age Estimation, Radiographs.









IS YOUR DENTAL CLINIC PREPARED TO SOLVE A CASE?

Dr. Upasana Reddy¹

¹Nitte University, Mangalore, Karnataka

Abstract

With the ever increasing number of crimes, mass disasters, and wars the scope of forensic odontology has doubled. Right from identification of the deceased or assailant critical dental records have become an essential source of information, for medicolegal cases in general practice. It is mandated by law that every dentist must keep some kind of records for every patient they treat. After the death of an individual, remnants of teeth are usually damaged at the last among all body parts. Ante-mortem dental records assist in personal identification in cases of mass disasters, criminal investigations, and medico-legal issues. However, in India, rules for maintaining dental records are not strictly followed. The results of the present paper are to highlight the basic concepts, knowledge and awareness level of dentists in private practice in regard to forensic odontology. Hence there is a need to expose dentists to the basic principles and techniques of the subject.

Keywords: Forensic Odontology, Dental Records, Dentistry, Dental Awareness.



















TABLE OF CONTENT

Registration No.	Торіс
IAFO/2021/015	Nasal Index – A Tool For Sex Determination
IAFO/2021/033	Sterilization Methods On Extracted Human Teeth - A Comparative Study On Evaluation Of Efficacy
IAFO/2021/124	Radiographic Hallmarks In Forensic Odontology For Human Identification
IAFO/2021/131	Artificial Intelligence In Forensic Odontology: Does It Really Work?
IAFO/2021/163	Current And Evolving Applications Of Artificial Intelligence In Forensic Odontology: A Review
IAFO/2021/187	Bite-Marks In Crime Scene
IAFO/2021/191	Artificial Intelligence In Forensic Odontology
IAFO/2021/223	Role Of Cone Beam Computed Tomography In Forensic Odontology-A Review
IAFO/2021/228	Recent Advances In Lip Prints – A Review
IAFO/2021/323	"Tongue Of Life" - A Novel Biometric Forensic Tool
IAF0/2021/384	Gender Identification And Palatal Rugae…Whether Feasible Or Not
IAFO/2021/466	Tongue Print As An Authentic Biometric Tool – A Review







NASAL INDEX – A TOOL FOR SEX DETERMINATION

Dr. Syed Mohammed Miqdad¹, Dr. K. Leena Pramod², Dr. Sudheendra Prabhu³

¹Senior Lecturer, Centre for Forensic Odontology, Department of Oral Pathology, Yenepoya Dental College, Yenepoya (Deemed To Be University), Mangalore, Karnataka

²Assistant Professor, Department of Forensic Medicine & Toxicology, Yenepoya Medical College, Yenepoya (Deemed To Be University), Mangalore, Karnataka

³Professor, Centre for Forensic Odontology, Department of Oral Pathology, Yenepoya Dental College, Yenepoya (Deemed To Be University), Mangalore, Karnataka

Abstract

Various parameters can be considered in determining sex in forensic science. This particular research was carried out to determine whether nasal index helps in differentiating male and female Sex. The nasal length was measured as the distance from the nasion to pronasale, nasal breadth was measured from ala to ala of nose, using digital sliding calliper. Then the reading was read on the digital display and recorded, following which nasal index calculated. A random sample of 200 students aged between 18-30 years (100 males and 100 females), from Yenepoya University campus, Mangalore. Data was analyzed using independent t-test to compare the nasal parameters between males and females. The results of the study were obtained. The mean nasal length and breadth of males were 48.04mm and 28.98 mm and while in females 38.57mm and 22.52mm respectively. The mean nasal length and breadth in male subjects was significantly higher than those in female subjects. With these findings, it can be inferred that, nasal index can be an adjunct parameter, in determining sex, in forensic investigation.

Keywords: Nasal Index, Nose, Sex Determination, Nasal Length









STERILIZATION METHODS ON EXTRACTED HUMAN TEETH - A COMPARATIVE STUDY ON EVALUATION OF EFFICACY

Dr. Vidya G Doddawad¹, Dr. Shivananda S², Dr. Sunita S³

¹Associate professor, Department of oral pathology and microbiology, JSS Dental College and Hospital, Mysore, Karnataka

²Associate professor, Department of oral and maxillofacial surgery, JSS Dental College and Hospital, Mysore, Karnataka

³Associate professor, Department of public health dentistry, JSS Dental College and Hospital, Mysore, Karnataka

Abstract

To evaluate the efficacy of various methods of sterilization on extracted human teeth.100 non-carious teeth were collected and sterilized using physical and chemical methods. Ten samples each were placed in seven different chemical disinfectants for 7 days, at room temperature. The disinfectants used were 10% formalin, 3% hydrogen peroxide, 5.25% sodium hypochlorite, 70% alcohol, vinegar, thymol, and Normal saline.10 teeth each were treated with three physical methods namely: microwave irradiation at 650 W for 3 min, boiling water at 100 0 C and autoclaving at 121 0 C for 20 minutes at 16 lbs pressure. It was found that autoclaving at 121 0 C for 20 minutes at 16 lbs pressure, 5.25% sodium hypochlorite solution and10% formalin were 100% effective sterilization methods for extracted human teeth. Autoclaving, 5.25% sodium hypochlorite, and 10% formalin are the best methods for sterilization of extracted human teeth for research and preservation purposes.

Keywords: Tooth extraction, Sterilization method, Human tooth, Odontology.









RADIOGRAPHIC HALLMARKS IN FORENSIC ODONTOLOGY FOR HUMAN IDENTIFICATION

Dr. S. Praveen¹

¹Fellow in Forensic Odontology, Private Dental Practitioner, VGS Dental Clinic, Namakkal

Abstract

Child abuse and neglect is a complex and multifaceted problem. Child abuse is defined as any non-accidental trauma, failure to meet basic needs or abuse inflicted upon a child by the caretaker that is beyond the norms of child care in our culture. Child neglect is deprivation of basic needs of the child including providing insufficient food, shelter, medical attention including dental care. A dental neglect is the wilful failure of a parent or guardian to seek and follow necessary treatment to ensure a level of oral health essential for adequate function and freedom from pain and infection. In child abuse, children are exposed to sexual abuse, physical abuse, emotional abuse and neglect. The forensic odontologist should take a lead role in creating awareness to general dentist, public and government. They also should play an important role in assessing physical injuries and sexual abuse related to dentistry and give them a fairness. A study also indicate most of the injuries in child abuse occurs in facial region and dentist are most likely to report the child abuse about five times than any other fraternity if they have proper knowledge in signs, symptoms and reporting mechanisms of abuse. Thus this paper shall give a reasonable role of forensic odontologist in child abuse and neglect.

Keywords: Child Abuse, Forensic Odontology, Neglect, Physical Injuries, Sexual Abuse.









ARTIFICIAL INTELLIGENCE IN FORENSIC ODONTOLOGY: DOES IT REALLY WORK?

Dr. Ankita Tandon¹

¹Associate Professor, Department of Oral Pathology, Microbiology and Forensic Odontology, Dental Institute, RIMS, Ranchi

Abstract

The application of forensic odontology in medico-legal investigations, mass disasters, and identification of the accidental remains is possible through teeth and jawbones. Intraoral photography along with oral impressions is one on the common methods of inspection. The technological advancements which mainly mimic the human brains have revolutionized in dentistry. These smart mathematical technologies are named as artificial intelligent models which can be applied for problem-solving and decision making. These models can be applied for various tasks in dental and medical diagnostics. The major benefit of employing these models is that they provide reasoning for clinical decision making. The tremendous advancements in AI technology have proven to be a breakthrough in providing reliable information in decision making. Numerous studies have also reported the application of AI technology in predicting the age and gender based on the dental remains of the individuals. Therefore, such models can be promising tools when identifying victims of mass disasters and as an additive aid in medico-legal situations. However, all the studies published to date have been conducted on experimental models, and hence, it cannot give the actual measure of the success in real-life scenarios.

Keywords: Artificial Intelligence, Forensic Odontology, Forensic Science, Investigation.









CURRENT AND EVOLVING APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN FORENSIC ODONTOLOGY: A REVIEW

Dr. Vandana Reddy¹

¹Professor, Oral and Maxillofacial Pathology, Subharti Dental College, Meerut

Abstract

Artificial intelligence (AI) is a field of engineering science dealing with the computational understanding and ability of the computers to mimic human brain to exhibit an intelligent behavior to perform the tasks effortlessly. Technology has been the biggest innovation in every industry, Dental care is no different. It has the potential to revolutionize oral health care by assisting in addressing the weaknesses grimly criticized in conventional dental care. Right from data acquisition to even performing virtual surgeries were made possible with the introduction of virtual reality in the medicine and dentistry. These programs have also simplified the forensic investigations in terms of rapid collection and analysis of forensic evidence with reduced risk of errors that may occur due to cognitive bias. However, this technological advancement is still in the stages of infancy and this may be due to a perception of it being complicated technology or simply a lack of understanding of what can be done with Artificial Intelligence. Given that these technologies are evolving rapidly and changing the face of forensic science, this presentation collates current developments, practical and scientific overview of Artificial intelligence, discuss clinical applications of neural networks in forensic investigations and also highlights future perspectives.

Keywords: Artificial Intelligence, Forensic Odontology, Dentistry, Forensics.









BITE-MARKS IN CRIME SCENE

Title - Role of Saliva in Crime Scene Investigation

Dr. Prasanna Kumar Rao .J¹

¹Professor in Oral Medicine & Radiology, A.J Institute of Dental Sciences, Karnataka,

Abstract

In light of the ever rising crime rates in our society, the field of forensic science has also evolved and now encompasses dentists as well. Forensic dentists play a vital role in solving the mystery behind these crimes. Forensic odontology deals with identification, estimation of the victim or suspect in various forms by using many biological evidences. One such evidence being saliva, acts as a valuable source of genetic information. It plays a major role in identification of those individuals who cannot be identified visually or by other means. This review article emphasizes the importance of saliva, its collection, storage and its role in comparative and reconstructive identification in forensic odontology; in comparison with the routinely used sources of evidence in forensics.

Keywords: Bite-marks, Crime Scene, Forensic Odontology, Dentistry.









ARTIFICIAL INTELLIGENCE IN FORENSIC ODONTOLOGY

Dr. Poornima G¹

¹Professor, Oral Medicine and Radiology, Rajarajeswari Dental College And Hospital, Bangalore

Abstract

Artificial intelligence in Forensic Odontology Technological advancements have transformed the field of Medicine and Dentistry within last few decades, these advancements which mainly mimic the human brains have revolutionized in dentistry. One such advancement is artificial intelligence. Artificial intelligence (AI) is an area of computer technologies in influencing our lives. These functions by digital use of algorithms to learn data and form statistical patterns to understand the outcomes thus help in decision making and can often provide a means of tackling computationally large or complex problems in a realistic time-frame. In the current scenario of Forensic Science and Criminal Investigation, experts are facing many challenges due to huge amount of data, tiny pieces of evidences in the chaotic and complex environment, traditional laboratory structures and sometimes insufficient knowledge which may lead to failure of investigation or miscarriage of justice. All is the most emerging field which is also applied for the advancement in the area of Forensic science and Justice System and is the weapon to fight against these challenges which involve machine learning, deep learning. This paper converses the present day and probable forthcoming applications of Artificial intelligence in Forensic odontology.

Keywords: Forensic Odontology, Artificial intelligence, Dentistry, Forensic Science.









ROLE OF CONE BEAM COMPUTED TOMOGRAPHY IN FORENSIC ODONTOLOGY - A REVIEW

Dr.Vaishali.M.R¹

¹Reader, Rajiv Gandhi University of Health Sciences, Karnataka

Abstract

Radiology plays an important role in Forensic odontology particularly in establishing identity. The common imaging modalities in Forensic odontology being all intra oral and extra oral projections including panoramic radiographs. However Cone beam computed tomography, a specialized radiological technique has become a very popular and frequently used imaging modality in Forensic odontology. This imaging modality serves as a source of evidence for ante-mortem and post-mortem records by assisting in determination of gender, age, personal identification and three dimensional facial reconstruction. Cone beam computed tomography helps to overcome the disadvantages of two dimensional projections seen on conventional radiographs by providing three dimensional information and it plays an important role and asset in the field of forensic odontology. The advantages of cone beam computed tomography include excellent spatial resolution and non-invasive technique as compared with other imaging modalities used in forensic odontology. This paper review highlights the significance and limitations of cone beam computed tomography in the field of forensic science.

Keywords: Forensic Odontology, Cone beam, Radiology, Tomography









RECENT ADVANCES IN LIP PRINTS – A REVIEW

Dr. Karthik Shunmugavelu¹

¹Director, Dentistry/Oral and Maxillofacial Pathology, Mercy Multispecialty Dental Centre, Tamil Nadu, India.

Abstract

Identification of a person has always been a challenging task for scientists. It is necessary for all legal, personal and social reasons. Dental data, DNA, fingerprints are the most popularly used identification methods. The emerging technology or tool for human identification is Cheiloscopy. Cheiloscopy - study of lip prints. Lip pints are normal lines and fissures in the form of wrinkles and grooves present in the zone of transition of human lip, between the inner labial mucosa and outer skin. Similar to finger prints, lip prints are considered unique to an individual. Traces of can be looked on cutlery and crockery items, on the window or door glass, on photographs or letters, food products. Sandhya, S., Fernandes, R., Sapna, S. et al. Comparative analysis of machine learning algorithms for Lip print based person identification. Evol. Intel. C.Bankur, A.Rodrigues, R.Gopinathan, (2021).Dolly, P.A., Sharma, R.Doddamani, A. (2016). Evaluation of Efficacy of Three Different Materials Used in Cheiloscopy - A Comparative Study, 10(10), ZC67. Maxwell Abedi et al Lip print enhancement: review. Forensic sciences research.2020. Prabhu RV, Dinkar A, Prabhu V. Digital method for lip print analysis: A New approach. J Forensic Dent Sci. 2013;5(2):96-105.

Keywords: Lip Prints, Human Identification, Cheiloscopy, Recent Advancements.









"TONGUE OF LIFE" - A NOVEL BIOMETRIC FORENSIC TOOL

Dr. Sowmya GV¹, Dr. Madhusudan Astekar²

¹Associate Professor, Institute of Dental Sciences, Dept. of Oral Medicine and Radiology, Bareilly International University, Bareilly, UP

²Professor & Head, Institute of Dental Sciences, Dept. of Oral and Maxillofacial Pathology, Bareilly International University, Bareilly, UP

Abstract

Tongue is a vital internal organ well encased within the oral cavity. It is a distinctive structure with complex architecture, exhibits significant morphological variations in the human body consistent with its complex role which differ from individual to individual and even between identical twins. It is can be easily showed for inspection but at the same time be protected from the external environment. The color, shape, and surface features are characteristic of every individual, and this serves as a tool for identification. The tongue print can be used in cases of gender determination and also in criminal investigation. Biometric authentication is an essential process to identify and verify any person for safety reasons. Several biometric systems like fingerprints, voice scan, iris scan, and palm scan are currently in use. The quest for a new personal identification method secure has led to the use of the lingual impression or the tongue print as a method of biometric authentication. Liu et al. in 2007 were the first to propose a tongue print recognition system. Tongue print is a new method for biometric identification that is distinctive and cannot be copied easily. Evolving as a novel biometric tool, tongue prints also grasp the aptitude of a budding forensic tool. With this contextual, the present review highlights the uniqueness of tongue prints and its dominance over other biometric identification systems.

Keywords: Biometrics, Tongue, Forensic Tool, Personal Identification.









GENDER IDENTIFICATION AND PALATAL RUGAE...WHETHER FEASIBLE OR NOT

Dr Nasir Ahmad Salati¹

¹ Department of Oral Pathology, Dr. Z.A. Dental College, A.M.U, Aligarh, Uttar Pradesh

Abstract

The palatal rugae appear in third month of uterine life and the role of extracellular matrix in its development has been studied. The first rugae is seen when human embryos are of 32 mm CRL, and are close to incisive papilla. With time, the rugae get oriented and acquire final shape during adolescent stages of life. They are classified on basis of length, direction, shapes and orientation. Palatal rugae are stable anatomic landmarks which don't change in burnt victims and can be identified even after one week. Besides their patterns in males and females are different and so can be an effective forensic aid in gender identification. Identification process beyond one week requires proper storage of cadavers in the mortuary. CAPMI (computer assisted postmortem identification system) software, first designed in 1988 by Lorton is of use in assessment of different rugae patterns. CAPMI4 and WinID2 are advanced versions of this software helping in data management and matching. The aim of this article is to review the role of different anatomical types of palatal rugae in gender identification & their role in forensic sciences as far as timing is concerned.

Keywords: Palatal Rugae, Rugoscopy, Gender Identification, Forensic Timing.









TONGUE PRINT AS AN AUTHENTIC BIOMETRIC TOOL – A REVIEW

Dr. Manisha S. Ahire (Sardar)¹

¹Associate Prof. (Acad.), Ph.D. Scholar, Dept. of Oral Pathology & Microbiology, GDC & H, Mumbai

Abstract

Biometrics refers to a real-time identification system that is used in the identification of a person using a specific physical or behavioural characteristic which is compared with a library of characteristics of many other people. The uniqueness of the tongue print is that no two tongues are the same, and studies have found that the tongue of identical twins also does not resemble each other. The tongue provides both static and dynamic features for authentication. Therefore, the use of tongue prints as a biometric authentication system is gaining a lot of momentum. Although biometric systems have used different human traits like fingerprint, tongue, iris, palm-print, ear, etc., for authentication and recognition. But all these authentication systems have some flaws at some extent and as a result they can be forged by some fraudster by fooling the authentication system. Tongue is a unique organ which reside inside the mouth, proven to be difficult to forge or affected by external environment and does not react to factors such as mood, health, and/or clothing. This poster aims to present tongue print as an authentic biometrics tool.

Keywords: Tongue, Biometric, Identification, Biometric Tool.



















Registration	Торіс
IAFO/2021/028	Digital Tooth Reconstruction- A New Approach In Forensic Odontology
IAFO/2021/036	Age Estimation Using Pulp Tooth Area Ratio Method And Pulp Tooth Volume Ratio Method
IAFO/2021/077	Investigation Of The Presence Of Blood On Used Endodontic Files After Sterilization, Using Different Detection Methods - An Ex-Vivo Study
IAFO/2021/083	Analysis Of Dental Casts Of 6–8yrs, 12yrs Children And 18yrs Old Teenage
IAFO/2021/096	Endodontics In Forensics Using Micro-CT Analysis
IAFO/2021/099	Bone Hiistochemical And Microarchitectural Characterization In Species Identification: Hallmark Of Forensic Significance
IAFO/2021/103	Inter Observer And Intra Observer Variations In The Assessment Of Stages Of Tooth Development With Orthopantomogram
IAFO/2021/112	Morphometric Evaluation Of The Orbit In Gender Identification Using CBCT – A Tool In Forensic Odontology
IAFO/2021/125	Comparison Of Three Different Bite Analysis Methods For Gender Determination- A Pilot Study
IAFO/2021/128	Oral Autopsy
IAFO/2021/132	3D Printing - An Upgrade In Forensic Odontology?







IAFO/2021/136	Challenges In Bite Mark Assessment
IAFO/2021/149	Morphometric Analysis Of Odontometric Parameters For Sexual Dimorphism Among 20 To 30 Years Adult
IAFO/2021/152	Maxillary Sinus Measurements As A Tool For Gender Identification: A Con Beam Computed Tomography Study
IAFO/2021/160	Role Of DNA Profiling In Forensic Odontology: A Critical Review
IAFO/2021/164	The Variance In Structure And Appearance Of Circumvallate Papillae : An In Vivo Analytical Study
IAFO/2021/165	Computer-Assisted Generation Of Overlay Patterns In Bite Mark Analysis
IAFO/2021/166	A Comparative Evaluation Of 2D And 3D Antemortem Dental Records For Gender Determination Among West Godavari Population
IAFO/2021/167	Forensic Uses Of 3 Dimensional Printing : A Novel Approach
IAFO/2021/168	Heritability And Correlation Of Lip And Palm Prints Among West Godavari Population
IAFO/2021/169	Use Of An Innovative Index For Personal Identification – A Pilot Study
IAFO/2021/173	Efficacy Of Mastoid Morphometry In Sex Determination Using CBCT
IAFO/2021/174	Morphometric And Volumetric Evaluation Of Maxillary Sinus As An Aid In Gender Determination In Forensic Odontology - A CBCT Study









IAFO/2021/177	Recent Advancement In Forensic Odontology
IAFO/2021/180	Comparative Evaluation Of Arch Form Amongst The Indian Population: A Morphological Study
IAFO/2021/185	Age Estimation Using The Crypt To Tooth Ratio: A Novel Technique For Estimating The Age Of Adolescents
IAFO/2021/186	Unraveling The Structures Of Oral Cavity - After Death
IAFO/2021/189	Age Estimation In Coastal Karnataka From Extracted Teeth
IAFP/2021/190	Gender Identification Using Cheiloscopic And Dermatoglyphic Patterns Across Different Age Groups: An Original Study
IAFO/2021/192	A Dentist Can Put An End To Child Abuse
IAFO/2021/197	Journey Of Forensic Odontology Through Tooth Reconstruction
IAFO/2021/198	Gender Determination By Using Mandibular Flexure And Gonial Angle – A Radiographic Study
IAFO/2021/199	Comparative Evaluation Of Arch Form Amongst The Nepalese Population: A Morphological Study
IAFO/2021/200	DNA Fingerprinting – An Advancement In Forensic Era
IAFO/2021/202	Role Of A Dentist In Post Mortem Person Identification
IAFO/2021/203	Importance Of Antemortem And Postmortem Data In Forensic Dentistry
IAFO/2021/204	Role Of Bite Marks In Forensic Dentistry









IAFO/2021/206	Applications Of Cone Beam Computed Tomography In Forensic Radiology
IAFO/2021/208	Photography Is Love Affair To Forensic Odontology
IAFO/2021/213	Prevalence Of Third Molar Agenesis: An Institutional Study
IAFO/2021/214	Dental Tissues – A Source Of DNA In Forensic Odontology
IAFO/2021/216	Tongue Prints As An Emerging Biometric Tool
IAFO/2021/218	Facial Reconstruction To Support Criminal Investigation
IAFO/2021/219	Comparison Microscope In Forensic Investigation
IAFO/2021/229	The Application Of Multi-Baseline Digital Caliper And ABFO Photo Metric As Qualitative & Quantitative Comparison In Forensic Odontology
IAFO/2021/234	Testing The Influence Of Impaction On Third Molar Development: An Orthopantomographic Study In South Indian Children
IAFO/2021/236	Virdentopsy: The Road Less Travelled
IAFO/2021/240	Awareness Of Bitemark Analysis In Forensic Investigation – A Questionnarie Study Among Dental Practioners
IAFO/2021/241	Awareness Of Forensic Odontology Among The Legal Professionals And The Police In Karnataka
IAFO/2021/243	A Tooth-An Inextinguishable Tool In Forensic Dentistry







IAFO/2021/258	Determination Of Sexual Dimorphism In A Population Of Maharashtrian Ancestry By Analysis Of Buccolingual And Mesiodistal Dimensions Of Maxillary First Molar In Dental Casts:
IAFO/2021/260	Trending In Forensic's – A Review
IAFO/2021/262	Morphometric Variation Of Coronoid, Condyle And Sigmoid Notch Of Mandible In Personal Identification In South Indian Population
IAFO/2021/278	Evidentiary Value Of Bite Mark Analysis In Person Identification
IAFO/2021/285	Every Contact Leaves Its Trace - An Insight In To Recent Advances Of Forensic Odontology
IAFO/2021/292	Recommended Protocols For Forensic Odontologist While Performing Dental Autopsy In COVID Positive Cases
IAFO/2021/294	Forensic Facial Reconstruction – A Promising Future For Unfolding The Past
IAFO/2021/296	Role Of Forensic Odontology During Covid-19 Pandemic- Review Article
IAFO/2021/297	Role Of CBCT In Forensic Odontology- Review Article
IAFO/2021/305	Enamel Rods: Key For Forensic Jigsaw Puzzle
IAFO/2021/315	Lip-Prints
IAFO/2021/316	Bite Mark
IAFO/2021/319	Assessment Of The Usefulness Of Morphometric And Volumetric Analysis Of Mastoid Process For Gender









	Determination-A Retrospective Cone Beamcomputed Tomographic Study
IAFO/2021/330	Lips – The Index Of Hidden Thoughts: A Forensic Psychological Study
IAFO/2021/331	Investigation Protocol In Forensic Odontology And Covid 19: An Imperitive Shift
IAFO/2021/333	Role Of Dental Pulp In Forensic Odontology-A Boon And A Humanitarian Tool
IAFO/2021/338	Forensic In Endodontics
IAFO/2021/343	Unfloding The Process Of Identification In Forensic Odontology
IAFO/2021/345	Analysis Of DNA Extracted From Archival Formalin- Fixed Paraffin-Embedded Tissue Blocks As A Novel Alternative Resource In Forensic Science - 11 Year Retrospective Study
IAFO/2021/346	More Sunshine For Forensic Odontology- Need Of The Hour
IAFO/2021/357	Comparative Manual And Digital Analysis Of Gonial Angle In Lateral Cephalographs For Gender Determination
IAFO/2021/360	Age Estimation Using The Crypt To Tooth Ratio: A Novel Technique For Estimating The Age Of Adolescents
IAFO/2021/361	An Assessment Of Forensic Computerized Facial Reconstruction Utilizing CBCT – A Review
IAFO/2021/363	Age Estimation Of Adults From Orthopantomograms By Calculating Pulp/Tooth Area Ratio Of Mandibular 2nd Premolar









IAFO/2021/367	Digital Fraudulence-An 'Eagle Eye' Is Mandatory
IAFO/2021/369	Role Of Forensic Odontologist- In Giving A Royal Salute To Departed Souls
IAFO/2021/372	Authentication Of Novel Method For Age Estimation In Forensic Odontology
IAFO/2021/373	Assessment Of Mandibular Flexure For Sexual Dimorphism: A Retrospective Study
IAFO/2021/374	Forensic Odontology- Exploring The Third Dimension
IAFO/2021/377	Identification Of Drug Abuse In Forensic Sciences Using Dental Hard Tissue
IAFO/2021/379	Accuracy Of Gender Predection In Three Modalities: A Cross Sectional Study
IAFO/2021/380	Tooth Size: Insight For Facial Reconstruction In Forensic Odontology
IAFO/2021/381	Gender Identification By Comparing Lip Print And Tongue Print : A Cross Sectional Study
IAFO/2021/382	Tongue Prints -A Potential Biometric Tool
IAFO/2021/387	Prediction Of Gender And Age Using Mandibular Indices On Digital Orthopantomogram (OPG)-A Retrospective Study
IAFO/2021/388	Face'ing The Unrecognisable In Disaster Victim Identification
IAFO/2021/389	3D Printing In Forensic Odontology









IAFO/2021/403	Tooth For Truth – A Cone Beam Computer Tomography Study For Age Estimation
IAFO/2021/409	Significance &Amp Correlation Of Paranasal Sinus Volume With Morphometrics Of Foramen Magnum In Age And Gender Determination Using Cone Beam Computed
IAFO/2021/419	Thought Process On Sex Determination In Gender Blenders- A Review
IAFO/2021/424	Ameloglyphics - Aid To Identification - A Review
IAFO/2021/425	Determination Of Sex By Cone-Beam Computed Tomography Analysis Of Mental Foramen In North Indian Population
IAFO/2021/435	Frontal Sinus: An Adjuvant In Identifying Unknown Person – A Review
IAFO/2021/436	Awareness Of Forensic Odontology Among Undergraduates And Postgraduates Of Various Dental Colleges: A Knowledge, Attitude And Practice (Kap) Based Study
IAFO/2021/444	Advanced Methods To Analyse Human Bitemark
IAFO/2021/446	Role Of Orthopantamograph In Forensic Identification: A Pilot Study Among Haryana Population
IAFO/2021/448	Characterization Of Age And Sex Using Configurations Of The Mandibular Notch, Coronoid Process, And Mandibular Condyle: A CBCT Study
IAFO/2021/450	Sex Estimation And Craniometric Analysis Using Lateral Ceplalograms: A Digital Morphometric Study







IAFO/2021/456	Knowledge And Attitude About Forensic Odontology Among Dental Students And Dentists - A Questionnaire Survey
IAFO/2021/457	The Cases On Dentists
IAFO/2021/461	A Comparative Analysis Of Mandibular Ramus And Mental Foramen In Sex Determination Among The Population Of Rajasthan Using CBCT Technology: An Institutional Study
IAFO/2021/464	Era Of Neuronal Intelligence In Forensic Odontology
IAFO/2021/469	Clinical Significance Of Paranasal Sinuses And Its Anatomical Variations In Forensics Using Cone Beam Computed Tomography
IAFO/2021/471	Dentist Role In Mass Disaster: A Review
IAFO/2021/476	Forensic Facial Reconstruction- Its Relevance In Identification
IAFO/2021/482	Palatal Rugae : New Pathway Leading Towards Familial
IAFO/2021/484	Morphometric Evaluation Of Frontal Sinus, Nasal Septum And Intermaxillary Distance In Personal Identification In Forensic
IAFO/2021/489	Morphometric Assessment Of Greater Palatine Canal In Age & Gender Determination – A CBCT Retrospective Study
IAFO/2021/490	Efficacy Of Natural Dye (Indigo Blue) And Lysochrome Dye (Sudan Black) In Cheiloscopy As A Lip Print Enhancer - A Comparative Study









Г

IAFO/2021/496	Skull Base CBCT Retrospective Study: Normative Values For Size And Symmetry Of The Facial Nerve Canal, Foramen Ovale, Pterygoid Canal, Foramen Rotundum, Mental Foramen And Nutrient Canals
IAFO/2021/512	Dentistry In Course Of Disaster Victim Identification
IAFO/2021/517	Assessing The Major/Minor Status In South Indian Children And Sub Adults Using The Radiographic Visibility Of Peridontal Ligament In Mandibular Using The Radiographic Visibility Of Peridontal Ligament In Mandibular First And Second Molars - An Orthopantomogram Study
IAFO/2021/592	Evaluating The Reliability Of Two Different Dental Age Estimation Methods In Bengaluru Children
IAFO/2021/594	Bite Marks
IAFO/2021/600	Molecular Technique For Gender Identification - A Forensic Boon









DIGITAL TOOTH RECONSTRUCTION- A NEW APPROACH IN FORENSIC ODONTOLOGY

Dr. Shamli Sandip Prabhu Chodnekar¹, Dr. Manisha Khorate²

¹II YEAR Post Graduate, Goa Dental College & Hospital, Bambolim, Goa

²Professor and Head, Dept. of Oral Medicine and Radiology Goa Dental College and Hospital, Bambolim, Goa

Abstract

Dental identification is a frequently applied method of forensic investigation, in mass disasters, accidents, and criminal investigations, where the human remains are decomposed, charred, or skeletonized. However, in such events, teeth may dislodge due to post-mortem loss or mishandling during transporting and packaging which may further hamper with the identification of an individual due to the loss of dental evidence. In these situations, forensic tooth reconstruction may aid in the identification process. Forensic tooth reconstruction (FTR) refers to the process that aims to reconstruct the morphology of the missing tooth from the skeletal remains from the intra-alveolar morphology of the dental socket. It is an innovative attempt to develop a digital approach to reconstruct three-dimensional (3D) printed tooth models through recording intra-alveolar morphology of empty dental sockets which simulate the teeth which are missing post-mortem. It is performed by using volumetric scanning, 3D scanning and printing techniques. The tooth is reconstructed from the intra- alveolar morphology of the socket with minimal discrepancy between natural tooth and 3D printed tooth. Hence missing post-mortem teeth do not necessarily invalidate the identification process. This poster aims to demonstrate an innovative attempt to develop a digital approach to reconstruct 3D printed tooth models, which simulate the teeth which are missing post-mortem.

Keywords: Forensic Tooth Reconstruction, 3D Image, Tooth Model, Criminal Investigations.











AGE ESTIMATION USING PULP TOOTH AREA RATIO METHOD AND PULP TOOTH VOLUME RATIO METHOD: A COMPARATIVE PILOT STUDY

Dr. Neetu Yadav¹, Dr. Manisha M Khorate²

¹III MDS, Dept. of Oral Medicine and Radiology, Goa Dental College & Hospital, Goa Dental College & Hospital, Bambolim, Goa

²Professor and Head, Dept. of Oral Medicine and Radiology, Goa Dental College and Hospital, Goa

Abstract

Teeth play an important role in age estimation due to their high resistance to mechanical, chemical or physical impacts. Secondary dentine apposition is an ageassociated process and with increase in age, secondary dentine lays on the walls of pulp cavity and decrease its size. Many methods of age estimation have been developed based on this principle. The aim of this study is to determine age by calculating the pulp tooth area ratio and pulp tooth volume ratio on Cone Beam Computed Tomography (CBCT) images of mandibular canine and first premolar, and also compare these methods based on their accuracy. The sample consists of 50 Goans aged between 20 to 70 years at the time of examination. The radiographic images are obtained from the panoramic view of CBCT scan and exported as high-resolution JPEG files on a desktop computer. Pulp tooth area ratio is calculated using Adobe Photoshop 2021 software. Pulp Tooth Volume ratio is calculated using ITK Snap software. Regression analysis is used to estimate the age of an individual. Paired T test is used to compare the accuracy of age estimation using pulp tooth area ratio and pulp tooth volume ratio. The results of this study are awaited.

Keywords: CBCT Images, Pulp Tooth Volume Ratio, Pulp Tooth Area Ratio, Age Estimation.









INVESTIGATION OF THE PRESENCE OF BLOOD ON USED ENDODONTIC FILES AFTER STERILIZATION, USING DIFFERENT DETECTION METHODS - AN EX-VIVO STUDY

Dr. John Jeffrey Daniel¹

¹Postgraduate student, Rajarajeswari Dental College and Hospital, Bengaluru, Karnataka

Abstract

In Endodontics, files are the most frequently used instruments. With newer metallurgical advancements, files possessing improved mechanical properties are often reused in clinical practice, particularly in developing nations, with strict sterilization protocols. Lumiol, a chemical primarily used in forensic science is used to detect remnant blood on such files, providing an excellent indicator of sterilization quality and to avoid cross-contamination through file reuse. To evaluate the presence of residual blood on used Endodontic files, by visual examination, with luminol under fluorescent blue light and stereomicroscope, and determine the effectiveness of the current recommended protocols for instrument sterilization, and possibility of crosscontamination with reuse of files. #15 K-files, used as the initial instrument in vital tooth root canals will be collected and divided into three groups (G1-visual examination, G2-Stereo-microscopic examination, G3-Files examined with Luminol under Fluorescent blue light) prior to sterilization to identify the baseline levels of blood on it's surface. The files will then be surface disinfected with gluteraldehyde, rinsed, dried, and autoclaved. The files will then be re-examined to identify the presence of residual blood. The three group of files used in vital teeth were to be examined and data analysis carried out using relevant/applicable tests. The chemiluminescence of Luminol acts as a suitable method to identify blood residue on sterilized endodontic files.

Keywords: Luminol, Sterilization, Tooth, Root Canals.








ANALYSIS OF DENTAL CASTS OF 6–8YRS, 12YRS CHILDREN AND 18YRS OLD TEENAGE

Dr. G Sangeeta¹

¹PG Resident, Government Dental College Raipur, Chhattisgarh

Abstract

A human dental arch changes its size and shape in relation to age. Several dimensions of dental arches and dental traits can be used to determine how they vary with age between groups, and also how useful the differences are in discriminating amongst human groups. The aim of the present study is to analyse palatal length, palatal depth, inter-molar distance, inter-canine distance, anterior arc circumference, posterior arc circumference, mandibular length dimensions on plaster dental casts of 6-8yrs, 12yrs and 18yrs old children and to examine differences in dental arch dimensions with age and sex within the groups and between the three groups. Dental casts of 60 individuals each divided in to 3 groups - GROUP I- 20 dental casts divided in to male and female each of 10 casts of 6-8yrs, GROUP II- 20 dental casts divided in to male and female each of 10 casts of 12yrs, GROUP III- 20 dental casts divided in to male and female each of 10 casts of 18yrs. The means of the variables expected to be higher in males than the females. The maxillary inter-molar distance increases with age. Palatal and mandibular lengths and mandibular arc-circumference decrease with age. Significant sex differences will be observed in the maxillary arch circumferences, and inter- canine and inter-molar distances in the 12-yr old children. It has been shown that the size and shape of the dental arches changes from birth to 25 years with major changes occurring from 5 to 7 years and 11 to 13 years during the period of permanent tooth eruption.

Keywords: Dental Casts, Dental Arch, Tooth Eruption, Dental Arch Dimensions.









ENDODONTICS IN FORENSICS USING MICRO-CT ANALYSIS

Dr. Aakansha Puri¹

¹Post Graduate Student, Yenepoya Dental College, Yenepoya University, Mangalore, Karnataka

Abstract

Forensic odontology has been integral in utilizing the skills of dental surgeons for mass disaster, crime victim identification and in medico-legal matters through examination of dental hard and soft tissues. Endodontics on the other hand, constantly being guided by imaging examinations, has been a reliable source through identification of unique features of root canal morphology, pulp chamber and stages of root formation. Presently, new contemporary techniques which provide images of a much better spatial resolution, such as micro-computed tomography (Micro-CT) are also being used. Micro-CT can investigate all hard dental tissues and structures including root canal morphology, enamel thickness, mineral density, enamel abrasion, and the amounts of pre-dentin or reparative dentin. Its use within forensic practice remains an emerging technology, principally due to its current limited availability to forensic practitioners. Some applications in forensic practice include the evaluation of enamel-dentine and pulp cavity, bone pathology, post-mortem interval. This paper thus aims to enlighten on the role of Micro-CT in Endodontics for analysis in forensic odontology.

Keywords: Micro-CT, Endodontics, Forensics, Dental Tissues.











BONE HIISTOCHEMICAL AND MICROARCHITECTURAL CHARACTERIZATION IN SPECIES IDENTIFICATION: HALLMARK OF FORENSIC SIGNIFICANCE

Dr. Himani Grover¹, Dr. Nikita Gulati²

¹Post Graduate student, I.T.S-CDSR, Muradnagar, Ghaziabad

Abstract

Bone is normally well preserved and details of its microscopic structure can be seen in specimens even many centuries old. If the histological structure of such material could reveal, with reasonable accuracy, details of species and gender, it would be a valuable laboratory tool in forensics. Cross-sectional analysis of formalin fixed paraffin embedded sections (5 cases each of goat bone, 5 cases of chicken bone, 5 cases of human male and female bone) from maxillofacial region were studied for histological tunnelling patterns. The variation in average width of trabeculae, marrow space, and their ratio were measured through morphometric analysis. Also, percentage variation amongst the species by number of osteons, osteocytes shape i.e., -spindle, elliptical and round was noted. The stromal and hard tissue characterization was done using modified Azan, Van Gieson and Picrosirus red stain. Using morphometric software, average human Haversian canal diameter was found to be greater than non-human species. The goat bone consists of both plexiform with scattered areas of haversian tissue present in periosteal surface. Chicken bone shows osteocytes like humans which are biconvex but the lacunae are spindle to round in shape with absence of osteons. Histochemical analysis showed, Azan and Picrosirus staining of both chicken and goat bone revealed an admixture of mature bone and zones of immature bone in contrast to human bone with mature bone only. Study of bone architecture, microanatomy and histochemical characterization could be significant forensic evidence in species and gender identification.

Keywords: Microanatomy, Forensics, Anthropology, Bone Identification.











INTER OBSERVER AND INTRA OBSERVER VARIATIONS IN THE ASSESSMENT OF STAGES OF TOOTH DEVELOPMENT WITH ORTHOPANTOMOGRAM

Shatakshi Sharma¹

¹Intern, Krishna Institute of Medical Sciences "Deemed To Be University", Maharashtra

Abstract

The use of tooth developmental stages is a common practice in forensic and medicolegal practice to evaluate the maturity and age of an individual. Radiographic dental examination is a common practice and it includes both subjective and metric analysis. The calculation of age using the former method is fully dependent on identification of the right stage of development of teeth. The identification of these stages can change from one observer to the other leading to errors in age assessment. Therefore, it is important to assess the severity of such errors so as to perceive the need for alternate methods. The aim of the present study is to evaluate the agreement of the scoring pattern between different individuals while using the tooth developmental stages of Demirjian and Moorrees method. A total of 100 Orthopantomograms (OPGs) of children aged between 10 and 15 years were retrospectively and evaluated using Demirjian and Moorrees method.

Keywords: Orthopantomograms, Radiographic dental examination, Demirjian and Moorrees method.









MORPHOMETRIC EVALUATION OF THE ORBIT IN GENDER IDENTIFICATION USING CBCT – A TOOL IN FORENSIC ODONTOLOGY

Damathoti Nihitha¹

¹Post Graduate Student, GSL Dental College and Hospital, Andhra Pradesh

Abstract

Maxillo-Facial Radiology is making its mark in forensic anthropology to determine an individual's identity. Skull with its complex varied anatomic structures like frontal sinus, nasal septum, orbital aperture, maxilla and mandible is considered to be the second most unique structure of the human body used for identification of the individual. Orbits, a significant component of the skull are now being used as a tool in forensics. Orbital index (OI) which is the ratio between orbital height (OH) and orbital width (OW) is being used to identify an individual. Literature shows significant racial and gender variation of orbital index. Till date orbital index (OI) is calculated using 2 Dimensional radiographs. With the advent of 3 Dimensional imaging, Cone Beam Computer Tomography (CBCT) is currently used in identifying these parameters. Keeping this in mind, the present study aims to calculate the entire orbital volume apart from the orbital index in 60 CBCT's in our population. We intend to highlight any significant gender variation.

Keywords: Tomography, Gender Identification, Orbital Index, Forensic Anthropology.









℃ | +91 8879066856 図 | iafo2021mumbai@gmail.com

COMPARISON OF THREE DIFFERENT BITE ANALYSIS METHODS FOR GENDER DETERMINATION- A PILOT STUDY

Dr. Vinisha S Pousya¹

¹Postgraduate Student, Department Of Oral Pathology A B Shetty Memorial Institute of Dental Sciences

Abstract

Forensic odontology is a branch of dentistry that plays an important role in identification. Just like finger prints, bite-marks are unique to individuals. Analysing the bite-mark helps to identify the suspect. Bite-mark analysis also aids in gender assessment the main parameter considered is the intercanine width. The aims of this study are to compare three different methods that are hand tracing method, radiograph method, computer-based overlay method, for gender estimation in bite-mark analysis. A total of 15 (upper) dental casts will be randomly selected and retrieved from the Department of Orthodontics and will be used in the study, the records of which will be preserved in the archives of the institution. The three methods will be separately performed and the results of which will be subjected to statistical analysis. Hand tracing method will be done, radiograph method in which radiopaque wax will be used to trace the bite mark, image perception software will be used to assess the bite mark and the results will be used to determine the gender. Although bite mark analysis is not widely used method to confirm a suspect, but it may be an important adjuvant in forensic investigations. This study focuses on determining gender using the commonly utilised bite-mark analysis technique, which is both simple and accurate.

Keywords: Bite Marks, Radiograph, Statistical Analysis, Gender Estimation.









ORAL AUTOPSY

Dr. Mansi Wadekar¹, Dr. Archana Gaikwad¹, Dr. Nishreen Parekh¹

¹Nair Hospital Dental College, Mumbai

Abstract

Autopsy, also called as necropsy which means postmortem examination, dissection and examination of a dead body and its organs and structures. The word autopsy is derived from the Greek word autopsia, meaning "the act of seeing for oneself." There are three types of autopsies - anatomical autopsy for educating the medical and paramedical students, pathological autopsy for evaluating the extent of disease after the death of the patient, and medico-legal autopsy performed to aid the justice system. Various Dental autopsies which includes incisions and resection of the jaw are performed for the detailed examination of the oral cavity. The procedure involves various modes of examination, including visual and radiographic, which help in human identification in forensic investigation.

Keywords: Oral Autopsy, Radiography, Human identification, Forensic investigation.









3D PRINTING - AN UPGRADE IN FORENSIC ODONTOLOGY?

Dr. Nishreen Parekh¹, Dr. Mansi Wadekar¹, Dr. Archana Gaikad¹

¹Postgraduate, Department of Oral Pathology and Microbiology, Nair Hospital Dental College

Abstract

Digital dentistry has taken over conventional dentistry in recent times through three dimensional (3D) scanning, computer aided design or computer aided manufacturing (CAD/CAM) and rapid prototyping. Three-dimensional (3D) printing is used to generate a 3D object by adding consecutive layers of the material under computer control. The term "Additive layer printing" when CT slices can be printed sequentially arranged to create a 3D model. Many modalities of 3D printing used were first developed in 1980-1990 for fabrication of cleft palate devices. Due to widespread application and ease of image processing - Computed Tomography (CT) images are most commonly used for 3D printing. This paper will try to demonstrate the importance as well drawbacks of 3D printing in forensic odontology and why the influence of forensic odontology is needed for the development of 3D printing applications.

Keywords: Digital dentistry, Computed Tomography, Forensic odontology, Additive layer printing.









CHALLENGES IN BITE MARK ASSESSMENT

Lokapriya M¹

¹Post Graduate student, Dent of Oral medicine and Radiology VS dental college and Hospital, Bengaluru

Abstract

The basic principle on which forensic odontology works is every dentition is unique. Will this be applicable to bite marks too? The challenges faced in bite mark analysis are endless starting from differentiating between bite mark analysis and bite mark comparison followed by the very first step of identifying if it's a bite or not, recording, and overcoming the judgemental human brain to arrive at the various types of report and finally substantiating the report in the Court of Law, where bite mark seems to have a weak foundation with an exaggerated claim. Also, the focus is on what are the new advancements that can help in the assessment to make the report more reliable.

Keyword: Bite mark, Dentition, Odontology, Recording.









MORPHOMETRIC ANALYSIS OF ODONTOMETRIC PARAMETERS FOR SEXUAL

DIMORPHISM AMONG 20 TO 30 YEARS ADULT

Dr.Renuga S¹, Dr.Meghashyama Kulkarni¹, Dr.Hajira Khatoon¹

¹Postgraduate Student, Government Dental College and Research Institue, Rajiv Gandhi University of Health Sciences, Bangalore

Abstract

During mass disaster and crime scenario, identification of individual will be a hectic spot. When the body mutilated severely, once gender is determined, the investigation will get curtailed. Though osteometry is good in gender determination, in case of fragmentary remains they provide trivial details. In such situations the odontometry proves to be a better alternative. Usually male exhibit larger tooth dimension when compared to female. Maxillary teeth provides a nitty grity details since maxilla attached firmly to the base of skull and resist decomposition, fire, have standard anatomical landmarks for identifications. To evaluate sexual dimorphism for odontometric parameters such as intercanine width, interpremolar width and intermolar width of maxillary teeth and also to compare accuracy of these odontometric parameter in gender determination among themselves. Odontometric measurements are directly measured on subjects with help of digital vernier caliper to accuracy level of 0.1mm. 100 subjects [50 male and 50 female] were taken up for study. Inclusion criteria: age group 20-30 years, fully erupted teeth, periodontally healthy, non-carious teeth. Exclusion criteria: teeth with physiological wearing, Malalignment, partially erupted, history of restoration, orthodontic treatment and trauma. All parameters showed significant sexual dimorphism. And it is high for inter canine width with the p value 0.000 when compared to inter premolar width [p< 0.001] and inter molar width [p<0007]. The result showed that odontometric parameters gives significant sexual dimorphism. They will provide simple, reliable and cost-effective way of determining sex in any forensic investigation.

Keywords: Odontometric measurements, Osteometry, Mass disaster, Maxillary teeth.











MAXILLARY SINUS MEASUREMENTS AS A TOOL FOR GENDER IDENTIFICATION: A CON BEAM COMPUTED TOMOGRAPHY STUDY

Dr.Jijin Mj, Dr.Thabsheera PP, Dr. Mufeeda Thasneem³

¹Ph.D Scholar, SVB University, IGIDS Pondichery

²General Dentist, CH Dental Care, Valanchery

³BDS, Housergeon, MES Dental College, Perinthalmanna

Abstract

As sex estimation is an important step to delineate the biological profile, the development of tools employing anatomical structures which may maintain their integrity even after extreme events, such as the maxillary sinus, become useful for forensic identification. Thus, the aim in the present study is sex identification through measurements in the maxillary sinuses in an indian population, using cone beam computed tomography (CBCT) scans. Volumetric measurements in the maxillary sinus were performed left maxillary sinus in 45 CBCT scans from 22 males (mean age 25.2 \pm 0.79) and 23 females (mean age 23.7 \pm 0.50). The volume analysis done using nnt software. The data obtained was applied to a mathematical model for sex Identification. Overall, maxillary sinuses' measurements were significantly higher in males. Through the measurements in the maxillary sinus using CBCT scans showed sex identification and can be applied as a complementary method for human identification in the Indian population.

Keywords: Sex characteristics, Forensic anthropology, Maxillary sinus, Cone beam computed tomography, Forensic dentistry.









ROLE OF DNA PROFILING IN FORENSIC ODONTOLOGY: A CRITICAL REVIEW

Dr. Sneha Upadhyay¹

¹PG Student, Department of Oral Pathology and Microbiology Choudhary Charan Singh University Meerut (UP)

Abstract

In forensic identification cases, where human remains are extremely damaged or degraded by mass disaster, teeth and bones are often the only available sources of DNA. DNA is an excellent means for identification of unidentified human remains. The currently available DNA tests have high reliability and are accepted as legal proofs in courts. Various studies have shown that the teeth represent as an excellent source of DNA. This paper summarizes the recent literature on use of this technique in identification of unidentified human remains. To assess the role and efficiency of DNA profiling of teeth as an important forensic tool in individual identification. A thorough literary search was made to review data bases from indexed journals on Pubmed, Ebscohost, Copernicus. The relevant articles and related information were collected. Forensic odontology is the forensic science that is concerned with dental evidence. It plays a fundamental task in establishing and identification of an individual where other available sources fail. The arrival of DNA fingerprinting has revolutionized the concept of identification. The findings of the several studies demonstrate that the teeth represent an excellent source of DNA and can be used in the identification of the deceased.

Keywords: DNA Profiling, Identification, Forensic Odontology, Human Remains.









THE VARIANCE IN STRUCTURE AND APPEARANCE OF CIRCUMVALLATE PAPILLAE: AN IN VIVO ANALYTICAL STUDY

Dr. Piyalee Das¹

¹PG Student, Rajiv Gandhi University of Health Sciences, Bengaluru, Karnataka

Abstract

Circumvallate papillae are the largest papillae in the tongue located in the dorsal surface of the tongue anterior to foramen caecum. The data of this study may contribute important information in the field of forensic dentistry as a supplement to know the difference in morphology and number of circumvallate papillae between two genders of age groups 40 years and above. To compare number and morphology between males and females of age group of 40 and above. 80 individuals were assessed-out of these 40 were males and 40 were females. The circumvallate papillae was focused and identified with an intraoral camera and photographs were taken and counted in computer screen. The morphology was measured using image analysis software. Comparison of the Vallate Papillae count and morphology was done using independent sample t test. Mean Vallate Papillae count was found to be higher in Females- 6.9 \pm 1.1 as compared to males- 5.63 \pm 1.53 (p=0.00). Mean diameter was found higher in males- 1.51 ± 0.47 as compared to females 1.03 ± 0.56 (p=0.00). Mean perimeter was found higher in males- 4.43 ± 1.71 as compared to females- 3.21 ± 1.74 (p=0.002). The number, diameter and perimeter of circumvallate papillae is noted in this study. Females of the above age groups were seen to have higher number of Vallate papillae then males. And males were seen to have greater diameter and perimeter of the Vallate papillae.

Keywords: Circumvallate Papillae, Papillae, Tongue, Morphology.









COMPUTER-ASSISTED GENERATION OF OVERLAY PATTERNS IN BITE MARK ANALYSIS

Dr. G. Subbarao¹, Dr. Ravikanth Manyam², Dr. A. Satya Tejaswi³

¹Post-graduation, Oral and Maxillofacial pathology, Vishnu Dental College, Bhimavaram, Andhra Pradesh

Abstract

Dental evidence as a tool of forensic sciences is used in court for many years, and it is now an evolving branch of science and has a greater scope of progress. Bite marks in forensic odontology play a significant role in finding either suspects or victims in legal proceedings. The aim of the study is to evaluate the efficiency of the computer-assisted generation of overlay patterns in the analysis of bite marks. Maxillary and mandibular impressions were taken from 30 participants, using neocolloid alginate impression material, and model casts were fabricated using dental stone. Wax bite impressions were taken using bite registration wax (aluminium filled). The model casts and wax bite impressions were photographed using a Canon EOS 3000D DSLR Camera with a tripod maintaining a uniform distance of 40 centimetres from the object. The overlay patterns from model casts were generated using Adobe Photoshop cc 2014 software and were compared to the wax bite impression photographs. Results are awaited, will be discussed during the paper presentation.

Keywords: Dental Evidence, Bite Marks, Dental Stone, Wax Bite Impressions.









A COMPARATIVE EVALUATION OF 2D AND 3D ANTEMORTEM DENTAL RECORDS FOR GENDER DETERMINATION AMONG WEST GODAVARI POPULATION

Dr. Bheemavarapu Naveen Kumar Reddy¹

¹II MDS, Vishnu Dental College, Vishnupur, Bhimavaram, Andhra Pradesh

Abstract

The identification of individuals and their characteristics has been crucial in the identification of the deceased for a proper burial and satisfactory disposal of legal issues that may arise. The positive identification of human remains involves matching of the physical characteristics of the deceased with records of physical characteristics that are made before death. The aim of the study is Gender determination using 2D photographs and 3D dental models from canine-to-canine region in West Godavari population. The objectives of this study are: Comparison of Odontometric findings in male and females using 2D and 3D antemortem records, Evaluate the Effectiveness of using 2D and 3D antemortem records in Gender determination, Estimating the accuracy in use of 2D and 3D antemortem records in Gender determination. The materials used for the study were Patient maxillary cast, Medit T 500 Extra oral scanner, Exocad software, Adobe Photoshop. Based on the results, comparison between 3D and 2D, there are 6 parameters showing significant difference between male and female (11 mesiodistal middle third, 13 buccolingual incisal third, 13 crown length, 22 crown length, 23 mesio distal middle third, 23 crown length) and the predictable accuracy for males is 88%, females is 96% and overall predictable accuracy is 92% in 3D. According to 2D only one parameter is showing significant difference for gender determination (22 mesio distal incisal third) and the predictable accuracy for males is 88%, females is 76% and overall predictable accuracy is 82%. Based on the statistical results that 3D got more predictable accuracy compared to 2D in case of gender determination, that almost 2D has no significant difference with any parameter.

Keywords: Human Remains, Gender Determination, Dental Models, Dental Measurements.









FORENSIC USES OF 3 DIMENSIONAL PRINTING: A NOVEL APPROACH

Ippili Manoj Kumar¹

¹MDS, Vishnu Dental College, Vishnupur, Bhimavaram, Andhra Pradesh

Abstract

In this digitalised era, technology is advancing rapidly and 3D printing is one of the recent advancement in the process of manufacturing and prototyping in every field extending from defence, art, aerospace to medicine and dentistry. In dentistry their use is extensive from surgical guides in implants to fabrication of copings and restorations. In forensic odontology presenting physical evidence during criminal proceedings in court is a well-recognised practice. There are numerous legal and ethical concerns if the evidence is of mortal remains, which prevent the investigators from transferring and submitting the evidence in court. Making 3D models of any evidence of human origin by 3D scanners and printers play a crucial role in overcoming the situation without creating bias in the court and also overcome the potential damage of the anatomical evidence due to excessive handling. The digital data which includes CT, CBCT and digitally scanned objects are used for 3D printing in forensic odontology. These models are non- invasive, non-destructible and takes less time for fabricating. The major application includes bite mark analysis, 3D facial reconstruction, dental age estimation, sex determination, lip prints, recreating crime scene, weapon identification, on-field molecular techniques and physical models.

Keywords: Criminal Investigation, 3D Printing, 3D Scanner, Bite Marks, Facial Reconstruction, Sex Determination, Weapon Identification.









HERITABILITY AND CORRELATION OF LIP AND PALM PRINTS AMONG WEST GODAVARI POPULATION

Dr. Vanguru Ravi Teja¹

¹II MDS, Vishnu Dental College, Vishnupur, Bhimavaram, Andhra Pradesh

Abstract

Forensic sciences deal with essential areas to be used in judicial makeup approved by the court and scientific community, which delineates truth from forgery. Lip and palmprints are unique and do not change during the lifetime of a person unless any pathologies. To evaluate the heritability, and sexual dimorphism of lip and palm prints among parents and their off springs. Lip & palm prints (Suzuki & Tsuchihashi, Wu et al) were collected from each participant using digital camera by obtaining prior informed consent. The photographic data obtained is subjected to adobe photoshop and analysed for inheritance. Sexual dimorphism is evaluated by the predominant lip pattern and palm ridge count in four areas (thenar, hypothenar eminence, tri-radius of second and fifth digit). Positive resemblance of 28.4 % was found between parents and offspring in lips and for the right palm it is 60.2 % and 55.12 for left palm (principal lines) which are statistically insignificant. Among siblings 75 % inheritance variation was found in lips and in palms 40% (right) 50% (left). In all six quadrants the most predominant lip pattern found in males is 5 and in females 1¹. The mean palm print ridge density was significantly higher among female than male in all the designated areas. A corelation was found between 1¹ in lips and category 5 of palms. In our study, considerable inheritance patterns and sexual dimorphism were seen which may aid in personal identification.

Keywords: Forensic identification, Lip prints, Palm prints, Heritability, Inheritance, correlation, sexual dimorphism.









USE OF AN INNOVATIVE INDEX FOR PERSONAL IDENTIFICATION – A PILOT STUDY

Dr. Sreelakshmi R¹

¹Second year, Post graduate student, Department of Oral & Maxillofacial Pathology & Microbiology, Rajiv Gandhi University of Health Sciences

Abstract

Craniofacial anthropometry and indices are useful for determining the morphological characteristics of the head and face. They are used to identify the sex, gender, race and ethnicity of individuals. The present study uses anatomical bony landmarks of the face such as outer canthal distance of the eve socket and vertical distance from glabella to the maxillary central incisal edge- IGI-radix index (Intercanthal-Glabella-Incisal index) which persist even after severe mass calamity and thus are more reliable for comparison of antemortem and postmortem data. The study will be conducted on Bangaloreans in the age group of 20-30 years. To validate the use of IGI-radix index as one of the anthropological measurements. To compare the ratio obtained from the subject in person with the clinical photograph. To asses if there is any sexual dimorphism on comparing the above indices between the gender. Number of study participants (n) = 20 [males-10 and females-10]. The distance between outer canthus of the eve socket measures the horizontal line. Vertical distance from midpoint of this horizontal line till the incisal edge of the maxillary centrals would be measured. The ratios of horizontal to vertical distance will be compared with the measurements obtained from the subject in person and clinical photographs. The ratios obtained from subjects in person and from clinical photographs corelate well, and can be used as one of the anthropological indices. IGI-radix index is reliable, reproducible and used as one of the anthropological indices.

Keywords: Craniofacial anthropometry, IGI-radix index, Morphological characteristics, Anthropological indices.









EFFICACY OF MASTOID MORPHOMETRY IN SEX DETERMINATION USING CBCT

Dr. Anwesha Saha¹

¹Post-graduate student, 2nd Year, Department of Oral Medicine and Radiology, Manipal College of Dental Sciences, Mangalore, Manipal

Abstract

Sex determination in an individual using a human skeleton has always been a topic of interest among anthropologists. Morphological features of the skull like size and architecture, mastoid, supraorbital-ridge, zygomatic extensions, nasal apertures and nuchal crest are applied for gender determination. Among these, the mastoid process stands out as it is the most dimorphic part of the skull with a compact nature assuming a protected position making the petrous bone the second-best region in the skeleton to predict gender. The role of CBCT in evaluating the morphology of the Mastoid process along with its use as a vital diagnostic tool in determining gender has been explored in the present study. A retrospective study was conducted on 70 adults with Full FOV CBCT scans (35 males and 35 females). Eight parameters of the mastoid process were assessed for gender determination. The study showed a significant difference between the mastoid process of males and females. Statistics revealed a highly significant value for mastoid height (p <: 0.001), intermastoidale distance (p<: 0.001), intermastoidale lateral surface distance (p< 0.001) and right mastoid surface area (p 0.023), all of which was found to be greater in males. Intermastoidale distance was found to be the best sex determinant among all the parameters with an accuracy of 77.1%. It can be concluded from the present study that intermastoidale distance can be used as a good index for gender determination.

Keywords: Sex Determination, CBCT, Anthropology, Mastoid Morphometry.









MORPHOMETRIC AND VOLUMETRIC EVALUATION OF MAXILLARY SINUS AS AN AID IN GENDER DETERMINATION IN FORENSIC ODONTOLOGY - A CBCT STUDY

Dr. Mohana Bhoraskar¹, Dr. Ceena Denny²

¹Post-graduate student, Department of Oral Medicine and Radiology, Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education, Manipal, Karnataka

²Associate Professor, Department of Oral Medicine and Radiology, Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education, Manipal, Karnataka

Abstract

To check the accuracy of maxillary sinus dimensions using Cone-beam Computed Tomography (CBCT) for identification of living individuals and skeletal material of unknown age or gender. A cross sectional retrospective study was done on a total of 80 CBCT scanned images of subjects above 20 years referred to the department of Oral Medicine and Radiology for varied diagnostic purposes. In the Romexis Software, the maximum superior-inferior and medio-lateral measurements were taken in coronal and axial sections, respectively. The volume was calculated using manual segmentation of Free Region Grow Tool of the software. Comparison of the maxillary sinus, superoinferiorly on both sides and mediolaterally on right side showed that measurements were bigger in males when compared to females which was statistically significant (supero-inferior p<0.001, medio-lateral p<0.049). On comparing the volume of the maxillary sinus on either side between both the genders, it was found that it was greater in males with statistically significant values (p value in case of right sinus <0.001, p value in case of left maxillary sinus <0.002). No correlation was found between age and maxillary sinus parameters. Maxillary sinus dimensions can be used in forensic medicine for the gender determination. CBCT, a useful three dimensional imaging modality is non- invasive and also makes it possible to reconstruct the images in different planes showing the anatomical and imaged structures at different planes.

Keywords: CBCT, Maxillary Sinus Dimensions, Personal Identification, 3D Image.









RECENT ADVANCEMENT IN FORENSIC ODONTOLOGY

Dr. Ravi Kumar¹, Dr. Manisha Khorate²

¹Il year postgraduate, Goa Dental College & Hospital, Bambolim, Goa

²Professor and Head, Dept. of Oral Medicine and Radiology, Goa Dental College and Hospitals

Abstract

Forensic odontology is a branch of dentistry that mainly deals with the identification based on individual's oral structures. It plays a major role in the identification of those individuals who cannot be identified visually or by other means. The dental tissues are often preserved even if the deceased person is skeletonized, decomposed, burnt, or dismembered. Forensic odontology has established as an indispensable science in medico-legal matters and in the identification of the dead person. Advance technologies available have made the investigation by forensic experts much faster and more accurate. This paper provides an overview of the advanced technologies pertaining to evidence collection, evaluation and presentation in the field of forensic odontology.

Keywords: Dental Tissues, Identification, Investigation, Forensic Odontology.









COMPARATIVE EVALUATION OF ARCH FORM AMONGST THE INDIAN POPULATION: A MORPHOLOGICAL STUDY

Rhea Fernandes¹, Simran Gupta¹, Dr. Srikant N²

¹3rd year BDS student, Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education, Manipal, Karnataka

²Coordinator Centre for Forensic Odontology, Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education, Manipal, Karnataka

Abstract

Arch Form differences can be evaluated using various methods. With the availability of landmark points through softwares like PAST and MorphoJ, Euclidean distance matrix analysis (EDMA) was used to assess the variations in arch size and shape among the genders of the Indian population. Thirteen landmark points that denote the most facial point of the proximal contact area of maxillary and mandibular casts were marked and Euclidean distances were calculated in 78 subjects within the age groups of 18-25. The distances were then tested for differences between gender using independent t test and Euclidean distance ratios. Male arch form was bigger than female arch form in all aspects (premolar-molar, intermolar width, intercanine width, interpremolar width, interincisal width). Highest distances in the male arch form is seen at left intermolar width with a ratio of 1.934232249 in maxillary arch and right interincisal width with a ratio 2.046286897 in the mandibular arch suggestive of maximum variation around these segements. Least variation and distance was seen in the antero-posterior width of both arches. Significant differences between arch shape and form were found indicating Indian males to have a slightly larger arch form in comparison to females.

Keywords: Molar, Euclidean Distance Matrix Analysis, Maxillary Arch, Morphological Study.









Registration number: IAFO/2021/185

AGE ESTIMATION USING THE CRYPT TO TOOTH RATIO: A NOVEL TECHNIQUE FOR ESTIMATING THE AGE OF ADOLESCENTS

Samreen Fatima¹

¹Intern, Manipal Academy of Higher Education

Abstract

Tooth development is a chronologically accurate process and thus can be used to estimate the age of an individual. The development involves hard and soft tissue changes which are visualized radiographically. In this study, mandibular third molars are assessed to obtain the crypt to tooth ratio (CTR) and estimate the cutoff for the age group of 14 years, which is critical for medico-legal cases. In the present study, we evaluated 224 Digital Orthopantomograms (OPGs) of children and young adults (boys and girls) in the age range of 8 to 18 years. The radiographs were evaluated using Image J (version1.53e, NIH, USA) and the region of interest were the right and left mandibular third molar. Using the polygonal tool, the outline of the crypt and the mineralized portion of the tooth were demarcated and the area measured in pixels was tabulated in excel. The ratio crypt area to tooth area (CTR) was obtained and evaluated for changes with age using one way ANOVA and discriminant function analysis. The CTR and the age were inversely proportional with p value <0.001. Discriminant function analysis showed that the CTR was able to delineate the age of 14 years with accuracy of 55.10% for 38 and 71.40% for 48. Crypt to tooth ratio is an essential novel adjunct to age estimation. This method of age estimation is quick and reliable. With reasonably accurate results to estimate 14 years cutoff it can be used as an adjunct for medicolegal issues.

Keywords: Age estimation, Discriminant function analysis, Crypt to tooth Ratio.









UNRAVELING THE STRUCTURES OF ORAL CAVITY - AFTER DEATH

Dr. Kshma¹

¹Postgraduate Student, A.J Institute of Dental Sciences, Mangalore

Abstract

Forensic odontology deals with identifying human remnants after accidents, homicides, wars, natural disasters. It has been established that dental indicators can assist in successfully identifying person. Identification of humans with mutilated body, especially in a mass disaster is challenging for the disaster victim identification (DVI) unit. Identification is necessary for humanitarian and emotional reasons and many legal issues, particularly for family members. Teeth by their resistant nature to degradative forces offer us an identification tool. Autopsy is a post-mortem examination where we can see with our own eyes. It is a highly specialized surgical procedure that consists of a thorough examination of a corpse to determine the cause and manner of death and to evaluate any disease or injury that may be present. In an era where non-invasive and minimally invasive techniques are heralding medical innovations and health science technology, necrological analysis is not bereft of this wave. This present paper is a review of oral autopsy as well as the recent emerging methods.

Keywords: DVI, Oral cavity, Forensic odontology, Post-mortem examination.











"AGE ESTIMATION IN COASTAL KARNATAKA FROM EXTRACTED TEETH"

Dr. S. Kavya¹, Dr. Soniya Adyanthya², Dr. Sudeendra Prabhu² ¹MDS – II year, Yenepoya Dental College ²Professor, Yenepoya Dental College

Abstract

Teeth are useful indicators of age-at-death and non-destructive methods ensure preservation of dental evidentiary material which could be used for court presentation. The teeth have been used to estimate age both in the young and old, as well as the living and the dead. This paper examined three parameters—dental attrition, periodontal ligament (PDL) attachment level and root dentin translucency on a heterogeneous sample from the subjects. The extracted teeth with age and sex was collected from adults in the regions of Coastal Karnataka with age range between 18 – 60 years. Methods such as Johanson, Lamendin and Li and Gi methods were utilised in assessing the changes such as attrition, periodontal ligament (PDL) attachment level and root dentin translucency. The study is under process, the results will be presented at the time of presentation. It is anticipated that this study helps to find out best reliable method for the estimation of age. This study also helps to estimate age clinically without the necessity for tooth extraction.

Keywords: Dental attrition, Periodontal ligament, Tooth extraction, Non-destructive methods.









GENDER IDENTIFICATION USING CHEILOSCOPIC AND DERMATOGLYPHIC PATTERNS ACROSS DIFFERENT AGE GROUPS: AN ORIGINAL STUDY

Dr. Devika Jayarajan¹

¹Oral Pathology and Microbiology Institution Yenepoya Dental College and Hospital, Mangalore

Abstract

Forensic dentistry plays a pivotal role in detection and resolution of crime, civil proceedings and personal identification. With the importance attached to providing sufficient physical evidence linking a perpetrator to a crime, it makes sense to utilize any type of physical characteristic to identify a suspect of an offense. The most efficient, least invasive and cost-effective procedure among all methods of human identification is the study of lip prints and fingerprints. This study was done to determine the predominant pattern of fingerprint and lip print in males and females in different age groups and to correlate it for gender identification.

Keywords: Personal Identification, Dermatoglyphic Patterns, Lips prints, Fingerprints.









A DENTIST CAN PUT AN END TO CHILD ABUSE

Dr. Nakshatra Shetty¹

¹Postgraduate Student, A.J Institute of Dental Sciences, Mangalore, Karnataka, India

Abstract

Healthy, protected and educated children are the pillars of the nation. However, they are dependent on their parents or care givers, which makes them vulnerable to abuse. Child abuse, child maltreatment, non-accidental injury and child homicide: all terms that still exist in the 21st civilised century. In child abuse cases physical injuries to the head and facial area are common while other types of abuse are less visible but are damaging to a vulnerable child in other ways. Many of these injuries are easily observed by the dental professional in the course of routine dental treatment and are within the scope of dentistry for identification. This paper shows that there are very few attempts made to report child abuse in many other parts of the world. This difference could be attributed to laws regarding this matter and lack of awareness and knowledge of the procedures to be followed. The objective of this paper is to review briefly the role of dentist in identifying child abuse and the norms about reporting it in our country.

Keywords: Child Abuse, Dentist, Physical Injuries, Child Maltreatment.









JOURNEY OF FORENSIC ODONTOLOGY THROUGH TOOTH RECONSTRUCTION

Dr. Mohammad Imran Khan¹, Dr. Abhishek Khare², Dr. Sameera Shamim Khan³

- ¹Post Graduate student JR-2, Department Of Oral and Maxillofacial Pathology and Microbiology, Career Post Graduate Institute of Dental Sciences and Hospital
 - ²Professor, Department of Oral and Maxillofacial Pathology and Microbiology Career Post Graduate Institute of Dental Sciences and Hospital
 - ³Reader, Department of Oral and Maxillofacial Pathology and Microbiology Career Post Graduate Institute of Dental Sciences and Hospital

Abstract

Dental human identification relies on distinctive traits detected and compared between ante-mortem and post-mortem data, these traits may be found in dental roots, such as dilacerations and bifurcations. However, teeth are often dislodged during the manipulation of skeletal remains, charred bodies and bodies retrieved from water. In these situations, the identification process is hampered. For this digital tooth reconstruction is of immense importance. Forensic dentists must be aware of the possibility of retrieving post mortem dental information even in the absence of teeth. Forensic dentists must be aware of the possibility of retrieving post-mortem dental information even in the absence of teeth. The impression of intra-alveolar morphology may contribute significantly as source of post-mortem dental information for human identifications. Teeth are considered especial tools for human identification because they resist to strong environmental factors, such as heating and degradation. For that reason, the human teeth are useful for complex human identification cases involving charred bodies and skeletal remains. The importance of investigating the intra-alveolar morphology of empty sockets relies on the possibility of reconstructing the shape of missing roots. In forensic odontology, comparisons are performed between antemortem and post-mortem data.

Keyword: Tooth reconstruction, Disaster Victim Identification.









GENDER DETERMINATION BY USING MANDIBULAR FLEXURE AND GONIAL ANGLE – A RADIOGRAPHIC STUDY

Dr. Indu Sonwani¹, Dr. Sonalee Shah², Dr. G Sangeeta³

¹PG Resident, Government Dental College Raipur, Chhattisgarh

²Professor and HOD, Government Dental College Raipur, Chhattisgarh

³PG Resident, Government Dental College Raipur, Chhattisgarh

Abstract

The identification of human skeletal remains is considered an initial step in forensic investigations and is crucial for further analysis. Sex determination is usually the first step of the identification process as subsequent methods for age and stature estimation. The pelvic bone, skull and mandible shows many anatomical differences between male and female. In the identification of human remains, gender determination by analysis of skeleton plays a crucial role with an overall high accuracy. When the entire skeleton is not available as in case of mass disasters to identify the persons, identification with the available skeletal remains, most often of skull & so analysis of mandibular ramus flexure and gonial angle plays a prominent role. According to Loth and Henneberg 1996 the distinct flexure is present in the posterior border of ramus at the level of occlusal surface of the adults molars and it is usually not seen in females, if present it will be either above or below the occlusal surface. Gender Determination by using Mandibular Flexure and Gonial angle - A Radiographic Study. The study will be conducted on 50 males and 50 females orthopantomographs taken in the Department of Oral Medicine and Radiology. Each image will be examined for the presence of flexure on the posterior margin of the ramus at the occlusal plane and gonial angle on both side will be recorded. The posterior margin of the ramus will be carefully traced and the occlusal plane level will be delineated as guided by the height of cusp tips at the occlusal surfaces of the mandibular molars. Mandible ramus flexure can be used as supplement aid in sex determined method and accuracy of sex determination expecting to be found between 59.0% and 80.4%. Whereas gonial angle will be expecting to give more accurate results in sex determination. By using mandible ramus flexure, sex can be determined moderately and it can be used as a supplementary method in sex determination. Implication of these two parameter together expecting to give more accurate gender determination.

Keywords: Mandible, Gender Determination, Gonial Angle, Personal Identification.









COMPARATIVE EVALUATION OF ARCH FORM AMONGST THE NEPALESE POPULATION: A MORPHOLOGICAL STUDY

Simran Gupta¹, Rhea Fernandes¹, Dr Srikant N²

¹3rd year BDS student, Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education, Manipal, Karnataka

²Coordinator, Centre for Forensic Odontology, Manipal College of Dental Sciences, Mangalore, Manipal Academy of higher education, Manipal, Karnataka

Abstract

Dental arch form is determined by an array of genetic and epigenetic factors. Euclidean Distance Matrix Analysis (EDMA) was used to analyze the arch form for variation in the genders, among the Nepalese population. Thirteen landmarks representing the most facial portions of the proximal contact areas on the maxillary and mandibular casts were digitized. A total of 78 Nepali subjects of the age ranging from 18-25 were assessed using casts and photographs. Linear distances between the landmarks were calculated, following which male to female ratios of the like distances was computed. In the maxillary arch, the maximum ratio (1.008179001) was found at the right and left lateral incisor region, suggestive of maximum variation in the anterior. The minimum ratio was found at the posterior-molar region, implying lesser variation. The width of the female arches was larger at the inter-canine region, whereas they were equal to that of males at the inter-premolar and inter-molar regions. Antero-posteriorly, female arches were found to be larger compared to males. In the mandibular arch, the highest ratio (1.014336113) was found at the intermolar region, suggestive of wider mandibular posterior arch form in males. The width of the arch form was larger in males at the inter-canine region and almost equal to that of females at the inter-premolar and inter-molar regions. Antero-posteriorly, female arch forms were found to be longer than that of males. Form and size differences between the male and female arches were inferred upon in the Nepalese population. The calculated median value, concluded the Nepali female arch form to be comparatively larger than the male.

Keywords: EDMA, Dental Arch, Dentistry, Personal Identification.









DNA FINGERPRINTING – AN ADVANCEMENT IN FORENSIC ERA

Dr. Ruwena Eliz Salins¹

¹2nd Year Postgraduate Student, Rajiv Gandhi University of Health and Sciences, Bengalore

Abstract

Establishment of a person's individuality is important for legal and humanitarian purpose. The need for personal identification also arises in natural mass disasters like earth quakes, tsunamis, landslides, floods, etc and in man-made disasters such as terrorist attacks, bomb blasts, mass murders, and in cases when the body is highly decomposed or dismembered to deliberately conceal the identity of the individual. The 'big four' of forensic odontology is the determination of age, sex, stature and ethnicity. Dental remains as teeth is an excellent material in living and nonliving populations for anthropological, genetic, odontologic and forensic investigations. Teeth being the hardest and chemically the most stable tissue in the body are selectively preserved and fossilized, thereby providing the best records for evolutionary change. Teeth provides an excellent source of genomic DNA as they remain virtually unaffected by environmental assaults. DNA fingerprinting refers to the approach of determining an individual's DNA characteristics. DNA profiling reveals the genetic makeup of a person. This paper portrays an overview of Dental DNA profiling for personal identification in forensic science.

Keywords: DNA profiling, DNA fingerprinting, Forensic investigations, Anthropology.









ROLE OF A DENTIST IN POST MORTEM PERSON IDENTIFICATION

Dr. Prarthana Kishore¹

¹Postgraduate Student, A.J Institute of Dental Sciences, Mangalore, Karnataka, India

Abstract

Forensic Odontology is a branch of dentistry that utilizes the dentist's knowledge to serve the judicial system. Being numerous and resistant to environmental challenges, as well as taking in account the fact that the diversity of dental characteristics is wide creating every dentition distinctive and hence proves very useful in post mortem identification, and is widely accepted. Worldwide, dentists qualified in forensic science are giving expert opinion in cases related to human identification, bite mark analysis, craniofacial trauma and malpractice.

Keywords: Dentistry, Post-Mortem, Personal Identification, Forensic Odontology.









IMPORTANCE OF ANTEMORTEM AND POSTMORTEM DATA IN FORENSIC DENTISTRY

Dr. Malvika Jitin Amin¹

¹Postgraduate Student, A.J Institute of Dental Sciences, Mangalore, Karnataka, India

Abstract

Forensic odontology is a growing branch of dentistry which deals with the identification of individuals from mass disasters with help of comparison of antemortem and postmortem data. For dental identification to be successful, ante-mortem information is prerequisite. This depends heavily on skilled dental examination, recording and keeping safe these dental hard and soft tissue findings, radiographs, study models, clinical images etc. The availability of dental recordings or data's can enable examination of the dental characteristics of the person during life with those retrieved from the person after death. Hence antemortem along postmortem data play an important role in Identification a Jane Doe. Forensic odontology also plays a role in the assessment of cases of child abuse, sexual assault, and age estimation.

Keywords: Antemortem, Postmortem, Dental Identification, Forensic Odontology









ROLE OF BITE MARKS IN FORENSIC DENTISTRY

Dr. Nayana S M¹

¹Postgraduate Student, A.J Institute of Dental Sciences, Mangalore, Karnataka, India

Abstract

Forensic Odontology is the application of dentistry in legal proceedings deriving from any evidence that pertains to teeth. Bitemarks are created by the dynamic actions of the mouth and jaw complex of a person or animal. Bitemarks are featured in some of the most violent and heinous crimes. Bite mark evidence validates the involvement of the alleged biter in the crime, assuming that the person who made the bite was the one who committed the crime. The recognition and examination of the bite marks and their subsequent comparison with suspects, may lead to criminal identification thereby resolving the crime. If dentists are aware of the various methods to collect and preserve bitemark evidence from victims and suspects, it may be possible for them to assist the justice system to identify and prosecute violent offenders.

Keywords: Bitemarks, Criminal Identification, Forensic Odontology, Evidence.









APPLICATIONS OF CONE BEAM COMPUTED TOMOGRAPHY IN FORENSIC RADIOLOGY

Dr. N. Aravind Kumar¹

¹Post Graduate (MDS) – 3rd year, Department of Oral Medicine and Radiology GITAM Dental College and Hospital, Andhra Pradesh

Abstract

Computed tomography (CT) is a routinely used method of post-mortem imaging in forensic investigations like sex, age determination and virtopsy etc. Cone beam computed tomography (CBCT), a variant of conventional medical CT that is commonly used in maxillofacial applications suggest that forensic practitioners may consider its use more frequently for post-mortem forensic imaging due to its enhanced resolution particularly for skeletal applications. CBCT incorporated in forensic radiology is a compact and mechanically simple device, and have been designed to be adapt to specific anatomy and clinical applications. The main advantage of CBCT in forensic applications includes its size, portability, cost effective, high spatial resolution, instant images, low radiation and minimal training of operator. This paper throws light on various applications of CBCT machines, their modifications along with applications, its advantages and disadvantages as imaging modality in forensic dentistry.

Keywords: Computed tomography, CBCT, Forensic dentistry, Virtopsy.









PHOTOGRAPHY IS LOVE AFFAIR TO FORENSIC ODONTOLOGY

Dr Abdullah Nasir¹, Dr Abhishek Khare², Dr Nazrana Khatoon³

¹Post Graduate student JR-2, Department of Oral and Maxillofacial Pathology and Microbiology, Career Post Graduate Institute of Dental Sciences and Hospital

²Professor, Department of Oral and Maxillofacial Pathology and Microbiology Career Post Graduate Institute of Dental Sciences and Hospital

³Post Graduate student JR-3, Department of Oral and Maxillofacial Pathology and Microbiology, Career Post Graduate Institute of Dental Sciences and Hospital

Abstract

Forensic photography is the art of producing an accurate reproduction of the scene of a crime or an accident to aid in investigation and presentation of evidence during the legal process. It provides investigators with photos of victims, places and items involved in a crime or accident. Forensic photography often represents the best method to collect and preserve evidence in forensic odontology cases and is especially utilized for measurement of craniofacial dimensions, teeth arch morphology which include bite marks and dental restorations. Photography of this kind involves choosing correct lighting, accurate angling of lenses, and a collection of different viewpoints. Advances in photographic equipments and aids and especially digital photography along with photo softwares have enabled more accurate presentation and utilization of data in a crime or accident scene. Forensic photography is an indispensable tool in modern odontological protocol which aids in investigative procedures, maintenance of archival data, and to provide evidence that can supplement medicolegal issues in court. Proper selection and implementation of the appropriate photography and computer equipment combined with necessary training and correct workflow patterns make incorporating photography into the field of forensics, an easily obtainable goal. This article discusses the types of photographic evidence and the specific techniques utilized in full spectrum forensic digital photography.

Keywords: Forensics, Photography, Odontology.








PREVALENCE OF THIRD MOLAR AGENESIS: AN INSTITUTIONAL STUDY

Dr. P Maitreyi¹

¹BDS, Pursuing Post graduate in oral pathology, Vishnu Dental College

Abstract

Third molar agenesis (M 3) is influenced by various genetic and environmental factors. Several studies on humans from different ethnic origins and geographic locations have reported varied prevalence rates ranging from 5.32% to 56%. Evaluating prevalence of M 3 agenesis is the initial step in understanding the relationship between absent and impacted teeth within family lineages, and individuals. In addition, it also has a great value in forensics, as most dental age estimation methods in adolescents and young adults depend on the developmental stages of third molars. This study, therefore aims to evaluate the prevalence of third molar agenesis in our institution. Panoramic radiographs of 553 (357 girls and 196 boys) patients between the age group of 10-20 years with no prior history of third molar extraction were collected and the frequency of missing third molars was measured. Of the total sample, at least one missing third molar was seen in 137 children and a total of 290 (52.44%) missing teeth have been observed, of which, the 182 were girls and 108 were boys. In boys, total missing maxillary third molars are 67 and mandible are 41. In girls, total missing maxillary third molars are 128 and mandible are 54. In both sexes, maxillary M 3 agenesis is more common than mandible. The study has shown results in accordance with the previous literature. This paper presentation will focus on the various morphologic predictors of third molar agenesis and explain the influence of evolutionary changes (efficiency of the masticatory apparatus, genetics, and changes in diet pattern) on tooth agenesis and facial growth.

Keywords: Third molar agenesis, Panoramic radiographs, Forensics, Molar.









DENTAL TISSUES – A SOURCE OF DNA IN FORENSIC ODONTOLOGY

Dr. Siripurapu Swathi¹

¹BDS, Pursuing Post graduate in oral pathology, Vishnu Dental College, Bhimavaram, Andhra Pradesh

Abstract

DNA analysis in a forensic investigation is crucial for person identification, sex determination and age estimation. The various sources of DNA may range from blood, hair, buccal swab, semen, teeth, saliva and bone. All of these sources may not be available for investigation in mass disasters where human remains are severely fragmented, commingled, burned, or highly decomposed. In such situations the investigation can be carried out by using bone and dental tissues like dentin, pulp, cementum and alveolar bone, as they are the most durable because of the protective nature of enamel as it can resist to adverse conditions. However normal and diseased teeth show variations in amount of DNA extracted. In addition, differences in the quantity of DNA have been observed in various dental tissues. Therefore, it is essential to understand which tissue to be used as a source of DNA in different conditions. This review focuses on the various dental and non-dental sources of DNA available and their applicability in forensic investigations.

Keywords: Dental Tissues, DNA Analysis, Forensic Odontology, Human Remains.









TONGUE PRINTS AS AN EMERGING BIOMETRIC TOOL

Dr. Anjali Ravi¹

¹Intern, AJ Institute of Dental Sciences, Mangalore, Karnataka

Abstract

Forensic odontology, a subspecialty of dentistry brings knowledge of orofacial structures, their variations between people of different ancestry and implication of dental treatment to identification process. Biometric system plays an important role in this identification process. A biometric system works by identifying a person by assessing specific physical attributes related to that person and compares it to an already existing library of databases belonging to many people. There are many biometric systems that are currently in use but due to various limitations in each of these systems, recently tongue prints have gained increased traction as a biometric and forensic tool. As tongue is an internal organ, mostly unaffected by the external environment, well located within the oral cavity, specific to each individual and does not change, it can be used for identification purposes as well as forensic purposes. This review article elucidates the uniqueness of tongue prints and its advantages over other biometric systems. It also explains the various methods of tongue print collections and classification of tongue features.

Keywords: Tongue, Tongue Prints, Biometric Tool, Forensic Tool.











FACIAL RECONSTRUCTION TO SUPPORT CRIMINAL INVESTIGATION

Dr. Vaidehi G.V¹, Dr. Hemlata Pandey²

¹Junior Resident, Department of Forensic Medicine & Toxicology, Seth G S Medical College & KEM Hospital, Mumbai

²Assistant Professor, Forensic Odontology and Human Identification Lab, Department of Forensic Medicine & Toxicology, Seth G S Medical College & KEM Hospital, Mumbai

Abstract

Facial reconstruction (Facial approximation) is a method used in the forensic field when a crime involves unidentified remains. It is based on the fact that face is influenced by the underlying bone tissue. The comprehensive knowledge about forensic anthropology, about how the soft tissue of the skin lies on the skull and how the body decomposes, helps to create a reconstruction of what the victim may have looked like before death. It has facilitated many leads to the investigative agencies and delve into the depth of the crime. Case history: Our presentation discusses a case of unidentified skeleton remains with advanced stages of decomposition which was reported by the police officials. Detailed evidence was collected, analysed in FOHIL and inferred by team of forensic experts including forensic odontologist. This presentation is to discuss and highlight the importance of Forensic Anthropology & Facial Reconstruction in cases of unidentified remains.

Keywords: Unidentified Remains, Anthropology, Facial Reconstruction.









COMPARISON MICROSCOPE IN FORENSIC INVESTIGATION

Dr. Hannah Maryam¹

¹Intern, AJ Institute of Dental Sciences, Mangalore, Karnataka, India

Abstract

Forensic odontology plays an incredible role in identification of unknown deceased individuals. With increase in uniqueness of identification, comparison microscope helps in analysing simultaneously the specimens. Use of comparison microscope can be of great support throughout the process of identification. This helps in collection of data, conversions to models, reconstruction etc. There is more accuracy involved as the observer needn't rely on memory for comparison.

Keywords: Comparison Microscope, Forensic Odontology, Specimens, Forensic Investigation.









THE APPLICATION OF MULTI-BASELINE DIGITAL CALLIPER AND ABFO PHOTO METRIC AS QUALITATIVE & QUANTITATIVE COMPARISON IN FORENSIC ODONTOLOGY

Somya Soin¹

¹UG student, Intern, Pandit Bhagwat Dayal Sharma University of Health Sciences, Rohtak

Abstract

Teeth, being the hardest and chemically the most stable tissue in the body, are an excellent material in living and non-living populations for anthropological, genetic, odontologic, and forensic investigations. The purpose of this study was to evaluate the probability of determining differences in gender using digital calliper and ABFO photo metric for maxillary & mandibular intercanine distances, which may act as a valuable tool in cases of bite mark identification for a social benefit. Impressions of both maxillary and mandibular arches of 50 consenting volunteers were taken. Human samples include bite impressions of 25 males & 25 females of age ranging from 20-25 years; each parameter of bite mark is compared to the similar parameter in dentition of each volunteer. The relation of all parameters with intercanine distance was observed with manual ABFO in indirect method & with digital calliper in direct method. Arch size and intercanine distance showed variable differences among humans. Importance of present study is to provide greater skill and a much better modified technique for measuring and analyzing intercanine distances properly in order to more accurately reflect the characteristics. Assessment of human bite mark evidences needs further investigation so that it can be used as a tool to assist the justice system to answer crucial questions. Statistical data was analyzed & compared with Paired ttest & Independent student t-test.

Keywords: Digital Calliper, Dental Distances, Forensic Odontology, ABFO Photo Metric.











TESTING THE INFLUENCE OF IMPACTION ON THIRD MOLAR DEVELOPMENT: AN ORTHOPANTOMOGRAPHIC STUDY IN SOUTH INDIAN CHILDREN

Mungala Shivani Ramesh¹

¹Post Graduate, Panineeya Mahavidyalaya Institute of Dental Sciences, Hyderabad

Abstract

Development of third molars is of particular importance in forensic age estimation, due to their protracted development into the early twenties. Even though, they are highly variable in nature, literature has recommended the use of their development in age estimation due to the lack of alternative options. Impaction, is one such factor found to be frequently associated with third molars. The prevalence of third molar impaction ranged from 16.7% to 68.6%. Therefore, it is important to study the role on impaction on the development of third molars and forensic age estimation. The aim of the present study is to investigate the influence of mandibular third molar impaction on forensic age estimation in south Indian children and sub-adults. A total of 180 panoramic radiographs (OPGs) of healthy individuals aged between 15 and 20 years were collected. In each OPG, development of all the lower left permanent teeth were analysed using Demirjian staging system.

Keywords: Molars, Age Estimation, Panoramic Radiographs, Orthopantomographic Study.









VIRDENTOPSY: THE ROAD LESS TRAVELLED

Dr Akshita Thakur¹, Dr Deepti Garg²

¹PG student, Department of Oral Pathology & Microbiology Bhojia Dental College & Hospital, Himachal Pradesh

²Professor & Head, Department of Oral Pathology & Microbiology Bhojia Dental College & Hospital, Himachal Pradesh

Abstract

The procedure of identification of human remains is achieved primarily due to comparison of post mortem data collection during autopsy along with ante mortem data obtained from missing persons. Dental records are among primary identifiers during data collection of human identification process. The concept of virdentopsy, which is an amalgamation of ." virtual" and " autopsy", emerged during the COVID-19 outbreak as an aid to forensic odontologists in achieving generic profile of human remains using 2D/3D imaging, radiographic imaging, live streaming, photogrammetry .This paper is an attempt to focus on the introduction and future prospects of virdentopsy.

Keywords: Virdentopsy, Forensic odontologists, Photogrammetry, Amalgamation.









AWARENESS OF BITEMARK ANALYSIS IN FORENSIC INVESTIGATION – A QUESTIONNARIE STUDY AMONG DENTAL PRACTIONERS

Shalinipriya.N¹, Priyanka Madhavan¹, Sudeendra Prabhu² ¹Postgraduate, Yenepoya Dental College, Mangalore ²Professor, Yenepoya Dental College, Mangalore

Abstract

Teeth have been used as tools and weapons since the advent of time. Bite marks inflicted by them during violent interactions, form the basis for one of the most intriguing, broad and sometimes controversial encounters. Bite mark evidence validates the involvement of the alleged biter in the crime, assuming that the person who made the bite was the one who committed the crime. Bitemark are individual specific as fingerprints, hence called "dental fingerprints'. To analyze and assess the awareness about bite mark among dental practitioners. The objective for this study is to test the knowledge and awareness regarding bitemark among dental practitioners and assess the dentist's readiness to help the forensic experts in solving medico-legal cases. A cross-sectional descriptive study was conducted among 150 subjects including interns, Postgraduates, MDS & BDS faculties and practitioners through a questionnaire proforma. The proforma consisting of 15 questions is prepared on the topic of bitemark. Descriptive statistics such as mean and standard deviation for continuous data. Frequency and percentage for categorical data will be used for statistical analysis. 72% of participants have average knowledge and awareness about bitemark as a part of forensic investigation and majority are of the opinion that, training required for the practitioners to handle bite mark investigation.

Keywords: Bitemarks, Bite Mark Investigation, Dental Practitioners, Forensics











AWARENESS OF FORENSIC ODONTOLOGY AMONG THE LEGAL PROFESSIONALS AND THE POLICE IN KARNATAKA: A QUESTIONNAIRE STUDY

Priyanka Madhavan¹, Sudeendra Prabhu², Shalini Priya ³

¹Postgraduate, Department of oral pathology, Yenepoya dental college, Karnataka

²Professor, Department of Oral pathology, Yenepoya dental college, Karnataka

³Postgraduate, Department of oral pathology, Yenepoya dental college, Karnataka

Abstract

The forensic discipline of law is a multidisciplinary team comprising of specialists in forensic medicine, forensic odontology, security, and law. Forensic odontology is a challenging branch of forensic science that involves the application of dental sciences in the identification of deceased individuals. Lawyers and the police play an important role in victim identification. The main aim of this study is to assess and compare the awareness of forensic odontology among the legal professionals and the police officers in Karnataka. A cross-sectional study using a self-administered structured questionnaire will be conducted among the lawyers and the police and the data will be analyzed depending on the age, gender, profession and years of practice.

Keywords: Forensic Odontology, Forensic Dentistry, Lawyers, Legal Professionals, Police Officers.











A TOOTH – AN INEXTINGUISHABLE TOOL IN FORENSIC DENTISTRY

Dr. Syeda Muskan Jan¹

¹Oral Medicine and Radiology, Rajarajeswari Dental College and Hospital, Bengaluru, Karnataka

Abstract

Age estimation is important in establishing identity of a person and is a sub-discipline of forensic sciences. Age estimation is carried out up to 24 years of age based on eruption sequence and the developmental stages of teeth. Teeth are preferred in age estimation methods because they are less influenced by nutritional, hormonal, and environmental factors than bone. Chronological age (CA) by using morphological and radiological analysis of teeth is more important not only for forensic dentistry but also for human anthropology and bioarchaeology. Currently there are many methods available to predict the age of deceased or living persons. Radiology plays an indispensable role in human age determination. Radiological images are utilized in the process of age estimation, which is one of the essential tools in identification in forensic science. This review is to explain the different method of age estimation using teeth and radiograph particularly.

Keywords: Age Estimation, Human Anthropology, Forensic Dentistry, Bioarchaeology.









DETERMINATION OF SEXUAL DIMORPHISM IN A POPULATION OF MAHARASHTRIAN ANCESTRY BY ANALYSIS OF BUCCOLINGUAL AND MESIODISTAL DIMENSIONS OF MAXILLARY FIRST MOLAR IN DENTAL CASTS: A CROSS SECTIONAL STUDY

Dr Manasi Kale¹, Dr Jigna Pathak¹

¹2nd year Postgraduate Student, MGM Dental College and Hospital, Navi Mumbai

Abstract

Teeth form an exceptional material for forensic investigations; being available even in mutilated and decomposed bodies as they are chemically very stable. Differences in structure, size and appearance of teeth between males and females that can be applied to gender identification is referred to as "sexual dimorphism". Odontometrics, the measurement and study of tooth size standards is commonly used in sex determination as human teeth exhibit sexual dimorphism. A significant number of studies prove that differences in odontometric dimensions of the maxillary first molar exist in specific populations and within same population. Thus, the present study was undertaken to analyze the mesiodistal and buccolingual dimensions of maxillary first molars for determination of sexual dimorphism in a population of Maharashtrian ancestry. This study may also provide a baseline data for determination of sexual dimorphism in the study population. 500 Maxillary Dental casts were obtained from subjects of Maharashtrian ancestry based on the inclusion and exclusion criteria. Buccolingual (BL) and mesiodistal (MD) diameters of right and left maxillary first molars were measured using digital vernier calipers (resolution 0.01 mm). Data was compiled on a MS Office excel worksheet & amp; subjected to appropriate statistical analysis. The mean values of BL and MD dimensions of males and females were subjected to a formula to calculate sexual dimorphism.

Keywords: Sexual dimorphism, Odontometrics, Maxillary first molars, Mesiodistal and buccolingual dimensions.











TRENDING IN FORENSIC'S – A REVIEW

Dr. Ashriya Yadav¹

¹MDS Third Year, Department of Oral Pathology and Microbiology Pacific Dental College and Hospital, Debari, Udaipur

Abstract

"Physical evidence cannot be intimidated. It does not forget. It sits there and waits to be detected, preserved, evaluated and explained" - Herbert Leon MacDonnell. As every individual has a unique dental pattern. Thus identification by dental means has gained more importance in the present because dental tissue are often preserved even if the deceased person is skeletonised, decomposed, burnt or dismembered. But in most of the times it is dependent on the availability, adequacy and accuracy of antemortem dental records. History has proved its authenticity already as records had been successfully utilised in many disasters. DNA analysis is a new budding tool used in this field, which gains importance when conventional identification methods fail due to the effects of heat, traumatism or autolytic processes, distortion and difficulty in analysis. The advanced techniques in DNA typing includes: Restriction Fragment Length Polymorphism Typing, Short Tandem Repeat (STR) types, Y chromosome analysis, X chromosome STR, Single Nucleotide Polymorphism Analysis, DNA methylation analysis which has proven itself to be of utmost use in this field. As rightly quoted by Bishop Oscar Romero that "Those who have a voice must speak for those who are voiceless"

Keywords: STR Typing, DNA Typing, RFLP Typing, Chromosome.









Registration number: IAFO/2021/262

MORPHOMETRIC VARIATION OF CORONOID, CONDYLE AND SIGMOID NOTCH OF MANDIBLE IN PERSONAL IDENTIFICATION IN SOUTH INDIAN POPULATION

Manpreeth .M¹, Leeba Mathew Varghese¹, Dr Shweta Yellapurkar², Dr .Srikant N.³,

Dr. Ceena Denny⁴

¹Intern, Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education

²Assistant Professor, Department of Oral Pathology and Microbiology Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education

³Professor and Head, Department Of Oral Pathology and Microbiology Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education

⁴Associate Professor, Department of Oral Medicine and Radiology Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education

Abstract

The shape of the coronoid, condyle and sigmoid notch are unique due to attachments and direction of pull of the temporalis muscle, different chewing habits, hormones etc. So morphometric variation of coronoid, condyle and sigmoid notch can be used in personal identification. The study was carried out on 500 orthopantamograms. 1000 sides were assessed by visual tracing. The shapes were interpreted using the criteria given by Smita Tapas et al. The most common shape of sigmoid was observed to be wide (41.2%) and that of condyle was convex (50%) whereas most common shape of coronoid was round (53.4%). Condyle and coronoid showed asymmetry between right and left with p value 0.001 and 0.019 respectively. This study has illustrated that the triangular shaped coronoid was more in females (p value 0.012). Due to difference in attachment and action of temporalis muscle, chewing habits, hormones and various genetic reasons the shape of coronoid, condyle and sigmoid notch varies by gender and in the right and left side. The results have exemplified that the morphometric variation of condyle, coronoid and sigmoid notch can be used as a tool for personal identification.

Keywords: Morphometric Variation, Personal identification, Coronoid, Condyle And Sigmoid Notch.









EVIDENTIARY VALUE OF BITE MARK ANALYSIS IN PERSON IDENTIFICATION

Dr. Pragati Bhargava¹

¹Postgraduate Student, Oral Medicine and Radiology, Sharad Pawar Dental College, Datta Meghe Institute of Medical Sciences Deemed To Be University

Abstract

Forensic dentistry is an essential part of Forensic science, mainly involves the identification of an assailant by comparing a record of their dentition (set of teeth) with a record of a bite mark left on a victim. Other uses in law for dentists include the identification of human remains, medico-legal assessment of trauma to oral tissues, and testimony about dental malpractice. The principle of identifying an injury as a bite mark is complex and, depending on severity and anatomical location, highly subjective. Like fingerprints and DNA, bite marks are unique to an individual – such as distance and angles between teeth, missing teeth, fillings and dental work. This type of impression evidence can be left in the skin of a victim and also can be in food, chewing gum and other miscellaneous items such as pens and pencils. The advent of DNA analysis and its recovery from bite marks has offered an objective method of bite mark analysis.

Keywords: Forensic Dentistry, Bite Marks, Bite Mark Analysis, Personal Identification.











EVERY CONTACT LEAVES ITS TRACE - AN INSIGHT IN TO RECENT ADVANCES OF FORENSIC ODONTOLOGY

Dr. Deepika Karuturi¹

¹MDS 2nd year in the department of Oral & Maxilla Facial Pathology and Microbiology, GSL dental college and hospital, Rajahmundry, Andhra Pradesh

Abstract

Forensic odontology is the branch of dentistry, which in the interest of justice, deals with the proper handling and examination of dental evidence, and with the proper evaluation and presentation of dental findings. The methods of collecting the data utilize the developed technologies and have undergone significant transformation. Advances in photographic, radiographic, and computer technology have provided additional resources to the forensic dental team. The methods used include facial reconstruction, denture identification, tooth reconstruction, ameloglyphics, comparison microscopes and tongue prints. This e-poster highlights the various advance technologies available to date that can assist forensic odontologists in investigation and also provides an insight into the recent concepts used in this field.

Keywords: Forensic odontology, Dental evidence, Facial reconstruction, Denture identification, Tooth reconstruction.









RECOMMENDED PROTOCOLS FOR FORENSIC ODONTOLOGIST WHILE PERFORMING DENTAL AUTOPSY IN COVID-19 POSITIVE CASES

Dr. Swagata Bhowmick¹, Dr. Kunal Sah², Dr. Shomaila Ahmad³

¹Post Graduate Student, Department of Oral and Maxillofacial Pathology Saraswati Dental College, Lucknow

²Professor and Head, Department of Oral and Maxillofacial Pathology Saraswati Dental College, Lucknow

³Senior Lecturer, Department of Oral and Maxillofacial Pathology Saraswati Dental College, Lucknow

Abstract

Coronavirus disease (COVID - 19) has taken the entire world by storm, rendering everyone into an utter state of chaos and pandemonium. It is a highly transmittable and pathogenic viral infection resulting in the high mortality rates. Forensic odontologists are the part of autopsy team assisting in recovering human remains of oral and maxillofacial region and identifying the deceased individuals. Based on a comprehensive search from various databases, this presentation attempts to provide recommendations for the forensic odontologists while performing dental autopsy for COVID - 19 positive cases.

Keywords: Autopsy, forensic odontologist, COVID – 19.









FORENSIC FACIAL RECONSTRUCTION – A PROMISING FUTURE FOR UNFOLDING THE PAST

Dr. Swetha Sharran S¹

¹Post-Graduate in Department of Oral Medicine and Radiology, Yenepoya Dental College, University Road, Derelakatte, Mangalore

Abstract

Facial reconstruction or facial approximation aims to reproduce an individual's facial characteristics by interpreting the skull of the deceased, contributing to recognition and identification of the individual. Facial reconstruction procedure has become increasingly popular and advanced in recent times helping the forensic scientists to resolve many legal and crime cases and also in archaeological research purposes. The facial reconstruction procedure requires a combination of scientific knowledge and artistic skills. Since many years various techniques have been employed and proposed for facial reconstruction which can be broadly divided into two dimensional (2D) and three dimensional (3D) techniques. They are carried out and analysed either manually or by using specific software. Through all these years facial reconstruction technique has had its own share of controversies however with increasing technological advancements facial reconstruction has become more accurate, definite and reliable. This present review paper aims to discuss the evolution and the current standpoint of facial reconstruction technique in the field of forensic science.

Keywords: Forensic Facial Reconstruction, Two-Dimensional Reconstruction, Three-Dimensional Reconstruction, Forensic Sciences.









ROLE OF FORENSIC ODONTOLOGY DURING COVID-19 PANDEMIC- REVIEW ARTICLE

Dr. Isha Balmuchu¹

¹2nd PG Student, Surendera Dental College & Research Institute, Rajasthan University of Health Sciences, Jaipur

Abstract

During the late December 2019, several cases of pneumonia of unknown etiology was reported in the Wuhan City of China. On frequent investigations it was considered that its corona virus disease, which causes SARS COV-2 (Severe Acute Respiratory Syndrome). This Novel virus was first identified by Chinese authorities on 7th January 2020. As the number of COVID cases surged all over the world, with increased mortality and morbidity rates World Health Organization (WHO) declared COVID-19 Public Health Emergency of International (PHEIC) on 30th January 2020 and called for collaborative efforts of globe to prevent the rapid spread of COVID-19 and was decaled as global pandemic on 8th March 2020. Increased death rates lead to increase cadaver numbers and cadavers have always been a potential biological hazard to forensics including HIV-infection, Ebola, hepatitis-C, and now SARS-COV-2. During this pandemic era there was not only in the decline of professional employments but also in mental health and with that we assisted a high increase of domestic violence cases was emerging and as forensic odontologist or dentist we should intensify their activity both as experts of oro-facial injuries or bitemarks.

Keywords: Forensic Odontology, COVID, Dentist, Facial Injuries.









ROLE OF CBCT IN FORENSIC ODONTOLOGY- REVIEW ARTICLE

Dr. Samreen Jaral¹

¹PG 2nd year, Surendera Dental College & Research Institute, Rajasthan University of Health Sciences, Jaipur (RUHS), Rajasthan

Abstract

Cone beam computed tomography (CBCT) has gained its importance in the last few decades and has been widely used in dento-maxillofacial imaging. Cone-beam computed tomography is a relatively new, advanced imaging modality and had driven the interest in its applications in the field of dentistry. The CBCT is employed for imaging in dental implantology, orthodontia, oral and maxillofacial surgery and has extended the boundaries into the field of forensics in dentistry. The radiological images analysis using Cone Beam Computed Tomography (CBCT) is a method that is now increasingly used in postmortem images in forensic examinations, such as age and sex examination, virtopsy examination (non-invasive postmortem examination), and detecting the location of foreign bodies. The application of CBCT for hard and soft tissues examination in body, especially facial bones and teeth, provides us detailed 3dimensional images. While clinical applications of CBCT have increased in current scenario, we must also bear its disadvantages and limitations into our mind before prescription. Here we present an overview of CBCT technology, comparing and contrasting to conventional CT in regards to various forensic applications, and conclude that CBCT may be an advantageous and accessible alternative in many cases.

Keywords: CBCT, Dento-Maxillofacial Imaging, Forensic Examinations, Personal Identification.









ENAMEL RODS: KEY FOR FORENSIC JIGSAW PUZZLE

Dr Munalisha Paul¹, Dr Mohd Adil Khan¹, Dr Abhishek Khare²

¹JR-3, Department of Oral and Maxillofacial Pathology Career Post Graduate of Dental Sciences & Hospital Lucknow.

²Professor, Department of Oral and Maxillofacial Pathology Career Post Graduate of Dental Sciences & Hospital Lucknow

Abstract

Soft tissues are unable to provide reliable information of human identification in mass disasters. It is largely feasible with skeletal remains specially teeth. The dental hard tissue has the highest resistance to most environmental effects. There is a crucial need of new and dependable methods for recognition and confirmation of victims in mass disasters such as military conflicts and wars as well as in natural disasters that involves multiple fatalities. Human teeth are considered as a hard tissue analogy to fingerprints which is a reliable tool in a decomposed body. Recently there is growing interest in the study of enamel rod and patterns. These enamel rod end patterns are termed as tooth prints and the study of these prints is known as ameloglyphyics. The tooth prints are unique, exhibiting dissimilarity both between teeth of different individuals and of the same individuals. The uniqueness of the tooth prints can be used as an effective adjuvant aid in person identification even in adverse conditions such as thermal injuries.

Keywords: Enamel rods end patterns, Forensic Odontology, Ameloglyphics.









LIP-PRINTS

Dr. Raija Raju¹

¹Intern, A.J Institute of Dental Sciences, Karnataka

Abstract

Cheiloscopy is a forensic investigation technique that deals with identification of humans based on lip traces. The wrinkles and grooves on labial mucosa (called sulci labiorum) form a characteristic pattern called lip prints. Lip prints are unique and donot change during life of person. In past decades, lip print studies attracted attention as a new tool for human identification in both civil and criminal issues. Lip prints can be used to verify the presence or absence of a person from crime, provided there has been consumption of beverages, drinks, usage of cloth, tissues or napkin etc. at crime scene. Tsuchihashi proposed a classification dividing the pattern of grooves into six type. A combination of these groove may be found on any set of lips. To simplify recordings, lips are divided into quadrants similar to dentition- a horizontal line dividing upper and lower lips and vertical line dividing right and left side. Traditionally use of lipstick was essential to leave behind the coloured traces of lip prints. Vermillion border of lip has minor salivary glands and edges of lips have sebaceous glands with sweat glands in between. The secretion of oil and moisture from these enable development of latent lip prints. These invisible, latent lip prints can be developed by using lysochrome, REDescent reagent, Nile red. Aluminum powder, cobalt oxide and magnetic powder. In individuals, lip prints are distinctive like fingerprints hence considered a tool for identification.

Keywords: Lip print, Cheiloscopy, Vermillion border, Dentition.









BITEMARKS

Dr. Sandra M¹

¹Intern, A.J Institute of Dental Sciences, Mangalore, Karnataka, India

Abstract

Forensic odontology is an essential part of forensic science and it actively involves the identification of an assailant by comparing a record of their dentition with a record of bitemark left on the victim. Bitemark is a pattern produced by human or animal dentition and associated structures, in any substance capable of being marked by these means. They are used as evidence in criminal and civil court cases for more than half a century. The size, shape and pattern of the incisal or biting edges or surfaces of upper and lower anterior teeth is specific to an individual. The biting edges of the twelve anterior teeth can be arranged in 1.36*10*26 different combinations. Hence a bitemark may reflect the presumed unique characteristics of the biters teeth. Human bite mark may be identified by gross characteristics, class characteristics and individual characteristics. Bruising or contusion is the most common presentation of bite mark injuries. Classification cited by MacDonald includes tooth pressure marks, tongue pressure marks, tooth scrape marks and complex marks. Webster's classification of bitemarks is based on bite marks on food stuff. The dynamics of biting make analysis of the bitemark and its comparison to the suspect's teeth a highly challenging aspect of forensic dental investigation. It is important to recognize uncommon characteristics of the bitemark such as presence or absence of a particular tooth, its dimension, rotation, fracture and other unusual features of the teeth as these can aid in implicating a suspect. Bitemark is crucial in identifying suspect in a crime or in excluding an innocent person, both of which are equally important.

Keywords: Forensic Odontology, Bitemarks, Dentition, Identification.









ASSESSMENT OF THE USEFULNESS OF MORPHOMETRIC AND VOLUMETRIC ANALYSIS OF MASTOID PROCESS FOR GENDER DETERMINATION-A RETROSPECTIVE CONE BEAM COMPUTED TOMOGRAPHIC STUDY

Dr. Binindita Mondal¹

¹MDS, 3rd Year PG, M. R Ambedkar Dental College and Hospital, Karnataka

Abstract

Personal identification is crucial in natural mass disasters and in man-made disasters when the body is highly mutilated and fragmented. The mastoid process of the skull is important in this regard for sex determination since it is one of the most protected region and resistant to damage. To assess the usefulness of morphometric and volumetric analysis of mastoid process for gender determination. Study comprised of 60 retrospective Cone Beam Computed Tomography (CBCT) skull images of known sex, 30 males and 30 females, obtained from local CBCT center. Radiographic measurements of the length, width, height and volume of the right and left mastoid processes were done using customized software (ITK SNAP). CBCT images of patients within the age group of 17 - 65 years. In the present study, the mean values of length, height, width and volume of mastoid process was found to be higher in males than females. .Height of the mastoid process was found to be a good indicator for sex determination with a sensitivity of 76.7%, specificity of 76.7% and overall accuracy of 76.7%. We conclude based on the results of the present study that mastoid process is a good indicator of sex. Volume can also be included as an additional parameter along with length, height and width to determine gender. We therefore recommend use of CBCT images of mastoid process for gender determination in personal identification in forensic science.

Keywords: Radiographic measurements, Cone Beam Computed Tomography, Mastoid process.









LIPS – THE INDEX OF HIDDEN THOUGHTS: A FORENSIC PSYCHOLOGICAL STUDY

Dr. Chaitra Apoorva Chelikani¹

¹PG student, Dr. NTR University of health sciences, Vijayawada, St.joseph dental college, Eluru, Andhra Pradesh

Abstract

Lip expressions are one of the great exhibitors in seven universal micro expressions. They can show if the person is truly happy, angry, sad, disgusted, surprised, scared, or contemptuous, in turn, those emotions, can help you to determine if a person is being open and honest, regardless of what their words or controlled facial expressions may be expressing. Lip expressions and micro movements are controlled by the limbic brain, which is a part of the brain involved in our behavioural and emotional responses. The primary objective of this study was to observe the stress levels in a randomized group through comparison of lip gestures and serum cortisol levels. Fifty dental students were selected for the study. The students included in the study group were observed while conducting viva voice exam through recording of lip gesture and compared with serum cortisol level examination. The obtained results were statistically analysed. Literature review supports the use of behavioural variable like lip gestures along with polygraph to evaluate the deceptive/truthful psychological state of an individual. In the present study we tried to correlate lip gestures with the serum levels of cortisol. An advent of positive correlation would defer invasive perusals in forensic psychology.

Keywords: Facial Expressions, Lip Gesture, Micro Expressions, Forensic Psychology.









DISASTER VICTIM IDENTIFICATION - ROLE OF FORENSIC ODONTOLOGY, AN UPDATE

Dr. Fatima Rasheed Khan¹, Dr. S Chakravarthi¹, Dr. Sunira Chandra²

¹MDS II YEAR, Saraswati Dental College Lucknow

²Head of Department, Saraswati Dental College Lucknow

Abstract

Personal identification of the victim in cases of mass disasters, is an important aspect in Forensic Odontology. This is achieved by matching the dental antemortem profile compiled from dental record with the postmortem profile which thereby prepared which includes physical examination and radiographic dental examination. It has been seen that Visual and manual identification is known to have alone higher error rate, so with recent advances in the field of radiology digital and specialised technique like computer tomography scanning, CBCT and three dimensional virtual modelling have also been taken in account. Thus this poster describes the current practice in the advanced techniques of identification in forensic odontology and out lines recent advances that are moving in to the mainstream.

Keywords: Personal Identification, Three Dimensional Virtual Modelling, CBCT, Disaster Victim Identification.









ROLE OF DENTAL PULP IN FORENSIC ODONTOLOGY-A BOON AND A HUMANITARIAN TOOL

Carol Venissa Corda¹

¹UG student, Rajarajeswari Dental College, Bangalore

Abstract

With the ever increasing crime rate and natural disasters in our society, the field of forensic sciences has become highly evolved. Forensic identification by nature is a multidisciplinary approach relying on positive identification methodology. The identification of dental remains are of primary importance when the body is decomposed, skeletonized, dismembered, destroyed in fires or explosion etc. Pulp plays a pivotal role in forensic odontology. Pulp tissue can be used for molecular analysis to determine age, sex, blood group antigen. The extracted DNA comprising of specific genes are used in the personal identification. The days after death and age can be determined by using the odontoblasts. This study aims to provide an overall review of the utmost importance of the dental pulp in the forensic odontology.

Keywords: Forensic Odontology, Multidisciplinary Approach, Pulp Tissue, Molecular Analysis, Age, Sex, Blood Group Antigen, Personal Identification, Extracted DNA, Odontoblasts.









Registration number: IAFO/2021/338

FORENSIC IN ENDODONTICS

Dr.Mahalakshmi.B¹

¹Postgraduate student, Department of Conservative Dentistry and Endodontics Rajiv Gandhi University of Health Sciences, Karnataka

Abstract

The distinctiveness of human teeth has facilitated personal identification throughout history. Dental identification of a deceased individual is a core task in forensic odontology. It is application of dental science to legal investigations, mostly by recognizing human remains based on dental records, that involves in identifying the victim. Comparing recorded dental features and treatment against those of postmortem dentition is one of its core tasks and considered essential from both humanitarian and judicial reasons. Accurate recording of clinical dental procedures has become more important over time because lawsuits exhibit an increasing trend worldwide, as the teeth are the most indestructible components of the human body and may remain intact for many years after a person's death. In this context, root/root canal morphology and post-treatment radiographs present rich sources of features that would facilitate individuation. Post-mortem radiograph taken in a way that it duplicates the ante-mortem radiograph are extremely useful in comparison process for personal forensic identification. The expanding knowledge on root and root canal anatomy and the advances in endodontic imaging and biomaterials are at the forefront of endodontic research and practice.

Keywords: Dental identification, Endodontics, Radiograph, Dental features.









UNFOLDING THE PROCESS OF IDENTIFICATION IN FORENSIC ODONTOLOGY

Sanjana Moses¹

¹Post Graduate student, Sri Aurobindo University, New Delhi

Abstract

Teeth are the most hardest and robust tissues of the human body. They are often resistant to decomposition even in major accidents, crime, burial, or other severe exposure to the elements. The dental patterns are unique for every individual. Forensic odontology is an evolving science, an indispensable boon in medico-legal matters and in the identification of the dead person. Various methods have been developed to determine age, sex, and ethnicity of the person, using dental tissues. The supplementary technologies used in forensic dental identification have undergone significant transformation. Some of the evolving trends in conventional methods, and the recent concepts used in forensic odontology will be enunciated in the poster.

Keywords: Evolution, Forensic Odontology, Recent Concepts, Forensic Dental Identification.









ANALYSIS OF DNA EXTRACTED FROM ARCHIVAL FORMALIN-FIXED PARAFFIN-EMBEDDED TISSUE BLOCKS AS A NOVEL ALTERNATIVE RESOURCE IN FORENSIC SCIENCE - 11 YEAR RETROSPECTIVE STUDY

Dr. Sameera Begum¹, Dr. Riaz Abdulla²

¹ICMR - RA, Ph.D research scholar, Department of Oral Pathology, Yenepoya Dental College, Yenepoya (Deemed to be University), Mangalore

²Professor and Head, Department of Oral Pathology, Yenepoya Dental College, Yenepoya (Deemed to be University) Mangalore

Abstract

Archival Formalin-fixed paraffin-embedded (FFPE) blocks are stored in the pathology department globally which can be one of the most effective tools in forensic science. FFPE tissues can be a suitable biological sample for the performance of molecular autopsy in forensic labs to identify human remains, determine paternity, abduction, soldier missing, and the cause of sudden unexplained death. The study aimed to know whether genomic DNA extracted from archived FFPE tissues is of preserved integrity over the years and can be used in forensic autopsy labs. Retrospective analysis of 40 FFPE blocks archived from 2006 - 2017 (11 years) were obtained from the Oral Pathology department. DNA extraction of the tissue sections was carried out using Takara dexpat easy DNA kit. A Nanodrop spectrophotometer was used to determine the DNA yield (A260) and purity (A260/A280 ratio). DNA fragments were analyzed using agarose gel electrophoresis. Statistical analysis was obtained using the ANOVA test. A p-value of < 0.05 was set for statistical significance. There was no statistically significant difference observed both in terms of DNA yield (p= 0.996) and purity (p=0.997) between FFPE blocks stored for 11 years. FFPE tissue blocks can be an intrinsic part of post- mortem investigation and are a valuable resource for retrospective molecular autopsy. DNA extracted from archival FFPE blocks can be used as a novel and cost - effective genomic tool in molecular autopsy to understand sudden unexpected deaths, where the candidate gene is unknown.

Keywords: FFPE, Nanodrop spectrophotometer, Agarose gel electrophoresis, Genomic tool.









MORE SUNSHINE FOR FORENSIC ODONTOLOGY- NEED OF THE HOUR

Navsheen Nadir Khan¹, Dr.Amisha A Shah²

¹II BDS, M.A. Rangoonwala Dental College Maharashtra University of Health Sciences, Pune

²Professor, Dept. of Oral Pathology and Microbiology M.A. Rangoonwala Dental College, Pune

Abstract

Forensic Odontology is the application of dental and paradental knowledge to the solutions of legal issues in civil and in criminal matters. In most of the cases, knowledge of forensic odontology is used in identification during sexual assault child abuse and mass calamities. This branch has been growing tenfold in its potential and ability to bring justice in cases where dental remains are the only available evidence. With ever increasing crime rate in India, role and importance of forensic odontology is immensely growing and needs a worthy recognition. The current review research aims to bring more recognition to Forensic Odontology at PG Level, draw attention to the gap between the role of a forensic odontologist and a forensic medicine practitioner. Many dentists in India from both private clinical practice and research sector have contributed in this field since early 70s but forensic odontology has not been included as a separate branch at MDS level. Through this study we humbly request to put more light on forensic odontology as an independent branch of dentistry. The need of forensic odontologist in our country is increasing day by day. Therefore, by introducing it as a separate branch of dentistry students at UG level will get a clear career option. This will add value in providing justice to the victims.

Keywords: Recognition, Forensic Medicine Practitioner, MDS.









COMPARATIVE MANUAL AND DIGITAL ANALYSIS OF GONIAL ANGLE IN LATERAL CEPHALOGRAPHS FOR GENDER DETERMINATION

Dr. R Keerthika¹, Dr. Akhil Girdhar¹, Dr. Anjali Narwal²

¹Junior resident, Department of Oral Pathology and Microbiology, Pt. Bhagwat Dayal Sharma University of Health Sciences, Post Graduate Institute of Dental Sciences (PGIDS), Rohtak, Haryana, India

²Professor, Department of Oral Pathology and Microbiology, Pt. Bhagwat Dayal Sharma University of Health Sciences, Post Graduate Institute of Dental Sciences (PGIDS), Rohtak, Haryana, India

Abstract

Human skull has always been used for victim identification in forensic odontology. Mandible being one of its well-preserved components, various parameters have been calculated, compared and studied for age and gender estimation. One such parameter, the gonial angle measured using lateral cephalometric radiograph has been studied for gender estimation with variable results and requires further exploration. We aim to compare the manual and digital methods of gonial angle measurement using lateral cephalometric radiograph for their accuracy in gender estimation and to establish any significance. Lateral cephalometric radiographic data of 128 (64M & 64F) cases in the age range of 17-25 years was retrieved. Cephalometric analysis of gonial angle on radiographs will be done using both manual cephalometric tracing method and digitally using adobe photoshop software. The results will be subjected to statistical analysis for evaluation. The study is ongoing and results will be compiled and presented during conference. The results of a single study conducted on the Indian population by Belaldavar et al on gonial angle measurement using adobe photoshop were not so promising. The present study has been undertaken with an attempt to analyse the efficacy of gonial angle estimation by ancient method of cephalometric tracing compared with more recent digital analysis method for gender estimation in Indian population.

Keywords: Gonial Angle, Victim Identification, Gender Determination, Radiograph.











AGE ESTIMATION USING THE CRYPT TO TOOTH RATIO: A NOVEL TECHNIQUE FOR ESTIMATING THE AGE OF ADOLESCENTS

Purva Rasane¹

¹Intern, Manipal Academy of Higher Education

Abstract

Estimation of age is one of the four pillars of human identification. Radiographic methods like Demirjian, Kohler, Nolla, etc have used tooth development stages for age estimation. We propose an innovative technique to assess crypt to tooth (CTR) ratio of mandibular second molars for age estimation and check its efficiency to detect 10 years. Digital orthopantomograms (OPGs) of 224 children and young adults (boys and girls) aged between 8 to 18 years were evaluated using Image J (1.53e, NIH, USA). The outline of the crypt and the mineralized portion of the mandibular second molars (37 and 47) were marked using the polygonal selection tool and the area was estimated. The ratio of crypt to tooth area were tabulated in Microsoft excel ® 2016 and compared with age using Independent test and discriminant function analysis. It is observed that the as the age increases the CTR decreases and is statistically significant with p value & It; 0.001. According to Discriminant Function Analysis the cutoff for tooth 37 and 47 is observed to be 10 years with an accuracy of 75.50% and 67.30% respectively. The age of 10 years may be critical in issues of unlawful employment and kidnapping, sports events etc. Crypt to tooth ratio can be an essential adjunct to age estimation to the other traditional methods for human identification and age estimation.

Keywords: Age estimation, Discriminant functional analysis, Crypt to tooth Ratio.











AN ASSESSMENT OF FORENSIC COMPUTERIZED FACIAL RECONSTRUCTION UTILIZING CBCT – A REVIEW

Dr. Taruna Mahant¹

¹MDS in Oral Medicine and Radiology Maharishi Markendeshwar (Deemed to be) University, Mullana, Ambala

Abstract

The technique where face is constructed on bare bone of the skull. The utilization of 3D computerized systems has allowed more effective procedures for forensic facial reconstruction. In most of cases the post-mortem profile does not elicit the identity of the deceased so it may be important to reconstruct the individual's appearance during life. Forensic artist utilizes the ante-mortem photograph of dental profile to help in facial reconstruction. Shell-to-shell deviation maps were created using 3D surface comparison software, and the deviation errors between the reconstructed and target faces are measured. In most of cases the clues found on the crime site can be helpful to construct the face like dress size, other clothing may indicate the gender of the individual, hair may be present, skin tag to determine the color and racial species. Eyeglasses, hearing aids and condition of teeth can give idea about the age of the patient. But this technique requires the availability of suitable ante-mortem photographs showing the teeth. Debate still rages on this technique as many authors suggest this technique as under developed, unscientific and unacceptable.

Keywords: Facial Reconstruction, 3D Computerized Systems, Dental Profile, Forensic Photographs.









AGE ESTIMATION OF ADULTS FROM ORTHOPANTOMOGRAMS BY CALCULATING PULP/TOOTH AREA RATIO OF MANDIBULAR 2 ND PREMOLAR ABSTRACT FOR PAPER PRESENTATION

Dr. P Srujana Santosh¹

¹PG II Year, Oral and Maxillofacial Pathology, Panineeya Institute of Dental Sciences & Hospital, Hyderabad, Telangana

Abstract

Age estimation methods using teeth have been evolved into an essential tool for individual identification in forensic science. Choosing radiographic methods for calculating age is beneficial as it is simple, non- invasive and accurate alternative to conventional methods. The present study emphasises on the applicability and reliability of panoramic radiography method of age estimation by calculating pulp/tooth area ratio in the lower premolar teeth of adult population. One hundred and twenty orthopantomograms were collected by following the exclusion criteria from patients of the age group 20 -78 years. The pulp/tooth area ratio of lower second premolar is analysed and the results are sent to statistical analysis which are awaited.

Keywords: Age Estimation, Radiographs, Tooth Area Ratio, Molar.









DIGITAL FRAUDULENCE-AN'EAGLE EYE' IS MANDATORY

Dr. Shaik Khalida Kouser¹

¹G. Pulla Reddy Dental College and Hospital

Abstract

Forensic photography, also referred to as crime scene photography, is an activity that records the initial appearance of the crime scene and physical evidence, It is an indispensable tool in modern forensic odontological protocol which aids in investigative procedures, maintenance of archival data, and to provide evidence that can supplement medico legal issues in court. With the transition of photography from film to digital, forensic photography skills have degraded. In present-day times, freely available software allows forensic odontologist to tweak their digital records as never before. But, there is a fine line between acceptable enhancements and scientific delinquency. Knowledge about digital image fraudulence, detection, and prevention is the desperate need of the hour in today's technology-driven forensic investigations. It is important that forensic departments and law enforcement officials recognize the importance of proper training and equipment for forensic photography to estimate of the image's authenticity, and clearly displays the probability of the image being forged.

Keywords: Forensic Photography, Crime Scene Photography, Image's Authenticity, Forensic Odontological Protocol.








ROLE OF FORENSIC ODONTOLOGIST- IN GIVING A ROYAL SALUTE TO DEPARTED SOULS

Dr. H. Aparna Latha¹

¹Oral and Maxillofacial Pathology, G. Pulla Reddy Dental College and Hospital

Abstract

Forensic odontology is a subspecialty of dentistry that has its main focus in the identification of deceased persons. The knowledge of teeth being durable not only comes from the present day knowledge but also from the research on the remnant dental evidence found as fossils. Teeth can survive in most conditions encountered at death and during decomposition, even when the body is exposed to extreme forces and temperature. These records will be of great help for easy recognition of our army men at the time of calamities, wars, and other difficulties and also to protect the country from terrorists who impersonate and spread terrorism, acting as a threat to the security of the nation. The awareness of FO is gaining pace in India since the last decade after the establishment of various organizations and the Dental Council of India making it a part of the curriculum. Cognizance and Pertinence of FO in the Indian Defense Forces would be of great help for better and accurate record keeping of the dedicated and prudent warriors of our army.

Keywords: Forensic Odontology, Identification, Dental Evidence, Dental Records.











AUTHENTICATION OF NOVEL METHOD FOR AGE ESTIMATION IN FORENSIC ODONTOLOGY

Dr. S.Sarath Kumar¹

¹Post Graduate, Oral Medicine and Radiology, SRM Dental College

Abstract

Forensic odontology is an emerging science that uses teeth for assessment of age of an individual. Accurate age estimation is required for pediatric issues, orthodontic treatments to legal matters, etc. Although skeletal methods could be used for age estimation, but variability of bone maturation is influenced by several environmental factors. Moreover, dental tissues are more resistant to thermal, chemical, and mechanical stimuli and are less affected by endocrine diseases or nutritional variations than other tissues. Morphological methods are subjective in nature and predict a wider range of age. Biochemical and histological methods are destructive strategies which demand extraction of the teeth and so are unethical and not always possible in the case of living individuals. This leaves only radiographic methods, which are nondestructive, practical, and applicable for estimating the ages of living people who have completely developed teeth. The radiographic technique utilizes different parameters for age estimation, one such is Tooth Coronal Index (TCI). So current aim of my poster is to check the reliability of which tooth is more reliable by using various studies done to determine age estimation using TCI.

Keywords: Tooth Coronal Index, Radiographic methods, Forensic odontology, Endocrine Diseases.









ASSESSMENT OF MANDIBULAR FLEXURE FOR SEXUAL DIMORPHISM: A RETROSPECTIVE STUDY

Dr. S. Padmavathi¹

¹Postgraduate student, Dept of Oral Medicine and Radiology, SRM Dental College

Abstract

In forensic medicine, the distinguishing proof of age and sexual orientation is a vital role, and it assumes a fundamental part in deciding one personality. The skeletal parts frequently explored for sex determination are pelvis and skull, with the mandible being a reasonable component to investigate sexual dimorphism in the divided bones. Mandibular ramus can be utilized to separate among genders, and it additionally communicates solid univariate sexual dimorphism. To evaluate whether the morphological attributes of mandible in males and females can be utilized as a guide for sex determination based on orthopantomograms. The present study will be conducted in the Department of Oral Medicine and Radiology of our college using the orthopantomogram taken in our department for various treatment aspects for the analysis of mandibular ramus flexure of both males and females. The OPGs of patients with developmental abnormalities, edentulous spaces, fracture, or trauma history in the maxillofacial region and the OPGs with dental artifacts. These included OPGs will be evaluated based on Loth and Henneberg (1996). The analysis will be carried by the software for measurement of the radiographs. The study is under progress and the results will be presented at the time of paper presentation. This study will help us to conclude the precision of mandibular flexure in sexual dimorphism which will also aid in the gender identification during antemortem or post-mortem analysis.

Keywords: Forensic Medicine, Orthopantomograms, Mandibular Flexure, Radiology.









FORENSIC ODONTOLOGY- EXPLORING THE THIRD DIMENSION

Dr. Varsha Kutthanthadathil Sukumaran¹

¹Post graduate student, Oral Medicine and Radiology, SRM Dental College, Ramapuram

Abstract

Three-dimensional data acquisition is an evolving arena in the field of scientific research development and innovation. Forensic practice often applies three dimensional methods in order to provide a detailed information of the evidence. Though three-dimensional technologies are less technique sensitive they are not widely being used by the forensic odontologists. It is imperative for the forensic odontologist to adopt these advanced technologies in their protocol for them to work efficiently. Hence, awareness of the ease at which these technologies work is mandatory among the forensic team. Through coordinated efforts, three-dimensional technology can be a boon in distinguishing the deceased effortlessly. The current literature aims to highlight the recent three-dimensional technologies, its application and potential use in the field of forensic odontology.

Keywords: Forensic odontology, Odontologist, Three-dimensional technologies, Forensic team.









Registration number: IAFO/2021/377

IDENTIFICATION OF DRUG ABUSE IN FORENSIC SCIENCES USING DENTAL HARD TISSUE

Ammana Swapna Harika¹

¹Intern (Undergraduate), Rajiv Gandhi University of Health Sciences

Abstract

Forensic odontology involves the handling, examination and evaluation of dental evidence in criminal justice cases. Forensic toxicology, which is dependent upon toxicology to aid in legal and medical investigation, relies on dental hard tissues in cases which may present with bodies that may have undergone pyrolysis, autolysis or decomposition and skeletonized bodies - making dental hard tissues or teeth a reliable and unique evidence for post mortem investigations in forensic odontology and toxicology. This study reviews the different studies ndertaken to detect chemicals and licit and illicit drugs that can be identified in dental hard tissues and their uses in forensic toxicology and odontology. Thus making dental tissue or teeth important evidence in the identification of drug abuse in forensic toxicology.

Keywords: Forensic odontology; Toxicology; Dental hard tissue; Teeth; Drug abuse.









ACCURACY OF GENDER PREDECTION IN THREE MODALITIES: A CROSS SECTION

Dr. Soni Solanke¹

¹Post Graduate Student, Dept. Of Oral Medicine and Radiology Government Dental College and Hospital, Dr. NTR University Of Health Sciences

Abstract

Gender determination forms a vital step in the process of identification. The use of radiographs to compare sinuses is a well-established method when it comes to forensics for identification of individuals. Maxillary sinus due to its unique configuration and some resistance to disfigurement in mass disaster cases have been used in gender determination. Rugoscopy is same as finger prints as it is not same in any two individuals. Among the hard tissues, teeth play a very prominent role as they are resistant to decomposition. Teeth remain intact even after death, hence teeth form a very useful tool in forensic identification. The aim of the study is to evaluate the reliability and accuracy of hard tissue, soft tissue, and radiographic methods for gender determination. The study will be conducted in the department of oral medicine and radiology on fifty participants (25 males and 25 females) with an age range of 20– 40 years. Panoramic radiographs and maxillary casts will be collected and analysed for area of maxillary sinus, rugae pattern and odontometric measurements respectively. The obtained data will be interpreted and statistically analysed.

Keywords: Gender determination, Rugoscopy, Radiography, Maxillary Sinus.









TOOTH SIZE: INSIGHT FOR FACIAL RECONSTRUCTION IN FORENSIC ODONTOLOGY

G. Meghana¹

¹Dr. NTR University of Health sciences, Government Dental College and Hospital, Kadapa, Andhra Pradesh

Abstract

The role of the forensic odontologist is to establish a person's identity. Teeth, with their physiologic variations, pathoses, and effects of therapy, record information that remains throughout life and beyond. This discipline plays a significant role in the identification of human remains in natural and man-made incidents. The comparison of the facial profile from dental morphometrics has been a subject of great interest in forensic odontology. The aim of this study is to suggest a novel approach in identifying a potential suspect or victim by determining the facial parameters (circumference of the head, bizygomatic width and facial length) using the mesiodistal dimensions of maxillary central incisors. This study included sample size n = 50 participants, of which 25 participants are male and 25 - female. The width of maxillary central incisors of all the participants will be measured. These values will be incorporated in the anthropometric cephalic index, Berry's biometric index and Pound's formula to determine the circumference of the head, bizygomatic width and facial length (estimated values). Circumference of the head, Bizygomatic width and facial length of all the participants will also be measured in actual values using measuring tape, vernier's calliper, face-bow and divider. These values will then be compared.

Keywords: Facial Parameters, Facial Reconstruction, Anthropometry, Forensic Odontology.









GENDER IDENTIFICATION BY COMPARING LIP PRINT AND TONGUE PRINT: A CROSS SECTIONAL STUDY

Dr. Priyanka Rana¹

¹Post Graduate Student, Government Dental College and Hospital, Kadapa, Andhra Pradesh

Abstract

Personal identification is one of the important part of forensic odontology. Gender determination is a crucial part of this identification process. Just like fingerprints and lip prints, tongue prints are also unique to each individual in its shape, size, color and texture. Apart from being unique they can be acquired easily in a least invasive and cost effective way. The aim of the present study is to determine the predominant pattern of lip and tongue prints and to correlate the lip print with tongue print in gender identification. This study will be carried out with fifty individuals (25 males and 25 females) who reported to the Department of Oral Medicine and Radiology. For each individual, lip prints will be recorded using a dark colored lipstick and analyzed according to Suzuki and Tsuchihashi classification, and the tongue impression will be recorded by making alginate impression and being preserved using the alginate molding. The obtained data will be sent for statistical analysis.

Keywords: Personal Identification, Tsuchihashi Classification, Lip Prints, Tongue Prints.









TONGUE PRINTS - A POTENTIAL BIOMETRIC TOOL

V. Divya Gayathri¹

¹Post Graduate, Department Of Oral Medicine and Radiology, Meghna Institute of Dental Sciences, Telangana

Abstract

Biometric authentication is an important process for the identification and verification of individuals for security purposes. There are many biometric systems that are currently in use and also being researched. Tongue print is a new biometric authentication tool that is unique and cannot be easily forged because no two tongue prints are similar. The aim of the study is to evaluate the common morphological features of the tongue and its variations in males and females. The study sample included forty participants. Visual examination of the tongue was done, followed by capturing digital photographs. The photographs were analysed for the surface morphological features like tongue shape, the presence of fissures, and its distribution pattern. The shape of the tongue was determined by considering three reference points. Results for the proposed study are awaited. Tongue impression can be a promising biometric tool as the tongue is a unique organ as it varies in each person. Tongue prints cannot be forged easily as it is unique in shape, fissures and distribution pattern.

Keywords: Biometric Tool, Tongue Prints, Tongue, Biometric Authentication.











PREDICTION OF GENDER AND AGE USING MANDIBULAR INDICES ON DIGITAL ORTHOPANTOMOGRAM (OPG)-A RETROSPECTIVE STUDY

Dr. Pradnay Premnath Satye¹, Dr. Jayshri Bhau Uchale²

¹PG student (MDS- OMDR), Dr. GD Pol Institute, YMT Dental College and Hospital, Mumbai

Abstract

The human mandible is composed of dense compact bone that is durable and hence better preserved compared to other bones. It can differentiate between sexes as the stages of mandibular development, growth rates and duration are distinctly different in both sexes. The mandible undergoes structural changes as age advances; an evident finding is the change in the gonial angle and the mandibular bigonial width. Measurement of these can be used as predictors of age. Morphometric measurement of the mandibular ramus and body can help to create statistical equation which can used effectively to calculate and predict the age and gender of the individual. In situation of mass disasters were only bony fragments are obtained, these measurement can be used effectively to established the identity of the individual. To evaluate linear measurements of bilateral mandibular rami and body on digital OPG and assess its usefulness in gender and age determination To evaluate maximum ramus breadth, minimum ramus breadth, maximum condylar height, maximum ramus height, maximum coronoid height, bigonial width, gonial angle, body height in premolar and molar areas. Linear and angular morphometric measurements were performed for the mandibular ramus and body bilaterally. Using descriptive statistics, a regression equation was derived to assess the gender and age of the study sample.

Keywords: Morphometric measurement, Orthopantomogram, Bilateral mandibular rami, Mandible.









Registration number: IAFO/2021/388

'FACE'ING THE UNRECOGNISABLE – IN DISASTER VICTIM IDENTIFICATION

Dr Arul Jothi M¹

¹Post graduate, SRM dental college Ramapuram

Abstract

Disaster can be defined as: "A sudden ecologic phenomenon of sufficient magnitude torequire external assistance" or "a serious disruption of the functioning of a society, causing widespread human, material, or environmental losses which exceed the ability of the affected Society to cope using its own resources." The purpose of forensic odontologist in disaster victim identification can be made effective by imparting the knowledge and awareness among the general dentists in India. Victim identification methods used is mass disasters should be scientifically sound, reliable and applicable. Primary identification method includes friction ridge analysis, dental analysis and DNA analysis. Secondary identification method includes personal description (visual identification), medical findings, tattoos, property and clothing. These methods serve to support other means of identification and cannot be relied sufficiently as a solitary method. This paper presentation focuses on the current and the recent trends in identification of the victims during mass disaster.

Keywords: DNA analysis, Forensic odontologist, Victim identification method, mass disaster.









3D PRINTING IN FORENSIC ODONTOLOGY

Dr. Gayathri Devi.M¹

¹Post Graduate 3rd Year MDS, Dr. M.G.R Medical University, Chennai Government Dental College, Chennai, Tamil Nadu

Abstract

Technological advancement in forensic odontology has revolutionized the art of dentistry in pioneering digital information where evidence is recreated without touching the evidence with additive manufacturing file format process. In medicolegal cases, for forensic evidence, this method creates craniofacial casts from the digital information that can be retrieved at any point in time. The scope of 3D printing is used in bite mark analysis, 3D facial reconstruction, cheiloscopy, and gender determination. The process of 3D printing includes image acquisition, image processing, and 3D printing and the quality depends on the technology used. They have different techniques and the material that are used provide a smoothly detailed prototyping and high durability with maximum anatomic details to solve crime in minimum duration of the period time. This presentation/poster highlights the application of 3D printing in the current scenario to help forensic odontologists for better visualization and understanding that provides informative images in three dimensions.

Keywords: 3D printing, forensic odontology, Cheiloscopy, Prototyping.









TOOTH FOR TRUTH – A CONE BEAM COMPUTER TOMOGRAPHY STUDY FOR AGE ESTIMATION

Dr. Pradkhshana Vijay¹

¹Oral pathology King George's Medical University, Lucknow, Uttar Pradesh

Abstract

Age estimation is an important component of forensic investigation. Age estimation can help to determine the severity of punishment to accuse in cases where concrete proof of birth records is unavailable and other medico legal cases. Dental age prediction using teeth has been long recognized. Histological and biochemical methods of age estimation require tooth extraction or sectioning. Application of CBCT in dental radiology provides us an advantage of acquiring 3D images of teeth in living individuals and also make it possible to reconstruct the entire volumetric region which can be reformatted to reveal anatomical details in any plane. Thus, CBCT creates new opportunities for application of this technology in the field of forensics for age estimation. To estimate age based on pulp tooth volume ratio (PTR) of the maxillary single and multi-rooted teeth measured in 3 planes obtained from CBCT image data. All CBCT images acquired with a Care Stream 9300 premium CBCT unit were subsequently exported as DICOM data sets and imported into ON DEMAND software for calculation of PTR. A logarithmic linear regression analysis was conducted to establish a mathematical formula for human age determination. Pulp to tooth volume ratio is a useful index for estimation of human age with reasonable precision and accuracy.

Keywords: Age Estimation, CBCT Image, Forensic Investigation, Dental Radiology.











Registration number: IAFO/2021/409

SIGNIFICANCE AND CORRELATION OF PARANASAL SINUS VOLUME WITH MORPHOMETRICS OF FORAMEN MAGNUM IN AGE AND GENDER DETERMINATION USING CONE BEAM COMPUTED TOMOGRAPHY: A RETROSPECTIVE FORENSIC BASED STUDY

Dr.C.Narmadha¹

¹Post Graduate Student, Department of Oral Medicine and Radiology, Meenakshi Ammal Dental College and Hospital

Abstract

In forensic context of personal identification, sex and age determination is considered as the primary step. Bone structures such as paranasal sinuses and foramen magnum are typical and specific because of their unique nature. To assess the reliability of volumetric measurements of paranasal sinuses in correlation with morphometrics of foramen magnum for age and gender determination using Cone Beam computed tomography. In this study, CBCT full skull images of 100 patients taken from the department of Oral Medicine & amp; Radiology of Meenakshi ammal Dental College are to be analysed retrospectively. The age group between 20-69 years of age for both males and females to be included in the study. The age group are categorized as (20-29), (30-39), (40-49), (50-59), (60-69). 10 samples are selected for each age group in both the gender. The ITK-SNAP 3.8.0 software to be used for volume analysis of paranasal sinuses using semiautomatic segmentation and dimensions of foramen magnum. The obtained result will be statistically analyzed by discriminant analysis correlating foramen magnum and the volume of paranasal sinuses. Forensic studies based on the morphometrics of foramen magnum showed highest accuracy in the literature. Correlating foramen magnum with the other structures like paranasal sinuses, mandible, mastoid process increases the rate of accuracy.

Keywords: Radiology, Foramen magnum, Oral Medicine, Paranasal sinuses.









THOUGHT PROCESS ON SEX DETERMINATION IN GENDER BLENDERS- A REVIEW

Amisha Nayak¹

¹Undergraduate BDS Student, D Y Patil University, Navi Mumbai

Abstract

Construction of the biological profile of the deceased forms the basics of forensic anthropology. In case of gender diverse group, forensic determination of the biological sex and the gender may be feeble. There are very few studies done with respect to the sex determination in such population groups due to the different variations imposed. This variation may be inherent or acquired in later stages of life. Various parameters in forensic analysis are applied to find out if there was sexual diversification in a deceased individual. This review discusses various methods to study the sex determination in gender blenders for forensic investigations.

Keywords: Sex Determination, Forensic Anthropology, Forensic Investigations, Biological Profile.









AMELOGLYPHICS- AID TO IDENTIFICATION-A REVIEW

Dr. Veenu Dahiya¹

¹MDS 2nd year student, Oral Medicine and Radiology, M.M. College of Dental Sciences and Research, (MMU, deemed to be university), Mullana, Ambala

Abstract

Forensic Odontology has established itself as an indispensable science in medico legal matters and in particular in personal gender determination, personal identification and age estimation. Various methods currently employed in forensic odontology for personal identification include comparing with ante mortem dental charts, rugoscopy, denture labelling, DNA analysis from dental pulp, bite mark analysis, etc. Recently there is growing interest in the study of enamel rod end patterns. These enamel rod end patterns are termed as tooth prints and the study of these prints is known as Ameloglyphics (amelo: Enamel, glyphics: Carvings). The tooth prints are unique, exhibiting dissimilarity both between teeth of different individuals and of the same individual. This uniqueness of the tooth print could be used as a valuable tool in forensic science for personal identification. This review will focus on the importance of this method of personal identification as an adjunct antemortem dental records of firefighters, soldiers, jet pilots and people living or travelling to politically unsteady areas.

Keywords: Ameloglyphics, Enamel, Personal Identification, Forensic Tool.









DETERMINATION OF SEX BY CONE-BEAM COMPUTED TOMOGRAPHY ANALYSIS OF MENTAL FORAMEN IN NORTH INDIAN POPULATION

Dr. Balwinder Singh¹, Dr. Alisha Madan²

¹Associate Professor, Sri Guru Ram Das Institute of Dental Sciences and Research, Punjab

²Dental Student (Intern), Sri Guru Ram Das Institute of Dental Sciences and Research, Punjab

Abstract

Gender discrimination is the most exacting but of the prime importance in forensic odontology especially during mass disasters where the remnants of unknown craniofacial fragments are the only source. To determine sexual dimorphism by CBCT (3-D) analysis of mental foramen among the North Indian Population. 120 CBCT images of the subjects were analysed to assess the position of the mental foramen. Distance from superior and inferior border of the mental foramen to the lower border of the mandible (SLM and ILM, respectively) was recorded on right and left side of males and females along with the thickness of the lower border of the mandible for gender discrimination. Statistical analysis of Mann-Whitney test, paired T-test and ROC curve were used. For SLM, there was statistically significant difference between males and females (p value=.013) on right side and highly statistically significant difference on left side (p value = 001). Similarly, for ILM, there was statistically significant difference between males and females on right and left side (p value =.028). There was no significant difference between males and females for lower border of the mandible with p value 0.197 for right side and 0.246 for left side. The area under ROC curve was 72% for SLM and 68% for ILM. The distances from the mental foramen to the lower border of the mandible exhibit sexual dimorphism and can be used as adjunct for sex estimation in the North Indian Population.

Keywords: T test, Mann-Whitney test, Sexual dimorphism, CBCT.









FRONTAL SINUS: AN ADJUVANT IN IDENTIFYING UNKNOWN PERSON-A

Dr. Radhika Goyal¹

¹MDS 2nd Year, Department Of Oral Medicine and Radiology MMCDSR, Mullana, Ambala

Abstract

CBCT is an advanced imaging modality that has high clinical application field of dentistry and dental age estimation is considered as important factor in the field of forensic science. The frontal sinus shows no change after the age of 20 and remains stable throughout life until old age when gradual pneumatization can occur from atrophic changes and the difference in frontal sinuses among sexes could be due to factors such as genetic followed by muscular, nutritional and hormonal, therefore frontal sinus measurements can be used as an adjunct in gender identification in mass disasters and with advances in technology.

Keywords: CBCT, Frontal sinus, Mass disasters, Pneumatization.









AWARENESS OF FORENSIC ODONTOLOGY AMONG UNDERGRADUATES AND POSTGRADUATES OF VARIOUS DENTAL COLLEGES: A KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) BASED STUDY

Sujithaa Natarajan¹, Akrithi Chandran¹, Amritha A¹

¹III BDS, Rajiv Gandhi University of Health Sciences Rajrajeshwari dental college, Bangalore

Abstract

The aim of the study is to assess the knowledge, attitude and practice of forensic odontology among undergraduates and postgraduates of various dental colleges. This is a cross-sectional, institution-based survey, conducted among 402 dental students aged between 17 and 30 years. It is a self-administered English questionnaire given to students who were willing to participate and was circulated using many platforms such as Whatsapp and Instagram. The questionnaire includes KAP criteria based questions along with demographic data. 81% percent of the participants were aware of the concept of forensic odontology. They mainly got their source of knowledge from internet and social media. About 82% of them think it is an important topic to be added in the curriculum. About 73% of them are aware that DNA can be extracted from a tooth specimen. Only 48% were aware that the study of lip print is known as Cheiloscopy. 67.4% were aware that it can be used to detect child/sexual abuse. About 45% were unaware of courses of forensic dentistry. About 83.3% think that the public should be made more aware of the same and agreed that they lack knowledge about the concept.

Keywords: Forensic Odontology, Knowledge, Attitude, Awareness, Practice, Dental colleges.









ADVANCED METHODS TO ANALYSE HUMAN BITEMARK – A REVIEW

Kiran V¹

¹UG Student, Rajiv Gandhi University of Health Sciences, Bengaluru, Karnataka

Abstract

Criminals can lie through their mouth, but their teeth rarely lie! Forensic Odontology is the application of dentistry in legal proceedings deriving from any evidence that pertains to teeth. Bitemark is a very peculiar, being the main evidence for forensic odontologist who studies and tells whether the mark is superficial or cutaneous. They provide clear explanation of the sort of violence and time passed between its production and examination. Bitemarks injury pattern is extremely interesting, using to endorse the concepts of methodologies will assist the society considerably by putting in laws fairly. The significance of this grave responsibility is to analyse the proof to reveal the defendant's life or liberty to the court depending on the testimony produce by the forensic odontologist. The aim of this article is to give a brief overview of the advanced methods to analyse Human bitemarks, uses and their technologies. The conclusion reached from bitemark analysis will provide the proof to aid the justice system, the key to inquire on the interaction of contrasting conditions between people in attendance at the scene of crime.

Keywords: Forensic Odontology, Human Bitemarks, Injury, Advanced Methods.









ROLE OF ORTHOPANTAMOGRAPH IN FORENSIC IDENTIFICATION: A PILOT STUDY AMONG HARYANA POPULATION

Dr. Paras Gupta¹

¹Oral medicine and radiology, Maharishi Markandeshwer College of Dental Sciences and Research, Mullana, Haryana

Abstract

Orthopantamograph analysis is a simple, non-invasive, economic and reliable method to sort for identification of the unidentified. The aim of the study was to assess the efficacy of OPG in age and sex determination. The objective of our study was to evaluate various measurements on the mandibular ramus and to correlate them with the age and sex of an individual. Setting and Design. A pilot study was conducted using previously taken 10 OPG in department of Oral Medicine and Radiology. SPSS version 20 will be used. Results are awaited.

Keywords: Orthopantamograph, Forensic Identification, Mandible, Dental Measurements.









CHARACTERIZATION OF AGE AND SEX USING CONFIGURATIONS OF THE MANDIBULAR NOTCH, CORONOID PROCESS, AND MANDIBULAR CONDYLE: A CBCT STUDY

Dr. Dipanshu Aggarwal¹, Dr. Saurabh Juneja², Dr. Meenakshi Singhal³

¹Post Graduate, ITS Dental College, Muradnagar U.P.

²Reader, ITS Dental College, Muradnagar U.P.

³Senior Lecturer, ITS Dental College, Muradnagar U.P.

Abstract

Anthropologists, forensic scientists, and reconstructive surgeons all benefit from a thorough understanding of the mandible & #39;s anatomy. The mandibular morphology may be seen using a variety of imaging techniques. Cone Beam Computed Tomography (CBCT) is a new method that is becoming more popular in dento-maxillo-facial imaging because of its low dosage and excellent spatial resolution. The focus of this research was to use CBCT to analyze the morphology of the mandibular notch, coronoid process, and mandibular condyle. The research was based on the archival records of CBCT scans from 50 patients. On axial, coronal, and sagittal CBCT sections, the configurations of the coronoid process, mandibular notch, and condylar process were examined. The CBCT sections of 100 coronoid processes, mandibular notches, and mandibular condyles of 50 mandibles were examined. Age and condule shape were significantly related in coronal portions (p & It; 0.001). The condyle forms on coronal and sagittal CBCT sections were unaffected by gender (p & gt; 0.05). In the future, anthropological markers can be utilised to analyse different races based on the data collected in this study. CBCT may be used to identify changes in the mandibular bone & #39;s morphology, and coronal portions of CBCT can be used in criminal justice because of the impact of ageing on mandibular condyle shape.

Keywords: Tomography, Anthropology, Mandible, CBCT.









SEX ESTIMATION AND CRANIOMETRIC ANALYSIS USING LATERAL CEPLALOGRAMS: A DIGITAL MORPHOMETRIC STUDY

Dr. Huma Farnaz¹, Dr. Anshi Jain² ¹Post graduate, ITS Dental College, Murad Nagar, U.P. ²Reader, ITS Dental College, Murad Nagar, U.P.

Abstract

Personal identification is a subtle perception and often one of the most significant priorities during the criminal cases and mass disasters investigations. Identification of skeletal in human remains is one of the most difficult areas of expertise in forensic science which may be easier to make but difficult to judge. The identification of skeletonized remains requires sex estimation. After the pelvis, skull is considered the best predictor for gender determination. In that respect morphometric studies provide more objective way of attaining data. Aim of the study is to investigate human's gender by exploring linear parameters of lateral cephalometrics that can be used to predict a sex and craniometric analysis. Total 50 subjects will be included in the study and analyzed by double blind folded method. Lateral cephalograms of all the subject's will be collected and analyzed by using Dolphin Imaging® 11.0 software. Linear parameter of lateral cephalometerics will be studied in detail to determine gender using Bjork, Cogs and Mc Namara analysis. Gender determination is evident (male/female) using linear parameter. Determining the skull using cephalometric study represents an aid for identification of person's sex, which is affected by certain factors like variations between populations, diet, genetics, mental health, physical activity and subjectiveness. Thus, morphological and morphometric analysis is established and is studied on human skulls to investigate sexual dimorphic features which is morphometrically analyzed.

Keywords: Personal Identification, Skeletonized Remains, Craniometric Analysis, Lateral Cephalograms.









KNOWLEDGE AND ATTITUDE ABOUT FORENSIC ODONTOLOGY AMONG DENTAL STUDENTS AND DENTISTS – A QUESTIONNAIRE SURVEY

Dr. Kalaiselvi .R1

¹Post Graduate Student, Department of Oral Medicine and Radiology, Chennai

Abstract

The role of a dentist is not only to examine and treat the oral diseases but also to assist the legal authorities by means of its branch—forensic odontology. Through forensic odontology, a dentist plays a very important role in crime investigation of any type. Dental professionals have a major role to play in keeping accurate dental records and providing all necessary information so that legal authorities may recognize malpractice, negligence, fraud or abuse, and identify unknown humans. To evaluate the knowledge, attitude and practice of forensic odontology among dental students and dentists. To evaluate the knowledge, attitude and practice of forensic odontology among dental students and dentists. A blind cross-sectional study, using a questionnaire with close-ended questions, was carried out. A questionnaire of 12 questions was prepared and the survey was conducted with 200 dental students and dentists. This survey will help in analysing the amount of knowledge about forensic odontology among dentists and dental students. And this study will also help in acquiring more knowledge and awareness about the role of dentist in forensic odontology.

Keywords: Forensic odontology, Malpractice, Fraud, Questionare.









THE CASES ON DENTISTS: COMMON CAUSES AND AREAS TO FOCUS

Dr. Gokul S¹, Dr. Reena Pabri¹, Dr Shikha Saxena¹, Dr Krishna Sireesha Sundaragiri¹,

Dr Bharat Sankhla¹, Dr Akshay Bhargava¹

Department Of Oral Pathology and Microbiology, RUHS College of Dental Sciences, Rajasthan University of Health Sciences

Abstract

A dentist can get influenced by lawsuits, and it could become the worst nightmare for a dentist. If the knowledge on medico-legal systems is deficient, there can be opportunities for ending up in trouble due to inefficient services. Modern day's dentistpatient relationships are widely changed. There are several articles on the theoretical aspects of these laws. This analytical review analyses the court summaries and the case notes of selected cases from the past 10 years to analyze the trend, common cause for those appeals, and discusses the possible adaptations a dental practitioner can do to make himself being safer side. The case details are collected from the database of casemine.com using appropriate keywords and cases are selected based on the relevance to the context of our analysis. The data of cause, laws and judgments are tabulated and statistically analysed. Then the various aspects observed in the trend of lawsuits, and the methods to improve in such scenes are discussed. Common cause for the lawsuits and the common judgements are analysed. The area of legal knowledge where dentists should improve their focus are sorted out and discussed.

Keywords: Dentist, Lawsuit, Statistics, Judgement.











A COMPARATIVE ANALYSIS OF MANDIBULAR DIMENSIONS IN SEX DETERMINATION AMONG THE POPULATION OF RAJASTHAN USING CBCT TECHNOLOGY: AN INSTITUTIONAL STUDY

Dr. Reena Pabri¹, Dr. Gokul S², Dr. Shikha Saxena², Dr. Krishna Sireesha Sundaragiri², Dr. Bharat Sankhla², Dr. Akshay Bhargava²

¹Second Year Post Graduate Student, Department of Oral Pathology and Microbiology, RUHS College of Dental Sciences, Rajasthan University of Health Sciences, Jaipur

²Department of Oral Pathology and Microbiology, RUHS College of Dental Sciences, Rajasthan University of Health Sciences, Jaipur

Abstract

Forensic odontology applies dental principles to legal issues. Sex determination is a subdivision of forensic odontology which involves the process of identification of a person by a forensic investigator in the case of mass destruction situations, crime investigations, and ethnic studies. Mandible expresses strong sexual dimorphism and could be used in sex determination. A retrospective study was done comprising a total sample size of 60 individuals classified into 2 groups comprising of 30 males and 30 females. Measurements were done on curved slicing or panoramic view of CBCT at 30.3 mm. In this study, five parameters were measured and compared; maximum ramus breadth, minimum ramus breadth, condylar height, projective height of ramus and coronoid height.

Keywords: Mandibular Dimensions, Sex Determination, Forensic Odontology, Mandible.









ERA OF NEURONAL INTELLIGENCE IN FORENSIC ODONTOLOGY

Dr. Priyadharshini. S¹

¹Post Graduate Student, Department of Oral medicine and Radiology Meenakshi Academy of Higher Education and Research, Tamil Nadu

Abstract

Forensic science is application of scientific methods and techniques for investigation in matters under court of law. It deals with identification of individuals in accidents, mass disaster or any criminal scene and evaluation of victims in sexual assault, child abuse and other domestic violence. Forensic odontology uses dental evidence to solve legal issues. Artificial intelligence which mimics human brain, is a technical advancement which has revolutionised medical and dental field. It is non-invasive modality which reduces human error. It has justified to be a breakthrough in providing countless information in decision making in forensic sciences. Hence Artificial intelligence is the start a new era forensic dentistry.

Keywords: Forensic Odontology, Artificial intelligence, Domestic violence, Dentistry.









CLINICAL SIGNIFICANCE OF PARANASAL SINUSES AND ITS ANATOMICAL VARIATIONS IN FORENSICS USING CONE BEAM COMPUTED TOMOGRAPHY

V.S.Madhu Preetha¹

¹III MDS (Post Graduate), Department Of Oral Medicine and Radiology Meenakshi Ammal Dental College, Chennai

Abstract

Paranasal sinuses are a group of four paired air filled spaces surrounding the nasal cavity. During development, anatomical variations can occur in consequence of intra and extramural migration of the ethmoidal air cells, over pneumatization or hypoplasia of the sinuses and bulging of the neurovascular structures to the sinuses and this can be used for personal identification in forensics. To study the clinical significance of Paranasal sinuses and it's anatomical variations in forensics using CBCT. A retrospective study was carried out using 100 CBCT images of 50 males and 50 females, with their age group ranging from 18-60 years. Radiographic assessment of Paranasal sinuses and its variations were accurately characterized using customized Planmeca Romexis software and the data was analysed statistically. It is found that agar nasi cells were the most common cells found. Concha bullosa was found in 39%. Nasal septum was deviated to right in 31% and to the left in 36%. Maxillary sinus septa in 21%, pneumatization of sphenoid sinus (23%) maxillary sinus (2%), and crista galli (7%) of the study population. And the results based on gender, the p value is found to be highly significant. Thus with the help of antemortem and postmortem CBCT data, the paranasal sinus including osteomeatal complex and associated anatomical variations can be compared and it will aid in identification of humans of different race, gender and in personal identitification.

Keywords: CBCT, Paranasal Sinuses, Anatomic Variations.









FORENSIC FACIAL RECONSTRUCTION- ITS RELEVANCE IN IDENTIFICATION

Dr. Ayushi Gupta¹

¹Intern, Subharti Dental College, Subharti University, Meerut

Abstract

The aim of this review is to discuss the significance of Forensic facial reconstruction focussing on various new techniques for the identification of the deceased individuals. Face is crucial for human identity, a boon to human kind and has several types of exclusive features, important in identification and recognition of a person. Forensic facial reconstruction can be used to identify unknown human remains and is the application of anthropology, anatomy, osteology, art and forensic science to recreate the face of an individual from his skull. Skulls can remain unaltered even for millions of years and can provide an inimitable means of identification. There are several techniques, from two dimensional drawings to three dimensional clay models. Computerized three dimensional forensic facial reconstruction method using Laser video camera interfaced with computerized tomography scanning is rapid, efficient and cost effective. Several manual methods using Mesh template deformation with Detail transfer over Hermite Radial Basis functions (HRBF), but Manchester method has been reported to be the best and most accurate method. Facial reconstruction allows visual identification by individual's family most often in major disasters and in accidents.

Keywords: Forensic facial reconstruction, HRBF, Anthropology, Anatomy, Osteology.









DENTIST ROLE IN MASS DISASTER: A REVIEW

Dr. Manju Devi¹, Dr. Ghata Savoriya²

¹Postgraduate student, RUHS College of Dental Sciences, Jaipur

Abstract

Mass disasters cause damage, ecological disruption, and loss of human life on a massive scale. The reasons for these ranges from natural causes such as volcanic eruptions and earthquakes to secondary human causes like wars. Victim's identity may be based on uniqueness of concordant antemortem and postmortem dental features which often lead to positive recognition or provide convincing proof to rule out a particular identity. Compassionate societies requires that this identity should be recognized even after death due to mass disasters, where left over bodies are beyond recognition. Here, forensic odontology plays a vital and integral part as a branch of forensic sciences for identification of living and deceased person. Various methods and technique are being developed and used widely for the identification of deceased person employing the collection and preservation of postmortem dental evidence and comparison between postmortem and antemortem evidence. The importance of preparation by way of special training for dental personnel, mock disaster rehearsal, and use of modern day was stressed.

Keywords: Forensic Odontology, Dentist, Mass Disasters, Dentistry.











Registration number: IAFO/2021/482

"PALATAL RUGAE: NEW PATHWAY LEADING TOWARDS FAMILIAL HIERARCHY"

Dr. Himanshu D. Dhanodkar¹

¹PG student, Dept. of Oral Pathology & Microbiology Sri Aurobindo College of Dentistry, Indore

Abstract

In the era of various technical and methodological advances, Human identification becomes a herculean task especially in cases of mass disasters like earth quacks, floods etc where in the pile of flesh; one has to distinguish among own and others. Similar to fingerprint, palatal rugae also vary from person to person and may help to find the links between generations similar to DNA. To identify the repetition of pattern of palatal rugae, finger print and lip print in three consecutive generation of 15 families. For this study photograph of maxillary arch/ palatal rugae, ink pad, dark coloured lipstick/ lip balm, white paper and cellophane tape were used. Participants were explained about the study and its purpose, their written consent was obtained. Photographs of palatal rugae were obtained by adjusting proper position, light and intraoral mirror. Fingerprints of all hand fingers and thumbs were recorded on white paper using ink while lip prints were recorded by using cellophane tape and lipstick/ lip balm. With the help magnifying glass and marking pencil pattern of palatal rugae, finger print and lip print were traced and analysed for repetition with maternal or paternal side. Statistical analysis will be done by using ANOVA.

Keywords: Palatal Rugae, Fingerprint, ANOVA, Human identification.









MORPHOMETRIC EVALUATION OF FRONTAL SINUS, NASAL SEPTUM AND INTERMAXILLARY DISTANCE IN PERSONAL IDENTIFICATION IN FORENSICS-

A RETROSPECTIVE CONE BEAM COMPUTED TOMOGRAPHY STUDY

Dr. R. Preethi¹

¹Post Graduate Student, Department Of Oral Medicine and Radiology

Abstract

This study is aimed at assessing the reliability of morphometric measurements of frontal sinus, nasal septum and inter maxillary distance in personal identification using three dimensional Cone Beam Computed Tomography. In this study, the CBCT data were collected from archives of CBCT from the department of Oral Medicine and Radiology, Meenakshi Ammal Dental College. This study was conducted in 90 CBCT scans (45 males and 45 females), which was divided into 3 groups i.e. between 20 to 35 years, 36 to 50 years and above 50 years of age. In this study we have evaluated the linear measurements of Frontal sinus, nasal septum patterns and intermaxillary width. Frontal sinus symmetry was observed in 50 (48.75%) individuals and asymmetry in 40 individuals (43.75%). Straight nasal septum was seen in 35 (33.75%), right deviation in 17 (30%), and left deviation in 12 (22.5%) individuals. Sigmoid was seen in 21 individuals (8.75%). (5%), reverse sigmoid in 5 individuals the intermaxillary diatance was higher in males when compared to females Frontal sinus, nasal septum patterns and intermaxillary distance were assessed together for each individual. Forensic identification on the basis of individual can be analysed with the combined usage of Frontal sinus, nasal septum patterns and intermaxillary distance thereby accuracy is increased by analysing in CBCT.

Keyword: Cone beam CT, Frontal sinus, Nasal septum, Intermaxillary distance, Forensics, Personal identification.









MORPHOMETRIC ASSESSMENT OF GREATER PALATINE CANAL IN AGE & GENDER DETERMINATION – A CBCT RETROSPECTIVE STUDY

Dr. N. Alice Josephine Rani¹

¹Second Year MDS, Meenakshiammal Dental College Hospital, Maher University, Chennai

Abstract

To assess the length, shape, geometric pattern and course of Greater Palatine Canal & amp; to assess the relationship of the dimensions of the Greater Palatine Foramen and position of Greater Palatine Foramen from alveolar ridge in three different age groups – i) 20-35years ii) 36-50 years and iii) above 50 years and to gender. 60 CBCT volumes acquired from the dental archives were used. Length of the canal was measured in millimeters using the most straight-line path through the center of the canal. Manual segmentation tool was used to mark the outlines of the foramen. The path of the Greater Palatine Canal was recorded as the description of the descending length tracing lines in the canals. The greater palatine canal is an important anatomical structure that is often utilized as a pathway for infiltration of local anesthesia. A good knowledge of the anatomy and average length of the greater palatine canal is crucial in order to avoid possible complications. The variation in dimensions, geometric pattern and course of Greater Palatine Canal which was observed with respect to age and gender would aid in diverse clinical applications such as surgical planning of grafting procedures and in medico-legal cases and forensics.

Keywords: CBCT, Greater Palatine Foramen, Greater Palatine Canal, Forensics









EFFICACY OF NATURAL DYE (INDIGO BLUE) AND LYSOCHROME DYE (SUDAN BLACK) IN CHEILOSCOPY AS A LIP PRINT ENHANCER - A COMPARATIVE STUDY

Dr. Meesala Bhavani¹

¹BDS, Pursuing Post Graduation in Oral Pathology, Vishnu dental college, Bhimavaram

Abstract

Study of lip prints is known as cheiloscopy. Lip prints are unique for each individual, which plays a key role in suspect identification. These imprints obtained on any surface may be in visible or latent form. Latent forms of lip prints are difficult to identify hence various dyes are used for the enhancement of latent lip prints obtained from different surfaces. This study aims to compare the enhancement efficacy of naturally available Indigo blue dye, with that of a lysochrome dye (Sudan black) which is used to evaluate the clarity of lip print details. A total of 80 individuals were included in this study after obtaining informed consent and asked them to make an imprint on given surfaces like porous, nonporous, coloured, and non-coloured surfaces. They were enhanced by applying Indigo blue and Sudan black dye for evaluating the clarity of lip grooves. Results are awaited, will be discussed during the paper presentation.

Keywords: Dye, Lip Prints, Cheiloscopy, Suspect Identification.











SKULL BASE CBCT RETROSPECTIVE STUDY: NORMATIVE VALUES FOR SIZE AND SYMMETRY OF THE FACIAL NERVE CANAL, FORAMEN OVALE, PTERYGOID CANAL, FORAMEN ROTUNDUM, MENTAL FORAMEN AND NUTRIENT CANALS

Visalam K R¹

¹III Post graduate, Meenakshi Ammal Dental College and Hospitals, Chennai

Abstract

The purpose of this study is to provide objective CBCT criteria that may help distinguish between normal asymmetry and Pathologic nerve canal or foramen widening. 100 CBCT full skull images in current study will be selected from a database of scans that has been previously acquired for diagnosis and treatment planning and several others clinical purposes such as evaluation of impacted teeth. All scans will be acquired from planmeca promax CBCT machine using romexis software. The imaging parameters will set at 120 kvp, 18.66 mAs.scan time 20seconds, resolution 0.4 mm and 13mmx 10mm field of view. Short axis measurements were obtained in the coronal plane for two segments of the facial nerve canal (labyrinthine, tympanic) and sagittal plane (mastoid), axial plane for foramen ovale, coronal plane for pterygoid canal and foramen rotundum on both sides, sagittal section in implant view for nutrient canals and mandibular foramen in each subject. The study population was divided into three age groups I) 20 to 35 ii) 36 to 50 and iii) above 50 years and among gender. Descriptive statistics will be obtained and left-right asymmetry will be calculated. Relative asymmetry is more important than absolute size for determining nerve canal/foramen abnormality. These normative data may be useful adjuncts to subjective assessments of nerve canal/foramen size when using skull base CT to identify tumor.

Keywords: Skull base foramina, Cone Beam Computed tomography, Facial nerve, Foramen, Canal.









DENTISTRY IN COURSE OF MASS DISASTER & DISASTER VICTIM IDENTIFICATION

Dr. Anoli Agrawal¹, Dr. Hemlata Pandey², Dr. Prashanth VK³, Dr. Arun Dodamani⁴

¹Post-Graduate Student, Dept. of Public Health Dentistry ACPM Dental College, Dhule Maharashtra

²Assistant Professor, Forensic Odontology and Human Identification Lab, Dept. of Forensic Medicine, Seth GS Medical College and KEM Hospital, Mumbai

> ³Professor, Dept. of Public Health Dentistry ACPM Dental College, Dhule, Maharashtra

⁴Professor and Head of the Department, Dept. of Public Health Dentistry ACPM Dental College, Dhule, Maharashtra

Abstract

The United Nations Office for Disaster Risk Reduction (UNISDR) say disaster is —A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources. Levels of Disaster can be classified as - Level-L1: managed within the capabilities and resources at the District level, Level-L2: require assistance and active mobilization of resources at the state level and deployment of state level agencies for disaster management and Level-L3: nearly catastrophic situation or a very large-scale disaster that overwhelms the State and District authorities. Role of Dentist during any mass disaster can be Dental Surveillance, Dental Offices Acting as Medical Sites, Distribution of Medication, Immunization, Definitive Treatment, Triage Services, Infection Control Quarantine, Supporting Other Health Professionals and Forensic Assistance. Disaster Victim Identification and Its Relation with various Dental specialities are Oral Pathology and Micro Biology - Age estimation using ground sections (histological method), Identification, Oral Medicine and Radiology - Age estimation using radiographic method identification, Oral and maxillofacial surgery -Identification, Lefort I osteotomy procedure in autopsy, Pedodontics - Age estimation, Child abuse, Conservative dentistry - Identification, Identification using radiographic method, Prosthodontic - Impression techniques, Identification, Sex determination, Orthodontics - Age estimation, Identification, Sexual dimorphism, Race identification, Craniofacial superimposition, Public health dentistry - Identification, Mass disasters, Dental fraud and malpractice, Elderly abuse.

Keywords: Dentistry, Mass disasters, Personal Identification, Disaster Victim Identification.








ASSESSING THE MAJOR/MINOR STATUS IN SOUTH INDIAN CHILDREN AND SUB ADULTS USING THE RADIOGRAPHIC VISIBILITY OF PERIDONTAL LIGAMENT IN MANDIBULAR FIRST AND SECOND MOLARS - AN ORTHOPANTOMOGRAM STUDY

Juttukonda Manvitha¹

¹PG student, Panineeya institute of dental science

Abstract

Third molars are the most reliable teeth for dental age estimation in medico-legal proceedings. In recent times as they are becoming congenitally missing, there is a need to develop alternative strategies to predict the major/minor status in juveniles. The aim of the present study is to determine the major/minor status of individuals based on Olze et al stages of radiographic visibility of periodontal ligament in mandibular first and second permanent molars. A total of 200 orthopantomograms (OPG'S) with age group of 12-22 years were collected and evaluated. Each OPG is evaluated using Olze et al method. Each molar will be scored according to the stages of periodontal ligament visibility.

Keyword: OPG, Periodontal ligament, Radiography, Olze et al.









EVALUATING THE RELIABILITY OF TWO DIFFERENT DENTAL AGE ESTIMATION METHODS IN BENGALURU CHILDREN

Dr.Sanchitha V1

¹III MDS, Department of Pediatric and Preventive Dentistry, RRDCH

Abstract

The aim of the study was to estimate the age of individuals with two different methods (London Atlas and Demirjian's methods) in a sample population of Bengaluru and to compare the relative accuracy of the methods in estimating the chronologic age of an individual. Orthopantomograms (OPGs) of 464 children were used. There is a strong positive, and statistically significant correlation (Pearson's correlation) between chronological age and both measures of biological age. The correlation between chronological age and Demerjian's age is marginally stronger than that between chronological age and London Atlas age (0.98 vs. 0.96).

Keywords: London Atlas method, Demirjian's method, Orthopantomograms, Pearson's correlation.









BITE MARK EVIDENCE IN CASE OF CHILD ABUSE

Dr. G.D. Rathod¹, Dr. H.P. Pandey², Dr. H.M. Pathak³

¹Junior resident, Department of Forensic Medicine & Toxicology, Seth G S Medical College & KEM Hospital, Mumbai, Maharashtra, India

²Assistant professor, Department of Forensic odontology, Seth G S Medical College & KEM Hospital, Mumbai, Maharashtra, India

³Professor and head, Department of Forensic Medicine & Toxicology, Seth G S Medical College & KEM Hospital, Mumbai, Maharashtra, India

Abstract

Human bites are usually semi-circular or crescentic, caused by the front teeth (incisor and canine) with a gap at either side due to the separation of upper and lower jaw. The teeth may cause clear, separate marks or form continuous or intermittently broken line. Bite mark may be abrasion, contusion or laceration or combination of any two or three. In forcible bite, the appearance is of two bows with their concavities facing each other and a gap at each end. In child abuse bite mark can be found anywhere on the body. Forensic odontology: deals with the science of dentistry to aid in the administration of justice. It involves the analysis, interpretation and comparison of bite marks, personal injuries and mal practice. Our poster discusses case in a child abuse in a 3-year-old female child by a 50-year-old person at Kolhapur, bite mark injuries reported by treating doctor, dental evidence was collected, analysed and reported by team of forensic expert including forensic odontologist. The presenting poster is to discuss and highlight the importance of forensic odontology in child abuse with bite marks.

Keywords: Bite Mark, Forensic Odontology, Child Abuse, Dental Identification.

Registration No. - IAFO/2021/600

MOLECULAR TECHNIQUE FOR GENDER IDENTIFICATION – A FORENSIC BOON

Dr. Shruti Singh¹

¹Senior Resident, Department of Oral Pathology & Microbiology, King George's Medical University, Lucknow



















Registration No.	Торіс
IAFO/ 2021/399	Saliva A Tool To Forensic And Criminology
IAFO/2021/072	Efficacy Of Stains To Identify Barr-Bodies In Gender Determination- Review Poster
IAFO/2021/118	Non Metric Dental Traits In Indian Population – A Review
IAFO/2021/127	Dental Pulp In DNA Fingerprinting
IAFO/2021/140	Your Tongue Will Never Lie
IAFO/2021/161	Facial Reconstruction- The Final Verge
IAFO/2021/177	Bite marks – An overview
IAFO/2021/192	Let's Indentify This Person - Denture Labelling
IAFO/2021/195	Three Dimensional(3D) Printing In Forensic Identification
IAFO/2021/205	Radio-Frequency Tags In Forensic Identification
IAFO/2021/238	Ameloglyphics- An Innovative Tool For Personal Identification
IAFO/2021/239	Impact Of Innovative Teaching Methodologies Among Dental And Faculties: An Institution Based Study
IAFO/2021/245	Black And White Shades In Forensic Odontology
IAFO/2021/252	Role Of DNA In Forensic Odontology – A Review







🖂 🖡 iafo2021mumbai@gmail.com

IAFO/2021/264	Chieloscopy
IAFO/2021/265	Rugoscopy-Role In Forensic Odontology
IAFO/2021/281	Cheiloscopy – A Hidden Cloak For Diabetes Mellitus Type 2
IAFO/2021/293	Dental Forensics On Wheels – Integrating Forensic Odontology Tool Kit Within Mobile Dental Van
IAFO/2021/295	Disaster Victim Identification - Role Of Forensic
IAFO/2021/303	Stuck Out The Tongue To Know Yourself
IAFO/2021/311	Tongue:- The New Identity
IAFO/2021/325	Artificial Intelligence In Forensic Odontology -The Future In Dentistry
IAFO/2021/348	Virtual Autopsy (Virtopsy) – Minimal Invasive
IAFO/2021/351	"Knowing The Unknown" Toxicology Of Oral Cavity
IAFO/2021/355	Role Of Biomolecule In Forensic Identification: Current Trend.
IAFO/2021/365	Frontal Sinus Estimation: A Reliable Tool For Sexual Dimorphism?
IAFO/2021/366	Novel COVID Pandemic - A Threat To Forensic Odontologist
IAFO/2021/371	Virtopsy : The No Touch Biopsy







IAFO/2021/383	Artificial Intelligence In Forensics : Adding Brilliance To Investigation In The Current Scenario
IAFO/2021/392	Inspectory Dental Findings In Disaster Victim Identification
IAFO/2021/393	Handling Of The Forensic Dental Materials In Mass Disaster Scene
IAFO/2021/394	Pilca Palatine - Ideal Method Of Human Identification
IAFO/2021/395	Quiloscopy- Importance In Forensic
IAFO/2021/397	Importance Of Antemortem Data In Dental Records In Forensic Odontology: A Review
IAFO/2021/398	Diagnostic Criteria For Cutaneous Injuries In Child Abuse
IAFO/2021/421	Estimation Of Age By Oral Exfoliative Cytology: Newer Perspectives In Forensic
IAFO/2021/426	DNA Fingerprinting
IAFO/2021/429	Deceased? No I Am Alive Inside.
IAFO/2021/438	A New Tool In Forensic Odontology
IAFO/2021/468	Impact Of Oral Microbiome In Forensic Odontology: A Review
IAFO/2021/473	Use Of Intraoral Scanner In Forensic Dentistry
IAFO/2021/483	Use Of 3D Printing In Facial Morphing







🖂 🖡 iafo2021mumbai@gmail.com

EFFICACY OF STAINS TO IDENTIFY BARR-BODIES IN GENDER DETERMINATION- REVIW POSTER

Dr. K. Harikrishna¹, Dr. Sonalee shah²

¹PG Student (Department of Oral Pathology), GDC, Raipur, Chhattisgarh

²HOD of Department of Oral Pathology, GDC, Raipur, Chhattisgarh

Abstract

Sex determination holds a valuable significance in the circumstances to clear medicolegal problems. In some instances the sample available might be very minute, in the form of only few cells which can be used to disclose the gender and identity of a person. One of the simplest methods of sex determination is visualizing Barr-bodies from cytosmears of buccal mucosa using stains. The Review poster is aimed to highlight the accuracy of staining method for quick detection of Barr-bodies to determine the sex of an individual using epithelial cells from buccal scrapes. In my poster I will review & compare Giemsa stain, Acridine orange, Papanicolaou stain, Feulgen stain, alkaline blue and H&E stain use for detection of Barr bodies in studies done by previous researchers. The sex of the individual can easily be identified by determining the percentage of Barr-body positive cells. The presence of Barr-bodies in buccal mucosal cells could be determined with a fair degree of accuracy using the Giemsa stain. The fine nuclear details were effortlessly observed using Giemsa staining method and Sex determination using Barr-bodies in buccal swabs is a simple method and providing up to 98% accuracy with Giemsa stain.

Keywords: Barr bodies, Giemsa stain, Cytosmear, Buccal Mucosa.









NON METRIC DENTAL TRAITS IN INDIAN POPULATION – A REVIEW

Dr. C V Aiswarya¹

¹Postgraduate, Narayana Dental College & Hospital, Chintareddypalem, Nellore, A.P.

Abstract

Knowledge of Non-metric dental traits proves to be a reliable source of information in the field of forensic dentistry. The aim was to carry out a 10 year (2011 to 2021) review of literature on "Non-metric dental traits studied in Indian population", focusing on the prevalence of the various non-metric dental traits of an ethnically mixed population. A PubMed and Google Scholar search was conducted using the following keywords: non- metric traits, India, dental crown traits, Indian population, forensic odontology, Cusp of Carabelli, dental anthropology, forensic racial ethnicity, nonmetric tooth traits, Shoveling, protostylid, Tom's root, etc., It was observed that on comparison, the frequency of traits studied varied among subpopulations from a region and also between the population of different regions. Carabelli's trait was most commonly seen among the Indian population. ASUDAS was the most commonly used method for identifying the non-metric traits. A total of 68 traits were identified in the Indian population. Traits of the human dentition can be a valuable diagnostic tool for anthropological studies in classifying and characterizing different ethnic groups.

Keywords: Dental trait, Cusp of Carabelli, Anthropology, Non metric Trait.









DENTAL PULP IN DNA FINGRPRINTING

Dr. Archana Gaikwad¹, Dr. Nishreen Parekh², Dr. Mansi Wadekar³

¹Post-Graduate Student Oral Pathology and Microbiology, Nair Hospital Dental College, Mumbai

Abstract

In today's era of numerous unwanted disasters and ever-increasing crime rate in our society, the field of forensic sciences has become highly evolved. Forensic identification by its nature is a multi-disciplinary approach relying on positive identification methodology. The identification of dental remains is of primary importance when the deceased person is skeletonized, decomposed, burned, or dismembered. Forensic dentists play a significant role in various areas of crime scene investigations and thereby help solve innumerable mysteries by identification of human dentition and through dental DNA fingerprinting. DNA, the language of life, manages all the cell activities which gives unimaginable data related to health and disease. DNA fingerprinting has plod along from the conventional fingerprints and blooming in forensic science.

Keywords: DNA fingerprinting, Dental Pulp, Skeletonised, Forensic dentist.









YOUR TONGUE WILL NEVER LIE

Dr. Dakshayani Vijay Patil¹

¹2nd Year Postgraduate Student, Babu Banarasi Das College of Dental Sciences

Abstract

Forensic odontology is a branch of dentistry that deals mainly with identification based on individual's oral structures. Biometric authentication is unique and important process for identification of individuals. Tongue is unique and cannot be easily forged because no two tongue prints are similar. Tongue is vital internal organ which is well encased within oral cavity and protected from environment. The colour, shape and surface features are characteristic of every individual and this serves as a tool for identification. Tongue characteristics also exhibit sexual dimorphism and is emerging as a novel biometric tool. The present study aims to evaluate variations in males and females and the common morphological features of tongue.

Keywords: Biometric Tool, Dentistry, Forensic odontology, Tongue.









FACIAL RECONSTRUCTION- THE FINAL VERGE

Dr.Pankaj Verma¹

¹PG Student, Department of Oral Pathology & Microbiology Choudhry Charan Singh University Meerut (UP)

Abstract

Forensic facial reconstruction is a combination of both scientific methods and artistic skills. It can be used to identify unknown human remains when other techniques fail by reconstructing the soft tissue onto skull in order to obtain image of an individual for identification. Faces are peculiar to every human being. A fake identity can be made easily but face of deceased person remains unchanged. Facial reconstruction helps in identifying the recovered human remains in disaster; accidents even if dead body may be decomposed. Forensic artist can approximate thickness of the soft tissue over skull. There are two techniques one is 2D and other is 3D. They are carried out and analyzed either manually or by using specific software. To access the role and efficiency of facial reconstruction methodologies as an important forensic tool in individual identification. A thorough literary search was made to review data bases from indexed journals on Pubmed, Ebscohost, and Copernicus. The relevant articles and related information was collected. Forensic facial reconstruction is rapid, noninvasive and efficient method where reconstruction can be repeated many times if required. This technique is not only used for identification of individuals from skeletal remains but is also used for archaeological research purpose.

Keywords: Facial reconstruction, Archaeological research, Forensic tool, skeletal remains.









BITE MARKS – AN OVERVIEW

Dr. Ravi Kumar¹, Dr. Manisha M Khorate²

¹Il year Postgraduate, Goa Dental College & Hospital, Bambolim

²Professor and Head, Dept. of Oral Medicine and Radiology, Goa Dental College and Hospitals

Abstract

Forensic odontology is a branch of dentistry that mainly deals with the identification based on individual's oral structures. It plays a major role in the identification of those individuals who cannot be identified visually or by other means. The dental tissues are often preserved even if the deceased person is skeletonized, decomposed, burnt, or dismembered. Forensic odontology has established as an indispensable science in medico-legal matters and in the identification of the dead person. Advance technologies available have made the investigation by forensic experts much faster and more accurate. This paper provides an overview of the advanced technologies pertaining to evidence collection, evaluation and presentation in the field of forensic odontology.

Keywords: Bite marks, Odontology, Skeletonized, Evidence.









LET'S INDENTIFY THIS PERSON - DENTURE LABELLING

Dr. Nakshatra Shetty¹

¹Postgraduate Student, A.J Institute of Dental Sciences, Mangalore

Abstract

Identification of individuals in crime or mass disaster is a daunting task for forensic experts. Denture marking is accepted as a means of identifying dentures and persons in geriatric institutions, during war, crimes, and civil unrest, natural and mass disasters, post mortem and medico-legal investigations. Due to the lack of a comprehensive fingerprint database, dental identification is growing as an essential part of forensic investigation. Invisible Ink Method, Fibre Tip Pen Method, Denture Bar Coding Method, Lenticular card method, Paper Strip method, RFID Tags etc. Bar-coding is the most advanced and upcoming methods for identifying dentures. After scanning the bar-code with specific scanning devices, it shows the patient and personal information, which can be easily accessed and edited according to the need and which can be transfer to the computer. This poster highlights the various methods of denture marking and significance of placing identification marks on dentures.

Keywords: Denture labelling, Bar coding, Forensic expert, Fingerprint database.









THREE DIMENSIONAL (3D) PRINTING IN FORENSIC IDENTIFICATION

Postgraduate in Oral Medicine & Radiology¹

¹NTR University of Health Sciences, Gitam Dental College & Hospital

Abstract

Digitization has made rapid developments due to its application in various fields of healthcare, engineering, imparting education etc. 3D printing being an innovative technology helps in manufacturing three dimensional solid objects from a digital file. It is a method of creating a 3D object layer-by-layer using a computer created design. 3D printing is slowly gaining popularity in the field of forensics due to its capability to provide information in all three axes. 3D printing is now used in dentistry for the manufacture of drill guides for dental implants, study models in prosthodontics, orthodontics and surgery, manufacture of dental, craniomaxillo facial orthopedic implants and dental restorations. Its application in forensics can create a permanent record of an object or scene that can be used as evidence, preserving the integrity of actual object or scene. The major application of 3D printing in forensic odontology includes bite mark analysis which eliminates any external pressure and tendency to undergo distortion and helps preserve maximum information, facial reconstruction which recreates the face of an individual from their skeletal remains, dental age estimation, forensic anthropology, archeology, physical models, disaster victim identification and subsequent printing of charred human remains to facilitate identification This poster highlights the use and possible benefits of 3D printing in forensic odontology.

Keywords: Forensic odontology, Digitization, Forensic anthropology, Archaeology











RADIO-FREQUENCY TAGS IN FORENSIC IDENTIFICATION

Dr. A. Mary Moses¹

¹Post Graduate (MDS) – 2nd year, Department of Oral Medicine and Radiology GITAM Dental College and Hospital, Visakhapatnam

Abstract

Forensic identification of deceased individuals is always challenging. Recent mass disaster events like tsunamis, London bombings and landfall of hurricane Katrina demonstrated the need for an accurate, guick and easy to handle identification system in such events. Forensic identification using odontology is based on the comparison of ante-mortem and post mortem dental records. Unsolved cases are mostly due to difficulties in obtaining and collecting ante mortem dental information, and comparing with the post mortem dental information. In such circumstances forensic workers mostly have to rely on time and money consuming DNA identification procedures. In order to avoid these difficult and lengthy identification procedures one could think of incorporating radio frequency identification (RFID) tags into the strongest and most protected human body parts like the teeth, dentures, fixed restorations as an identification medium for accessing laboratories or dentists. The insertion of RFID tag could be used as an aid to identify decomposed bodies, by storing personal identification data in a small transponder that can be radio-transmitted to a reader connected to a computer. The inclusion of RFID-tags within the teeth and prostheses has been permitting rapid and reliable identification that accurately gives information for forensic identification.

Keywords: Radio frequency identification, Forensic identification, Mass Disaster, Dentures.









AMELOGLYPHICS- AN INNOVATIVE TOOL FOR PERSONAL IDENTIFICATION

Dr. B Grace Samantha¹

¹Post Graduate (MDS) – 3rd year, Department of Oral Medicine and Radiology GITAM Dental College and Hospital

Abstract

Human teeth resist decomposition and destruction in extreme temperature, hence can be used for personal identification of the victim. Components of a teeth are enamel, dentin, pulp and cementum out of which enamel and dentin are highly calcified structures and can resist decomposition. Tooth prints are the term used to describe the enamel rod end patterns. "Ameloglyphics" is the term used to study the patterns of enamel rods. Odontogenesis is genetically modulated. The formation of enamel is a highly organized dynamic process, in which the ameloblasts lay down enamel rods in an undulating and intertwining path. This is reflected on the outer surface of the enamel as a series of enamel rod end patterns. Enamel does not remodel once it has been formed and the ameloblasts move or retract away from the enamel surface after formation. They leave behind the prism morphology which is evident on the surface enamel. Hence enamel patterns are unique for each and every individual. This poster on "Ameloglyphics" show cases the role of this tool for personal identification.

Keywords: Odontogenesis, Ameloblast, Ameloglyphics, Enamel.









"IMPACT OF INNOVATIVE TEACHING METHODOLOGIES AMONG DENTAL AND FACULTIES: AN INSTITUTION BASED STUDY

Sudarvizhi. T¹, Smitha. K², Sudeendra Prabu³

¹Post graduate, Yenepoya Dental College, Mangalore.

²Reader, Yenepoya Dental College, Mangalore.

³Professor, Yenepoya Dental College, Mangalore.

Abstract

In this digitalized innovative world, educational institutions are also looking for innovative methods, which may enhance the student's cognitive skills and self-learning techniques. The main goal of these innovative techniques is to improve learning more fun for both students and teachers. The present study evaluates the impact of innovative teaching methodologies among both the dental students and faculties of our institution located in Karnataka. A descriptive study was conducted with a sample size of 118. A validated questionnaire of 10 questions is distributed as Google forms for data collection. Chi square test applied for determining the impact of students and faculties towards e-learning. Frequencies and percentages were computed for demographics. According to our study, 70% of participants had better experienced with traditional method than e-learning. 92% of them preferred face to face learning. But 96.2% of them preferred both traditional innovative methods. Though all these innovative teaching are effectively influenced, majority of the category members approached class room method as standard one. Thus the study concludes that both the faculties and dental students are interested in innovative teaching methodologies. But the faculties of our institution show more predilections towards innovative teaching than dental students.

Keywords: eLearning, Chi square test, Cognitive skills, Self-learning techniques.









BLACK AND WHITE SHADES IN FORENSIC ODONTOLOGY

Dr. Deepali Pandey¹

¹MDS 2nd Year, Rajiv Gandhi University of Health Sciences, karnataka

Abstract

Dental radiographs are an essential tool that aid a dentist in diagnosing dental disorders. Being a non- destructive method, radiographs are indispensable in the field of forensic science since the time immemorial. History reveals many forensic cases being solved by use of radiographs. Identification of mortal remains, estimation of gender and race, and evaluation of cause of death and cranial injuries are the various applications of radiographs in forensic odontology. In this digital era, even the radiographs are digitized. Digital radiographs were not being used as evidence in the court of law. Now, digital radiographs are acceptable and have become a solution in mass casualty to accurately identify the deceased. This paper discusses the types, advances, applications and uses of radiographs in forensic odontology.

Keywords: Radiographs, Odontology, Disorders, Evidence.









ROLE OF DNA IN FORENSIC ODONTOLOGY – A REVIEW

Karri Lakshmi Prasanna¹

¹BDS 2nd year, Sibar Institute of Dental Sciences

Abstract

The recent advancements in molecular biology have revolutionized all aspects of dentistry. DNA the language of life yields information beyond our imagination. DNA is an excellent means for identification of unidentified human remains. DNA is useful in age estimation of victim, determining blood group, identification of individual's .The DNA from biological samples can be found in samples of blood, bone, nails, semen, hair, teeth, saliva, urine, other biological fluids in cases where bodies are in advanced state of decomposition, chorred or rooting or even when identification cannot be performed by traditional dental methods, Teeth are the only elements that can be used to identify for better resistance than any tissue for post-mortem degradation. DNA finger printing is a tool to unravel all the mysteries associated with oral cavity and its manifestations. The technical advances in molecular biology have propelled the analysis of DNA into routine usage in crime laboratories for rapid and early diagnosis. The fast technological advancements in DNA research have revolutionized the field of Forensic Odontology.

Keywords: Age estimation, Blood grouping, DNA fingerprinting, Forensic Odontology, DNA analysis









CHIELOSCOPY

Meenakshi Surana¹

¹Oral Medicine and Radiology, Surendra Dental College

Abstract

In forensic identification, the mouth allows a Myraid of possibilities, due to the distinctive nature of the teeth, dental identification is one of the most popular way to positively identify an individual. Chieloscopy is a forensic investigation technique that deals with identification of humans based on lips traces. The aim of this study is to establish the uniqueness of lip prints which aids in Personal identification. This study shows that lip prints are unique and permanent for each individual, and the lip prints among family members and between twins revealed different patterns on the whole with few similar grooves suggesting the existence of heredity in the lip prints. The biological phenomena of system of furrows on the red part of human lips was first noted.

Keywords: Chieloscopy, Myraid, Grooves, Lip print.









RUGOSCOPY-ROLE IN FORENSIC ODONTOLOGY

Sanjita Srivastava¹

¹PG Student, RHUJ, Rajasthan

Abstract

Though as specialty of forensic odontology, dentist plays a small but significant role in identification of victims of crime and individuals in disaster through dental records. Role of palatal rugae in postmortem identification has gained prominence over several decades. The analysis of teeth, fingerprints are most commonly used techniques but they are not used in some cases like in trauma, burn, edentulous cases, severe decomposed bodies. Rugae are protected from trauma as they are insulated from heat by tongue and buccal pad of fat unlike finger prints and lip prints that can be destroyed. Rugae have uniqueness and once formed does not undergo any changes except in length. Few methods of palatoscopy are intraoral, photographs and impression of software programs, calcorrugoscopy/overlying maxillary arc. computer print. stereoscopy, sterophotommetry. Identification through palatal rugae depends largely on the availability of antemortem records like dental casts, intraoral photographs, and dental prosthesis. But in many cases dental records are either scanty, incomplete or improper so it's the responsibility of dentist to maintain proper records for noble social cause of identification of humans.

Keywords: Palatoscopy, Calcorrugoscopy, Sterophotommetry, Rugae.









CHEILOSCOPY – A HIDDEN CLOAK FOR DIABETES MELLITUS TYPE 2

Dr. Sarah Afaque¹

¹2nd year PG student in the Department of Oral Medicine and Radiology Babu Banarasi Das University, Lucknow

Abstract

Diabetes is a global disease and is increasing in occurrence. Type 2 diabetes mellitus is more common and is genetically influenced. Estimation of blood sugar level remains the gold standard and confirmatory test for diabetes mellitus. This method has the utmost drawback of being invasive, time-consuming, and economically feasible, although they are accurate and confirmatory—untreated diabetes results in a series of complications. Hence, diagnosis at an early stage is critical in modifying lifestyle and in early treatment. Lip prints may serve as a biomarker in screening diabetes. Cheiloscopy {Greek word: Cheilo-lips; skopien-to see) is the study of lip prints. Lip print refers to imprints produced from lines and fissures, which are in the form of grooves and wrinkles existing in the zone of transition of the human lip between the inner labial mucosa and outer skin. The poster attempts to evaluate the efficacy of cheiloscopy in screening type 2 diabetic patients.

Keywords: Cheiloscopy, Diabetes Mellitus, Lip print, Screening.









DENTAL FORENSICS ON WHEELS – INTEGRATING FORENSIC ODONTOLOGY TOOL KIT WITHIN MOBILE DENTAL VAN

Dr. Dhimi Nongmeikapam¹

¹Department of forensic odontology, JSS Dental College & Hospital JSSAHER, Mysore

Abstract

In the interest of delivering justice, forensic odontology is concerned with the proper handling and examination of dental evidence and the proper assessment and presentation of the findings to identify victims of mass disasters, abuse, and organized crimes in the court of law. Forensic odontologists are required to accompany crime scene investigators and be part of DVI teams to assist in proper and timely retrieval and collection of dental and skeletal evidence in which they are trained. As it is impossible to foresee when and where a disaster harming lives or a crime will occur, there is a dire need to convenience a way to allow the movement of a forensic odontologist along with the required equipment and tool kit to the scene. This paper aims to promote the idea of integrating a forensic odontology tool kit within a mobile dental van, as most dental colleges and hospitals are equipped with at least one. Collecting evidence and examining the victim can be done in the van as it is a safe and enclosed space. Future crises cannot be predicted or prevented, but responses can be prepared.

Keywords: forensic innovation, mobile dental forensics, forensic odontology, crime scene investigation, jurisprudence.









DISASTER VICTIM IDENTIFICATION - ROLE OF FORENSIC

Dr. S Chakravarthi¹, Dr. Fatima Rasheed Khan², Dr. Siddharth Kumar Singh³

¹MDS III YEAR, Saraswati Dental College, Lucknow

²MDS II YEAR, Saraswati Dental College, Lucknow

³Professor, Saraswati Dental College, Lucknow

Abstract

Personal identification of the victim in cases of mass disasters, is an important aspect in Forensic Odontology. This is achieved by matching the dental antemoterm profile compiled from dental record with the postmortem profile which thereby prepared which includes physical examination and radiographic dental examination. It has been seen that Visual and manual identification is known to have alone higher error rate, so with recent advances in the field of radiology digital and specialized technique like computer tomography scanning ,CBCT and three dimentional virtual modelling have also been taken in account. Thus this poster describes the current practice in the advanced techniques of identification in forensic odontology and out lines recent advances that are moving in to the mainstream.

Keywords: Computer Tomography, Radiography, CBCT, Odontology.









STUCK OUT THE TONGUE TO KNOW YOURSELF

Dr.Dhanalakshmi¹

¹Post Graduate (Oral and Maxillofacial Pathology and Microbiology) Pondicherry University

Abstract

We are getting more and more involved with biometric technologies in our day-to-day activities. We are already very used to deal with several biometric modalities such as fingerprint, iris, palm print, voice and facial recognition. A new modality named tongue print biometrics may just become a part of this elite club soon. The tongue is an integral part of a human body. Unlike other biometric traits, tongue is a hidden part of the body. Every human being has a unique tongue print, which is true even for identical twins. Every tongue is different in terms of certain aspects, like shape and texture. Unlike fingerprints or eye recognition, it is the only organ actually housed inside the body, but it can easily be stuck out for inspection purposes. Also, sticking out one's tongue is an undeniable "proof of life", whereas fingerprints and even irises can be mimicked or applied without the person's consent/consciousness. Tongue printing has not only come up as a novel biometric tool but can also be trusted upon as a powerful forensic tool to deal with the increasing identity fraud. With proper development and innovation, it could be another source of authentication in the coming years.

Keywords: Biometrics, Fingerprint, Tongue print, Eye Recognition.











"TONGUE: - THE NEW IDENTITY"

Dr Anukriti¹, Dr. Rashmi Metgud², Dr. Smitha Naik³

¹1st yr. PG student, Pacific Dental College and Hospital, Debari, Udaipur

²Head of Department, Pacific Dental College and Hospital, Debari, Udaipur

³Professor, Pacific Dental College and Hospital, Debari, Udaipur

Abstract

Uniqueness is very important for personal identification. Many modes of biometric systems have come into existence such as fingerprint, iris scan, skin color, signature verification, voice recognition, and face recognition. The search for a new personal identification method secure has led to the use of the lingual impression or the tongue print as a method of biometric authentication. The dorsal surface of the tongue is unique for each person. The characteristic features of the tongue exhibit remarkable difference even between identical twins. Tongue characteristics exhibit sexual dimorphism thus aiding in the identification of the person. The color, shape, and surface features are characteristic of every individual, and this serves as a tool for identification. This review highlights the uniqueness of tongue prints and its superiority over other biometric identification systems. The various methods of tongue print collection and the classification of tongue features are also elucidated.

Keywords: Tongue print, Sexual dimorphism, Biometric identification, Lingual impression.









ARTIFICIAL INTELLIGENCE IN FORENSIC ODONTOLOGY -THE FUTURE IN DENTISTRY

Dr. Hemangi Jadhav¹

¹Post Graduate, MGM Dental College and Hospital

Abstract

Forensic odontology (FO) mainly deals with the identification of the individual through the remains, which mainly includes teeth and jawbones. Artificial intelligence (AI) technology has proven to be a breakthrough in providing reliable information in decision making in forensic sciences. In the current scenario of Forensic Science and Criminal Investigation, experts are facing many challenges due to huge amount of data, tiny pieces of evidences in the chaotic and complex environment, traditional laboratory structures and sometimes insufficient knowledge which may lead to failure of investigation or miscarriage of justice. Digital forensics has effectively and reliably replaced traditional forensic investigation in terms of acquiring, analysing and reporting evidence and is very useful in mass diasters, personal identification, age estimation and communication with other forensic odontologists. Thus, this review highlights the potential role of AI in Forensic Odontology.

Keywords: Artificial intelligence, Criminal Investigation, Digital Forensics, Investigation









VIRTUAL AUTOPSY (VIRTOPSY) – MINIMAL INVASIVE APPROACH FOR AUTOPSY

Manoj Kumar P¹

¹Post Graduate, Department of Oral Medicine and Radiology Meghna Institute of Dental Sciences, Telangana

Abstract

Invasive procedural autopsy represents the traditional means of postmortem investigations in humans. In recent days conventional autopsy is rejected by family members because of their religious believes and can be replaced by non-invasive virtual image guided tissue sampling and digitally recorded details and it can also be re-evaluated whenever necessary and could be sent to other experts for a second opinion. This is achieved by using high technologies of radiography such as CT MRI; CBCT called VIRTOPSY. It can also be used to compare antemortem and postmortem record visualization of deceased individuals and can also evaluate smaller lesion areas that are difficult to approach in conventional autopsy. It can play a vital role as an alternative for traditional autopsy procedure in conditions and situations where the coroner's life is in jeopardy like the present status of covid-19 and even partially replace traditional autopsy. Thus, virtopsy plays an important role in both forensic medicine and odontology. This poster is intended to provide a quick acknowledgment regarding VIRTOPSY.

Keywords: Virtopsy, CBCT, Radiography, Antemortem.









"KNOWING THE UNKNOWN" TOXICOLOGY OF ORAL CAVITY-A REVIEW

N. Surya Vamshi¹

¹Post Graduate, Department of Oral Medicine and Radiology, Meghna Institute of Dental Sciences

Abstract

Toxicology is derived from Greek word "toxicos" means "poisonous" "logos means study". A Poison is defined as any substance, which when administered in a living body through any route (inhalation, ingestion, surface absorption, etc.) will produce ill-health or death by its action, which is due to its physical, chemical or physiological properties. Poisoning refers to exposure to any agent which is capable of producing an adverse response in a biological system. It may result into slight irritation, serious deleterious effects and even may cause death. Poisoning is common in the world including India but modes of poisoning may vary. Oral cavity can be described as a window to changes occurring in the human body; almost all systemic variations show manifestations orally. The aim of this review is to foresee and enlighten about various poisons and their manifestations in the oral cavity.

Keywords: Toxicology, Poison, Oral cavity, Variations.









ROLE OF BIOMOLECULE IN FORENSIC IDENTIFICATION: CURRENT TREND

Likitha.V¹

¹Post Graduate, Department Of Oral Medicine and Radiology Meghna Institute of Dental Sciences, Telangana

Abstract

Forensic Odontology, a branch of Forensic sciences which uses the skill of the dentist in personal identification during mass calamities, sexual assault and child abuse. The use of DNA profile in forensic dentistry testing offers a new perspective on human identification, is considered one of the major developments in the molecular biology of the XXI century. In forensic identification cases, where human remains are extremely damaged or degraded by mass disaster, teeth and bones are often the only available In cases where the bodies are in an advanced state of sources of DNA. decomposition, charred or rotting, identification cannot be performed by traditional dental methods. Teeth are the only elements that can be used to identify, than any human tissue for post mortem degradation, variations in pressure and temperature enabling the preservation of individual genetic identity. Targeted subsampling and careful case collection of appropriate decontamination and extraction protocols will further increase the value of teeth as a source of DNA. This poster enhances molecular typing techniques as a powerful tool for resolution of thousands of crimes and for human identification.

Keywords: Odontology, Decomposition, DNA, Molecular typing.









FRONTAL SINUS ESTIMATION: A RELIABLE TOOL FOR SEXUAL DIMORPHISM?

Dr. Ridhi Bhola¹, Dr. Shreya Chatterjee¹, Dr. Mala Kamboj²

¹Junior Resident, Department Of Oral Pathology and Microbiology Pt. Bhagwat Dayal Sharma University of Health Sciences, Post Graduate Institute of Dental Sciences (PGIDS), Rohtak

²Senior Professor & Head, Department of Oral Pathology and Microbiology Pt. Bhagwat Dayal Sharma University of Health Sciences, Post Graduate Institute of Dental Sciences (PGIDS), Rohtak

Abstract

Gender determination is pivotal in establishing a biological profile of human remains, where fragments of skull persist with unidentifiable dental arch data. Owing to the resistance and stability against external factors such as trauma and fractures, radiological assessment of frontal sinus could be a useful indicator for sexual dimorphism. Keeping this in mind, a study has been conceived to analyze the efficiency of morphometric assessment of frontal sinus for gender determination in the Indian population. A total of 120 (60 males & 60 females) lateral cephalograms of the age range 17-25yrs were retrieved. The frontal sinus index (ratio of maximum height to depth) and frontal sinus area will be calculated using Adobe Photoshop software. The results obtained will be subjected to statistical analysis. The study is ongoing and the results will be compiled and presented during the conference. Previous study conducted on Chinese population has suggested a high accuracy rate for sex discrimination by using this method. We will attempt to observe the same in Indian subpopulation.

Keywords: Radiological assessment, Cephalograms, Dental arch, Frontal sinus index.









NOVEL COVID PANDEMIC - A THREAT TO FORENSIC ODONTOLOGIST

Dr. Nandhini Ramesh¹

¹Post graduate, Oral Medicine and Radiology Institution, SRM Dental College

Abstract

The upsurge of novel COVID-19 pandemic in this century has brought about a lot of changes in life styles, psychological wellbeing and economic status of people. The destructive nature of the disease has led to significant amount of morbidity and mortality. The causes for morbidity could be physical or psychological. This in turn is a vicious cycle which can lead to unexpected outcome in the form of depression, frustration and domestic violence leading to outburst of suicides and crime rates. In succession to this, it might require forensic experts to meet with the raising demand and exhaustive challenges at work place. This poster highlights the critical challenges faced by the forensic odontologists in infection control and during reporting and also provides guidelines and necessary precautions to be followed to control the spread of infection.

Keywords: Forensic odontologist, Domestic violence, Forensic expert, COVID.









VIRTOPSY: THE NO TOUCH BIOPSY

Dr. Sadhurya¹

¹Post graduate, Oral Medicine and Radiology Institution, SRM University

Abstract

With the era of Virtuality, new stratergies has eloped in forensic odontology. One such technique is Virtopsy. Virtopsy seems to serve forensic odontologist as a supportive aids with that of conventional autopsy. Autopsy has its own merits but virtopsy has futuristic advancements that provide privacy to deceased family. Virtopsy is a minimally invasive procedure that has been evolving in various countries. It seems to replaces conventional autopsy, which causes extensive mutilation and disfigurement of the body. Virtopsy is a multidisciplinary approach that uses the application of radiology, image processing, physics, and biomechanics. The application is wide spread and particularly during mass disaster and its recent usage during this COVID-19 Pandemic. This poster emphasize on the application of virtopsy in forensic odontology during this ongoing pandemic, yet virtopsy is to receive its own limelight.

Keywords: Virtopsy, Odontologist, Biopsy, Autopsy.











ARTIFICIAL INTELLIGENCE IN FORENSICS: ADDING BRILLIANCE TO INVESTIGATION IN THE CURRENT SCENARIO

Dr. Pradnay Premnath Satye¹, Dr. Jayshri Bhau Uchale¹

¹PG student (MDS- OMDR), Dr. GD Pol Institute, YMT dental college and hospital, Mumbai

Abstract

In the current scenario, revamping law and order is the crying need of the hour in India. Forensic experts face life threatening challenges during investigations. Artificial intelligence, widely known by the acronym (AI) has emerged as the most crucial applied science in all spheres of life. AI has been by far one of the better tools used by specialists of forensic science. As the forensic field is getting benefited from AI, it should not completely depend on AI. AI can never work, understand, analyse and interpret as efficiently as a forensic expert scientist or investigator. AI can make their work easy but never replace them. In this context, let us investigate how far AI can extend a helping hand to forensic specialist.

Keywords: Artificial Intelligence, Forensic Specialist, Forensic Expert, Investigation.









INSPECTORY DENTAL FINDINGS IN DISASTER VICTIM IDENTIFICATION

Dr.Dharani.M¹

¹PG Student, Pondicherry University

Abstract

Forensic odontology is the application of dental and the associated knowledge for identifying the victims that are decomposed, mutilated and are visually unrecognizable following mass disasters. Forensic dental identifications play a vital role when other methods fails. This is because of the unique individual characteristics of the dentition and dental restorations, relative resistance of the mineralized dental tissues and dental restorations to changes resulting from decomposition and harsh environmental extremes such as conditions of temperature and violent physical forces. Theory behind forensic dentistry is that, each individual is unique and no two mouths are alike and they leave recognizable marks. This poster reviews about the inspection of the disaster victim remains and the relevant things to be examined for the identification. Mass disaster identification traditionally relies on the teamwork different forensic of experts, such as police, odontologists, physicians, and pathologists. The forensic odontologists role in the identification is through the following aspects: DNA Fingerprinting, Ameloglyphics, comparison of the antemortom and postmortem dental records, rugoscopy, denture marking, bite marks and age estimation. The Mass disaster dental identification team should be trained on what to look for and before the disaster so they can function efficiently with the available evidence.

Keywords: Ameloglyphics, Rugoscopy, Dental marking, Bite mark.








HANDLING OF THE FORENSIC DENTAL MATERIALS IN MASS DISASTER SCENE

Dr. Nandini Prabha.S¹

¹Post Graduate student, Pondicherry University

Abstract

Disaster Victim Identification (DVI) aims to scientifically identify the deceased casualties. The process involves matching post-mortem information from a deceased individual with ante-mortem information of a missing person and through this identifying the deceased individual. This poster reviews about the handling of forensic materials collected during mass disaster. The forensic odontologist deployed as part of the recovery team to the scene of the disaster provides specialist expertise to assist with the complete recovery of significant dental remains. The odontologist at the scene requires PPE for protection from mechanical or physical hazards. The resistant nature of dental tissues against temperature and decomposition makes them an ideal source of DNA. Fragmented evidences that may be susceptible to further fragmentation must be protected during the recovery process and their subsequent transportation by placing in individual caskets. Wrapping materials should be lightweight and provide good cushioning and the container should be labelled with the DVI number. Fragile orofacial structures that may be damaged during recovery can be radiographed at the scene, mitigating the risk of loss or destruction during recovery and transportation. Therefore, the handling of the forensic materials plays a significant role in the identification of the deceased.

Keywords: DVI, Orofacial structures, Dental remains, Hazards.









PILCA PALATINE - IDEAL METHOD OF HUMAN IDENTIFICATION

Dr. Alice¹

¹Post Graduate 3 Rd Year, NIMS Dental College And Hospital

Abstract

Establish a person's identity can be a very complex process, due to the distinctive anatomy of the human dentition, the teeth and palatal rugae of the oral cavity have a vital role in forensic dentistry. Rugae are the anatomical folds that are located on the anterior third of palatal behind the incisive papillae. They are also known as "Pilca palatine", and study of this pattern is called palatoscopy. In certain situations, when teeth are missing due to trauma, palatal rugae have been used to help in recognition and matching of the individual. It is widely acknowledge that in some forensic situations there are limitations to identification of the deceased by fingerprints, lip print due to external injuries (such as chemical & thermal burn, road traffic accidents etc). Palatal rugae pattern of an individual may be considered as a useful adjunct for gender determination for identification purposes. In this poster we have thrown some light on the review on palatal rugae and its applications in forensic dentistry.

Keywords: Palatal Rugae, Palatoscopy, Forensic dentistry, Dentition.











QUILOSCOPY- IMPORTANCE IN FORENSIC

Dr Beer Singh¹

¹3rd year Post Graduate Student, NIMS Dental College and Hospital

Abstract

Dental identification of human occurs for a number of different reasons and in a number of different situations such as in case of violent crime, fire, road traffic accidents, and workplace accidents. Body can be distingured to such an extent that identification by a family member is neither reliable nor desirable. Through the speciality of forensic dentistry, dentist can play a small but significant role in this process. Edmund Locard, famously known as the French Sherlock Holmes, was the first to recommend the use of lip prints in personal identification and criminalization in 1932. Lip print patterns are unique to an individual and are analogous to figure prints. The wrinkle and grooves on the labial mucosa in an individual form a characteristic pattern called lip print. The study of lip print is known as cheiloscopy. The significance of cheiloscopy in personal identification is due to the evidence that, once developed at the 6th intrauterine life they are permanent, unchangeable even after death, and unique to each person except in monozygotic twins. Lip prints are now considered as important tools of personal identification in crime scenes such as murderes, rape and burglaries.

Keywords: Cheiloscopy, Dental identification, Lip print, Criminalization.









IMPORTANCE OF ANTIMORTEM DATA IN DENTAL RECORDS IN FORENSIC ODONTOLOGY: A REVIEW

Dr. Richa Rathore¹

¹3rd Year, Oral & Maxillofacial Medicine & Radiology MM University (Deemed To Be), MM College Of Dental Science & Research

Abstract

Forensic odontology is now a days considered as a growing branch in dentistry which deals with the identification of individuals from mass disasters with the help of comparison of Antemortem; postmortem data. The dental tissue is one of the most durable organs in the human body which is preserved even after when the deceased person is skeletonised, decomposed or burnt. Forensic odontology plays an important role in assessing the cases of age estimation, child abuse, and sexual assault. This review article will focus on the importance of collecting antimortem data in forensic odontology; the current trends in India.

Keywords: Antimortem, Odontology, Mass Disaster, Postmortem.









DIAGNOSTIC CRITERIA FOR CUTANEOUS INJURIES IN CHILD ABUSE

Nikhil Kumar Madari¹

¹Post Graduate, Oral Medicine and Radiology, Meghna Institute of Dental Sciences

Abstract

Child abuse occurs when a parent or guardian fails to play their role and causes sudden injury physically or emotionally and may be sometimes causing death of a child. It has many forms such as child maltreatment, including neglect, physical abuse, sexual abuse, exploitation, emotional abuse etc which may cause physical and mental damage to a child. As skin is considered as one of the diagnostic keys in identifying any of this trauma or abuse, it can be used for swifting of the child abuse and to rapidly assess the condition and nature of it. Thereby helping the them from an impending torture as children has a fear tendency and cannot express their suffering and pain. Hence, the recording and securings of cutaneous findings is highly relevant in later reviews of the diagnosis, for instance to investigate subsequent criminal proceedings. Thus, this approach of clues of cutaneous injuries, provides an invisible voice for the child to get away from sufferings thereafter. This poster brings a brief review on Diagnostic criteria for cutaneous injuries in child abuse including classification, findings and interpretation.

Keywords: Child abuse, Criminal proceedings, Cutaneous injuries.









SALIVA A TOOL TO FORENSIC AND CRIMINOLOGY

Dr. Samridhi Gupta¹

¹Maharishi Markandeshwar University, Mullana

Abstract

According to Mandel 'Saliva lacks the drama of blood, sincerity of sweat and the emotional appeal of tears." Although saliva is an important tool for collecting various evidence in criminology and forensic. Various constituents of saliva can help in –DNA profiling and matching, an evidence of suffocation, sexual assault, drug and alcohol abuse, ABO blood detection and gender determination. This retrospective study will review various articles and case reports where saliva turned out to be the appreciable constituent in the forensic criminology. The study will only include articles from past 10 years.

Keywords: Saliva, Criminology, DNA profiling, Gender determination.









ESTIMATION OF AGE BY ORAL EXFOLIATIVE CYTOLOGY: NEWER PERSPECTIVES IN FORENSIC SCIENCE - A SCOPING REVIEW

Dr. Shashi Bala¹, Dr. Mala Kamboj², Dr. Anju Devi³

¹Junior Resident, Department Of Oral Pathology and Microbiology Pt. B. D. Sharma University of Health Sciences, Post Graduate Institute of Dental Sciences (PGIDS), Rohtak

²Sr. Prof. and Head, Department Of Oral Pathology and Microbiology Pt. B. D. Sharma University of Health Sciences, Post Graduate Institute of Dental Sciences (PGIDS), Rohtak

³Associate professor, Department Of Oral Pathology and Microbiology Pt. B. D. Sharma University of Health Sciences, Post Graduate Institute of Dental Sciences (PGIDS), Rohtak

Abstract

Age determination of a person involved in judicial or legal proceedings is crucial information that helps to identify the culprit. Oral exfoliative cytology is a non-invasive, inexpensive, painless technique for collection of intact cells from the epithelial strata. In the past, normal exfoliated cells from healthy individuals have been subjected to cytomorphometric analysis. Hence, exfoliative cytology is an upcoming relevant tool for age estimation in forensic science. To evaluate age estimation by oral exfoliative cytology using cytomorphometry in published literature from 2000-2021. A literature search was performed in PubMed, Scopus and Google Scholar, from 1st Jan'2000 to 5th September 2021 using the key words "age determination and oral exfoliative cytology/cells" and "forensics and/or healthy individuals." A total of 7 original studies fulfilled the inclusion and exclusion criteria. This poster will be an attempt to provide a scopic view of those articles and present the data reinforcing the role of oral exfoliative cytology in forensics.

Keywords: Oral exfoliative cytology, Oral exfoliated cells, Age determination, Cytomorphometry









DNA FINGERPRINTING

P.Denisha¹

¹Postgraduate, Coservative Dentistry and Endodontics, Namakkal

Abstract

DNA fingerprinting is a molecular genetic method that enables the identification of individuals using hair, blood, or other biological fluids or samples. This can be accomplished due to unique patterns in their DNA. It is known as genetic fingerprinting, DNA typing, and DNA profiling. Forensic DNA research and development commonly involves initiatives that encroach into the neighboring domains of the law enforcement or legal agencies. Despite this association level, establishing meaningful cross-disciplinary communication and understanding within the justice system remains a challenge. DNA profiling emerged as a specialist scientific advance that turned molecular techniques toward the issue of forensic identification. The value of an identification method resides in the specialist's ability to compare traces left at the crime scene with traces found on other materials such as reference evidence. Through this procedure, one can compare traces of blood, saliva, or any biological sample left at the crime scene with those found on a suspect's clothes and with samples from the victim. Medico-legal identification is based on scientific methods or intrinsic scientific methods absorbed from other sciences, usually biomedical sciences. This poster describes the use of genetic markers in forensic investigation and their limitations.

Keywords: DNA fingerprinting, DNA profiling, DNA typing, Genetics.









DEASED? NO I AM ALIVE INSIDE

T. Dharani¹

¹Post Graduate, Department of Conservative Dentistry and Dentistry

Abstract

Forensic identification by its nature is a multi-disciplinary approach relying on positive identification methodology. The identification of dental remains is of primary importance when the deceased person is skeletonized, decomposed, burned, or dismembered. Like any other hard tissues in the body, which is often preserved after death, teeth can also be preserved. Pulpal tissue is one of the most protected oral tissues that can resist up to of 1600°C without the loss of microstructure. Various cytologic studies prove the presence of bar bodies and F bodies in female and male respectively, which can be used as a vital tool for determination of gender of the individual. Gender determination analysis is also done either by morphological analysis or by molecular analysis. In this era of molecular analysis, the evaluation of tooth size and morphology provides inadequate characteristics for forensic identification. Since morphological patterns may vary with time and external factors, the more accurate and reliable method in the identification of gender is by molecular analysis by determining the SRY gene which is specific for Y chromosome using polymerase chain reaction. This poster will provide adequate information about the gender determination by molecular method.

Keywords: Cytology, Barr bodies, SRY gene, Skeletonised.











A NEW TOOL IN FORENSIC ODONTOLOGY

R.Ragavi¹

¹Postgraduate, Department Of Conservative Dentistry And Endodontics, Namakkal

Abstract

Forensic odontology is a branch that is evolving over time and has opened newer avenues that may help in the identification of individuals. Enamel formation is a much planned dynamic secretory process, in which the ameloblast lays down enamel rods in an undulating and intertwining path. Tooth prints are the enamel rod end patterns on tooth surface and they are considered as a hard tissue analog to fingerprints. This reflects on the enamel surface as a series of patterns that are described as tooth prints. The tooth prints are unique, the variation exhibits both between teeth of unlike individuals and of the same individual, and between males and females. Teeth have the highest resistance to most environmental effects like fire, desiccation, and decomposition, and may be used as a forensic evidence. Development of such a concept would augment existing techniques in forensic science for better identification of the individuals involved in a crime, identification of mass disaster victims as teeth can survive as evidence in very hostile conditions as well. Scanning electron microscope (SEM) investigations show that the undulation of prisms occur from side to side in a sinusoidal and helicoidal fashion and is described as prism decussation. The purpose of the poster is to highlight that the new tool for recording fingerprint patterns cannot be applied to record enamel prints too.

Keywords: Ameloblast, Enamel, Forensic Odontology, Scanning electron microscope.









IMPACT OF ORAL MICROBIOME IN FORENSIC ODONTOLOGY: A REVIEW

Dr. Ghata Savoriya¹, Dr. Manju Devi²

¹MDS, Department of oral Pathology, RUHS college of Dental Science, Jaipur

²Postgraduate students, RUHS College of Dental Sciences, Jaipur

Abstract

The human microbiota is a highly dynamic system that can be affected by a multitude of factors, including the spatial and temporal components, which are critical because they are associated with factors such as age, sex, life habits, geographical location, occupation, or interaction with other people. From the forensic point of view, microorganisms are important for their role in the process of cadaveric decomposition throughout human civilization, various biological agents have been used as deadly weapons and terrorist media for decimating or wiping out a population or even a country from the map. Such bioterrorism may aim to achieve instability of political, economic, social and/or cultural condition of its target. Forensic odontology in the process of identification, prevention and handling of bioterrorism can offer robust biological markers of the threat and crucial evidence from the oral cavity. The aim of this review was to study the microbiome and its applications in forensic sciences and to determine the main lines of investigation that are emerging, as well as its possible contributions to the forensic field.

Keywords: Forensic odontology, human civilization, Oral Microbiome, Bioterrorism.









USE OF INTRAORAL SCANNER IN FORENSIC DENTISTRY

Dr Shikhar Daniel¹

¹Chhattisgarh Dental College, Rajnandgaon (C.G)

Abstract

Forensic dentistry is that branch of forensic science that exploits the skills of the dentist to determine the recognition of the person, whether living or deceased, for investigative purposes or justice processes. Intraoral scanners have profoundly changed the concept of dental impression and the workflow associated with it. The optical impressions detected with the scanner generate a three-dimensional model of the dental arches and soft tissue structure with a significant saving of time and less discomfort for the patient than the traditional impression. The use of intraoral scanners has made possible to obtain models of dental arches often much more accurate than those detected with traditional dental impression materials. It should be considered very important from a forensic point of view both for the possibility of having a detailed and reliable reproduction of both dental structures and palatal rugae and for the possibility of having a digital archive easily shareable even for judicial reasons specially in this covid period, without the risk of losing a significant ante mortem data. So this poster will depict the use of intra oral scanner in forensic dentistry.

Keywords: Intraoral Scanners, Palatal Rugae, Forensic dentistry, Dental Impression.











USE OF 3D PRINTING IN FACIAL MORPHING

Dr. Kushdeep Kumar Gupta¹

¹PG student, K D Dental College and Hospital, Mathura

Abstract

Three dimensional (3D) printing is a technique used to produce a realistic physical 3D structure from a Computer Aided Design (CAD) model or a digital 3 D model. Postmortem facial identification is one of the most common techniques for establishing a deceased person's identity. In victims suffering from severe cranial injuries, the feasibility of facial identification tasks can be compromised by damage to or disfigurement of the identifying cranial features. Facial reconstruction also plays an outstanding role in the historical and archeological context. Precisely, it is the most exact method to reconstruct the appearance of the people that lived in the past and a popular way of presenting results not only to scientific community but also to a broader public. The Multi Slice Computed Tomography (MSCT) images were used to develop a skull model which was 3D printed and used for facial reconstruction. 3D printing help in the identification of homicide victims including, burned faces, drowning, burial, postmortem decomposition and facial deformity due to wild animal attacks.

Keywords: Computer Aided Design, Multi Slice Computed Tomography, Homicide, Drowning.









LINK BETWEEN TATTOOS; FORENSIC DEMYSTIFIED

G.Narasimha¹

¹Post Graduate 2nd year, Department of Oral & Maxillofacial Pathology and Oral Microbiology, A.B Shetty Memorial Institute of Dental sciences, Karnataka

Abstract

An overview of the history of tattoos is provided, with a specific focus on tattoos in criminological and forensic investigations from the characterization of criminals in the 19th century to the introduction of tattoo evidence in criminal trials of present day. The body responds to these incursions in specific ways, with initial sloughing of the epidermis and the reactions range from inflammatory-infectious to neoplastic conditions and patterns observed were lichenoid, tuberculoid and minimal dermal infiltrate. In forensic science, tattoos are considered as secondary identification markers. Various tattoo patterns prevalent throughout the tribal population and the modern metropolitan cities can help create a reference base line data for future forensic identification. Tattooing may be used in medicine to mark areas for radiotherapy, and may occur inadvertently associated with certain occupations such as coal mining. Forensically, tattoos may be very useful in assisting with body identification if facial features or fingers have been damaged. In recent years tattoos have become more common in forensic autopsy examinations. The utilization of tattoos in a forensic science specifically highlighting the investigatory leads in criminal investigations and tattoos & amp; tattoo inks should have an increased use in forensic endeavours moving forward in casework and scholarly research.

Keywords: Forensic, Tattoo, Autopsy examination, Investigation, Criminology.











\$ | +91 8879066856

🛞 🛛 www.iafo2021mumbai.com

🖂 🛛 iafo2021mumbai@gmail.com