INTERNATIONAL
CONFERENCE 2022

FORENSIC
SCIENCE

IASR

METAVERSE

CRIME SCENE DO NOT CRO

25th–28th
August 2022

TABLE OF CONTENTS

Conference Proceedings

ORGANIZERS

"With organization comes empowerment!"

We are glad to have renowned associations who are a part of and worked together in this remarkable journey of achieving the goal of excellence!

INTERNATIONAL ASSOCIATION OF SCIENTISTS AND RESEARCHERS

International Association of Scientists and Researchers is a non-profit organization focused on delivering updated literature and research work to the global scientific and research society and avid learners, unleashing all boundaries to promote education. It aims to provide open access to critically reviewed high-quality research papers, literature and works to provide a user-friendly global platform for researchers and scientists. Reciprocation of their invaluable ideas and researches would allow them to share information and disseminate the recent ground-breaking studies and advancements in various fields, working together for a better world to live in. The association's vision is to encourage and follow its mission of sharing the information online into a research network, welcoming original research, speculative work, and application-based work from multidisciplinary domains of science, arts, commerce and other studies. It aims to contribute to an enhanced understanding of various disciplines globally and augment the interchange of knowledge and ideas associated with international organizations.

SHERLOCK INSTITUTE OF FORENSIC SCIENCE INDIA

SIFS INDIA is registered with Govt. of India and ISO Certified Educational Institute that has acquired a special place of honour globally. They provide a user-friendly platform in education intending to impart high quality and easily accessible forensic education to meet the growing demand of law enforcement and other government and private legal departments. Its main aim is to provide equal opportunities to aspiring students who don't have access to traditional learning methods. It focuses on grooming the career of students in forensic science and criminal Investigation sectors, introducing higher education for the learners at their doorsteps, and providing access to high-quality education to all those who seek it.

KNOWLEDGE PARTNERS

NATIONAL POST GRADUATE COLLEGE
UNIVERSITY OF LUCKNOW, LUCKNOW

National Post Graduate College was established in 1974 by the then Chief-minister of Uttar Pradesh, Late Chandra Bhanu Gupta. The college is situated close to the banks of river Gomti in the heart of the city, has a lush green campus, and is surrounded by several significant academic and administrative institutions. The single life force functioning behind the college administration is to provide quality education to inculcate virtues of disciplined, dedicated and good citizens in the students. The students thus succeed in creating a society with love, freedom, liberty, justice, equality and fraternity.

CLUE4 EVIDENCE FOUNDATION, BENGALURU

Clue4 Evidence Foundation is a non-profit organization that aims to provide a victim support platform, including mediation, investigation, and litigation support. In achieving this, various projects are initiated by engaging the socially deprived category of people by providing suitable training, keeping in mind the Social responsibilities and the need for such initiatives for various individuals by Clue4 Evidence Foundation(R).

FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI NIGERIA

FUTO, as the Oldest University of Technology in Nigeria, was established in 1980 by Executive fiat with the composition and appointment of the first provisional Council by Nigeria's First Executive President, Shehu Shagari. Its vision is to re-engineer and reposition the Federal University of Technology to be a truly world-class university through recreating, nurturing, and developing uniquely promising students and exceptional staff in Science, Technology, and enterprise to benefit our globalized world.

UNIVERSITY OF PHILIPPINES, MANILA

The University of the Philippines Manila (UP Manila) is one of the eight constituent universities of the University of the Philippines (UP) System. It is a public and secular institution of higher learning that offers academic and training programs and extension services in the health sciences, education in the health profession, arts, and sciences. Its mission is to provide health science-focused transformative education, enabling and encouraging students to take creative and constructive action serving humanity. It also serves as a research hub in various fields of specialization in the health sciences and leads as a public service university.

HOLY ANGEL UNIVERSITY, PHILIPPINES

Holy Angel University, Philippines offers cutting-edge academic programs from Basic Education to Graduate School and has a package of scholarships and grants programs for qualified and deserving applicants. Every Angelite at HAU continues to enjoy an exceptional campus experience in its ninth decade. Their mission is to provide affordable, high-quality education that develops students into moral, intelligent, and compassionate individuals for the glory of God. Their objective is to establish themselves as a facilitator for rural development and as one of the most prestigious and skillfully run Catholic colleges in the Asia Pacific region.

SHANKARRAO CHAVAN LAW COLLEGE, PUNE

Shankarrao Chavan Law College, Pune is affiliated to Savitribai Phule Pune Unversity, Approved by Bar Council of India, Recognized by Government of Maharashtra and Accredited with 'A' Grade by National Assessment and Accreditation Council of India, thus Stands as One of the Premier Law Institution in India. It stands to establish themselves as a centre for legal education that prioritises the development of superior legal basics and professional practise skills. We seek to break through traditional teaching-learning obstacles and provide students with the most exposure possible. The mission of SCLC is to give aspiring attorneys the hands-on experience they need to successfully enter, hold, and continue working in the noble field of law.

PSGR KRISHNAMMAL COLLEGE FOR WOMEN (PSGRKCW), COIMBATORE

PSGR Krishnammal College for Women (PSGRKCW) has blossomed into a reputed and renowned institution of higher education. It is ranked 6th among colleges in India in the National Institutional Ranking Framework (NIRF) 2022 by MHRD, GOI. PSGRKCW is accredited by NAAC with A++ Grade. Their mission is to give young women with a values-based educational opportunity that equips them with the knowledge and skills they need to become responsible global citizens while also fostering hope and confidence. Their goal is to provide impoverished members of our communities with access to high-quality education that is offered effectively, carefully, and respectfully. At the undergraduate, graduate, and doctorate levels, they foster enthusiastic lifelong learners and arm them with the information, skills, competencies, and values of the day. They wish to help young women develop the potential to contribute significantly to society.

Greetings from the Organizing Desk!

The new era post the global pandemic has affected academics, establishments, and individuals' preparedness worldwide. The CoVID- 19 pandemic has left us all battling for survival and growth leading to endurance changing the scenarios and encouraging learning on a virtual platform. This calls out to encourage the young learners and academicians to keep pace with the same enthusiasm and lead to excellence.

Forensic Science has an interdisciplinary approach, and its true essence can be proved meaningful with collaborative efforts of people present around the globe functioning together as a team. Therefore, with a vision to bring all the academicians, students, and professionals and share their valuable contemplations, the **IASR International Conference on Forensic Science is** structured to lead the way through endeavours focused on taking Forensic to greater heights. We welcome every science enthusiast to become a part of this revolutionizing effort and explore the technological advancements, scientific researches, and opportunities for everyone to flourish.

Dr. Ranjeet Kr. Singh
President
International Association of
Scientists and Researchers

Phaneendar B N
Chairman
Clue4 Evidence Foundation

Conference Proceedings

Organizing Team

Convenor in Chief

Dr. Ranjeet Kr. Singh
President
International Association of
Scientists and Researchers

Convenor in Chief

Phaneendar B N
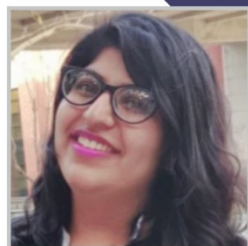Chairman
Clue4Evidence Foundation

Organizing Secretary

Afreen Tarannum

Arti Varshney

Ruchika Dwivedi

Vanshika

Ashi Yadav

Organizing Team

Shelley-Ann Venter

Vivek Khare

Vikas Kumar

Deepshikha Singh

Harsha Sharma

Neha Jain

Nitika

Divya Chauhan

Saddam Hussain

Prerna Patel

Collins Obinna Keke

Geetam Shukla

Himanshu Saurabh

Taniya Jaiswal

Dr. Shoborose Tantray

Aamir Rasheed
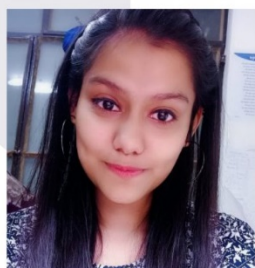
Organizing Team

Sumit Kumar

Ganieva Nilufar Khamraevna

Krishnanand Tripathi

Sanya Sharma

Rashmi Sharma

Shruti V Pawar
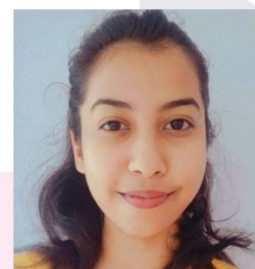
Tanu P. Chandel

Dr. Sagarika Rupainwar

N Samyuktha

Shriya Biyani

Tisha Ramteke

Ishika Shukla

Silki Setia

Shruti Nair

Advisory Board

Dr. HARSH SHARMA
(Retd.) Forensic Science Laboratory
M.P.

JOHN PAUL OSBORN
Osborn & Son
New Jersey

Dr. EDDY De VALCK
Academy of Forensic Medical
Sciences, Belgium

Dr. ROBERT GREEN
University of Kent
England

Prof. EMILIO NUZZOLESE
University of Turin
Italy

MICHAEL W. STREED
SketchCop Solutions Inc.
California

Dr. RAJINDER SINGH
(Former) Central Forensic Science
Laboratory, CBI, New Delhi

Dr. SANJEEV
Central Forensic Science
Laboratory, Chandigarh

Dr. RAKESH Kr. GOREA
Gian Sagar Medical College
Patiala

MOHINDER SINGH
Former GEQD,
Shimla & Hyderabad

DEEPAK HANDA
(Former) Central Forensic Science
Laboratory, CBI, New Delhi

DEEPA VERMA
Forensic Science Laboratory
NCT of Delhi

Dr. RAJESH VERMA
Forensic Science Laboratory
Mandi

JOHN PATRICK MOLONEY
Forensic Comparison Software,
Gr. Melbourne

Dr. G. S. SODHI
Forensic Science Unit, S.G.T.B.
Khalsa College, DU, New Delhi

Dr. SELINA LEOW
Forensic Odontology,
INTERPOL DVI Committee
Australia

Advisory Board

Dr. JOSEPH De LADURANTEY
The Vollmer Institute
California

Dr. MADHULIKA SHARMA
(Former) Forensic Science
Laboratory, NCT of Delhi

Dr. MUKESH YADAV
Government Allopathic Medical
College, Banda

Prof. JASON PAYNE JAMES
William Harvey Research
Institute, London

STEVEN DAVID LAMPLEY
The Oliphant Institute
of Forensics, USA

RAKSHIT TANDON
Hackdev Technology Pvt. Ltd.
Noida

Dr. V. V. PILLAY
Amrita Institute of Medical
Sciences & Research Center, Kerala

Dr. VARUN KAPOOR (IPS)
ADGP, Rustamji Armed Police
Training College, Indore

Dr. NILENDU BIKASH BARDHAN
(Former Director) CFSL, CBI, N. Delhi

Prof. TRIVENI SINGH (IPS)
S. P., (Cyber Crime), U. P. Police
Lucknow

Dr. GHYASUDDIN KHAN
U.P. State Medico Legal Cell
Lucknow

Dr. ASHA SRIVASTAVA
CBI, CFSL, New Delhi

SANTOSH KHADSARE
DFIR & Expert Witness,
Govt. of India, Delhi

NA VIJAYASHANKAR
Foundation of Data Protection
Professionals in India, Karnataka

Dr. WILLIAM R. BELCHER
University of Nebraska-Lincoln,
Nebraska

OMVEER SINGH
Ministry of Electronics &
Information Technology, N. Delhi

9

Advisory Board

SAMIR DATT
Foundation Futuristic Technologies
(P) Ltd., (ForensicsGuru.com) New Delhi

Dr. EVI UNTORO
Faculty of Medicine,
University of Trisakti, Indonesia

CLOYD STEIGER
Author & The American Investigative
Society of Cold Cases, Washington

AI-SHARIF HASHEM MOGAHED
Forensic Medicine Administration,
Ministry of Justice, Egypt

Dr. KAVITA SHARMA
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Dr. AJAY SHARMA
State Forensic Science Laboratory,
Jaipur

BARRY A. J. FISHER (Retd.)
Los Angeles County Sheriff's
Crime Laboratory Director, USA

Dr. MOHAMMED NASIMUL ISLAM
Faculty of Medicine
Universiti Teknologi MARA (UiTM)
Malaysia

KEVIN M. SULLIVAN
Author, USA

RAJ SHRIVASTAVA
Forensic Science Laboratory
Sagar

Dr. SHUBHRA SANYAL
(OHBII) Sewa Kuthir,
New Delhi

ARUN SHARMA
State Forensic Science Laboratory
Lucknow

Dr. GAURAV GUPTA
Ministry of Electronics & Information
Technology, New Delhi

PRINCE BOONLIA
Digital 4n6 Journal
Udaipur

AASHISH SUTAR
Ministry of Defence, Govt. of India
New Delhi

Dr. AMAR JYOTI PATOWARY
Dept. Forensic Medicine &
Toxicology, NEIGRIHMS, Shillong

MOHAMMED ABO ELAZM
Alexandria Head of Forensic
Evidence, Egypt

Lie Detection
SACH : A Truth
Lie detection in the Judicial System vs Investigate Needs

About the Workshop

Psychology and law are the critical disciplines of Forensic Psychology where Lie Detection is a significant issue. It's easy to see why knowing whether someone is lying or telling the truth is vital in police investigations, court cases, border control interviews, intelligence interviews, and other situations. Considering that, psychologists and practitioners have created several lie detection instruments to aid in identifying lies.

International Association of Scientists and Researchers, IASR and Sherlock Institute of Forensic Science India delightedly hosted a Pre-Conference Workshop to raise awareness of the lie detection process, its applications, and the problem of testing the accuracy of lie detection tools in real-life field cases. The resource persons talked about the accuracy of lie detection technologies, which can be easily verified in a lab environment.

EMINENT RESOURCE PERSONS

PHANEENDAR B N

CEO | Clue4 Evidence Foundation, Bengaluru

Mr Phaneendar B N has done M.Sc in Cyber Security, LLB, LLM (Torts & Crimes), PG – Diploma in Forensic Documents and Fingerprint Examination and PGDCLCF, (PGDHRL) from National Law School of India University – Bengaluru. He is Chairman and Managing Trustee of Clue4 Evidence Foundation – A NGO for Investigation and Legal Support. He is a Certified PDD Expert - TVC, South Africa and is also certified by the American Institute of Applied Sciences – USA. He has over 13 years of Professional Experience. He has examined over 5500 cases including Handwriting, Signatures, Ink, Papers, Rubber stamps, Security Documents, Fingerprints, Accidents and Fire Examination Polygraph Test & Digital examination of Evidences. He has deposed in over 500+ cases as Forensic Expert and has cross-examined various cases as Advocate. He has been appointed as Court Commissioner in various cases by the Law courts resulting in several convictions in Criminal cases, Reports Appreciated / Upheld by various Civil, Criminal, Consumer, MACT and also by High Courts. He has a membership in the International Association of Document Examiners, USA, International Association for Identification (5th Indian to get this membership), International Association for Identification – USA, etc. He is an Advisor at the International Association of Scientists and Researchers and a Resource Person for Academic Institutions for designing various Training and Certification Programs. He has been awarded as 'Dedicated Teacher' by his Excellency Shri. Hansraj Bharadwaj – Governor, State of Karnataka.

AMIR LIBERMAN

CEO, Inventer, Owner | Nemesysco Ltd., Israel

Amir Liberman is a worldwide leading researcher in the field of human voice analysis, and the first to identify the 3 basic sensations in the human voice: Excitement (positive sensation), Stress (negative sensation) and uncertainty (cognitive stress). He began his voice analysis research in 1997, in response to a terror attack that took the life of 3 young mothers in Israel. His original intention was to build the "ultimate lie detector" based on speech analysis and other more common techniques of veracity assessment, but quickly changed the scope of his research to explore unique properties of the voice he identified in his preliminary test cases. His first voice related patent was published at 1998, summarizing a research of 2 years, leading the way to the development of the first ever commercial computerized emotion detector. His more recent discoveries and additional novel vocal parameters were published in his second voice analysis patent from 1999, identifying "Concentration", "Anticipation" and "Arousal" (Also known as the "Love Detector" patent). Being a self-educated researcher, his methods of research are very unique and unfamiliar to the world of traditional phonetics, as most of his research is done in real-life settings and not in a mocked laboratory atmosphere. He formed Nemesysco, Ltd. in April of 2000, to manage all of his IP patents and development projects. Since then, he has invested all of his efforts and resources in perfecting and fine-tuning LVA technology and its applications for home-land security needs, fraud prevention solutions, call centers utilities and CRM appliances.

Open Source Intelligence (OSINT)

About the Workshop

Each minute, the amount of data being pushed to the Internet is staggering, leading to individuals predating on Open Source Intelligence (OSINT). OSINT is the information obtained without using specialized skills or technologies. Still, it can also contain sources exclusively available to subscribers, such as paywall content in newspapers or subscription journals.

The Pre-Conference Workshop was jointly organized by the International Association of Scientists and Researchers (IASR) and the Sherlock Institute of Forensic Science (SIFS) India to increase awareness of OSINT and its applications. The resource person discussed the value of OSINT in researching a person using online accounts, social media and official online resources. The workshop also covered the collection and analysis of data from open and publicly available sources in the forensic sector to provide actionable intelligence.

EMINENT RESOURCE PERSON

NEIL SMITH

OSINT Consultant & Trainer | uk-osint.net

During the 1980s and '90s, Neil served for over 10 years as a police officer in the UK police force in a number of different roles including spending time in uniform, as an authorised firearms officer, on the force drug squad and on a divisional burglary squad, before spending the last two years of his service investigating vehicle-related crimes in Bristol, before being pensioned out early from the police as a result of suffering a number of injuries whilst on duty. After a short break, he then spent the next few years working as a fraud investigator for insurance companies, working around the UK and into Europe and then as a counter-fraud specialist in a UK government department. He had already been using the internet as an investigative tool in his fraud investigations since the late 1990s and then in around 2004 he was introduced to the term Open Source Intelligence and was asked to start training people, mostly involved in law enforcement and investigations, in the techniques that he had been using in his own investigations over the last few years. His OSINT training has taken him all around the world, including many places in Europe, as well as to Australia and Japan, Mexico and the Middle East. In 2016, he helped form Qwarie with a business partner to build on what he was doing previously with his own small company but in a larger more international company, offering OSINT research and training to more clients around the world, with a team of in-house researchers and trainers, however, he left Qwarie after a few years to help, create, locate, with the aim of training volunteers to use OSINT skills to assist the police and families in helping to trace missing people.

Medical Certificate by Doctor
Legal & Ethical Issues

About the Workshop

Issuing Medical certificates is an integral responsibility of a medical professional. It is often casually issued, leading to its appalling misuse and even being considered a false certificate. International Association of Scientists and Researchers and SIFS India organized the pre-conference workshop whose primary focus was on various ethical and legal dilemmas forensic pathologists face every day of their professional lives.

The resource persons provided an overview of legal and ethical issues related to forensics that frequently arise in medical care, including the most recent issues arising from scientific and technological advances. They also focused on how it violates medical ethics and is subject to severe punishment, including the cancellation of one's license to practice medicine.

EMINENT RESOURCE PERSONS

PROF. (DR.) MUKESH YADAV
President, IAFM | Principal, Rani Durgavati Medical College, Banda, U.P.

Prof. (Dr.) Mukesh Yadav is currently working as Principal of Rani Durgavati Medical College (formerly Govt. Allopathic Medical College), Banda, UP since 2018. He has more than 26 years of experience in Medical education. Previously, he served as a Principal of NC Medical College, Panipat, Haryana. He worked as a Professor & HOD of the Department of Forensic Medicine & Toxicology in various colleges such as KD Medical College, Mathura, UP; FH Medical College, Tundla, Firozabad, UP; TTMC &R, Moradabad, UP etc. He is having more than 20 years of teaching experience in various private and govt. medical colleges. He is elected as Editor of the Journal of the Indian Academy of Forensic Medicine for the last 7 years and work hard for timely publication of JIAFM and was instrumental in achieving an internal standard and inclusion in various national and international indexing and database agencies. He has contributed many chapters in many leading books published by Indian Authors of repute. He has delivered many guest lectures on medico legal aspects at various national and international conferences and organized medico legal workshops for doctors and hospitals. He is working on the project "Study of Medical Negligence" cases decided by various consumer courts in India. He has conducted examinations in various universities throughout India at UG and PG levels. He has more than 100 publications in various national and international journals to his credit.

PROF. (DR.) VIJAYPAL KHANAGWAL
Professor and HoD | Dept. of Forensic Medicine, Kalpana Chawla Govt. Medical College, Karnal

Prof. (Dr.) Vijay Pal Khanagwal is currently working as a Professor & HoD of the Department of Forensic Medicine at Kalpana Chawla Govt. Medical College, Karnal (Haryana). He is also the Medico-legal Advisor to the Government of Haryana. He has an experience of 32 years of teaching and has been working as a Professor since 2007. He did MBBS and MD in Forensic Medicine from Medical College, Rohtak. Subsequently, he did LL.B from MD University, Rohtak and Master of Human Rights from Pondicherry University. Till now, he has supervised 8 MD theses, co-supervised 3 MD theses and one Ph.D. thesis. He was conferred the Distinguished Fellowship of the Indian Congress of Forensic Medicine & Toxicology in 2014 and Fellowship of the Indian Academy of Forensic Medicine in 2020. He has been awarded many awards for his studies and social work at State and National level. He is an active member of various Associations like the World Association of Medical Law, Indo-Pacific Association of Law, Medicine & Science, Indian Academy of Forensic Medicine etc. He is the President of Punjab Academy of Forensic Medicine & Toxicology and Haryana Chapter of Indian Congress of Forensic Medicine & Toxicology and was elected Vice-President of the Indian Academy of Forensic Medicine consecutively for the second time (2019-22 and 2022-25). He has attended numerous Conferences and Workshops as a Paper presenter, Guest lecturer and Session chairperson. He has published 77 research papers in various National and International journals.

PROF. (DR.) AKHILESH PATHAK

Professor and HOD | Dept. of Forensic Medicine & Toxicology, AIIMS Bhatinda

Prof. (Dr.) Akhilesh Pathak is having a total Teaching Experience of 20 Years, mostly in the Government of Gujarat. He has done MD Forensic Medicine and also done Post Graduate Diploma in Health and Law (PGDHL). He is one of the recognized PG teachers and guiding Postgraduate students in the subject of Forensic Medicine & Toxicology for the last 10 years. He has also been actively involved and gives his contribution in evaluating around 18-20 Thesis of various institutes of RUHS, MUHS, and University in Gujarat. With immense knowledge, he was also registered as a PhD. Examiner in various universities of Gujarat and Rajasthan. During the working tenure of almost 20 years, he has conducted approximately 3500 post-mortems of numerous kinds inclusive of the Human Rights Commission. He also completed various Institutional Enquiries in the capacity of Chairman of the Board. His achievements involve nomination for Best Professor Award in Forensic Medicine and received felicitation awards at a conference of Indian Academy of Forensic Medicine and Toxicology. Apart from this, he has numerous publications in both national and international journals under his name. He has also published the book titled "Practical Record Book of Forensic Medicine and Toxicology."

Dental Age Estimation in Children and Juveniles:

Prediction of the Attainment of Age Thresholds of Medicolegal Importance

About the Workshop

The International Association of Scientists and Researchers (IASR) and the Sherlock Institute of Forensic Science (SIFS) India collaborated to organize a Pre-Conference Workshop to promote awareness and knowledge of dental Age Estimation in Children and Juveniles. Forensic odontology helps identify the dead, whether a neonate, adult or adolescent.

The resource person described how various methods have made it easier to estimate age in a short amount of time. This workshop will primarily focus on dental age assessment and the differing degrees of ambiguity and precision of various approaches in children. The eminent resource person discussed various aspects of age estimation, such as morphological, biochemical, and radiographical methods and their scope and limitation.

EMINENT RESOURCE PERSON

DR. SUDHEER B. BALLA

Assistant professor and Head | Dept. of Forensic Odontology, Panineeya Institute of Dental Sciences and Research Centre, Hyderabad

Dr. Sudheer B. Balla, Assistant professor and Head of the Department of Forensic Odontology in Panineeya Institute of Dental Sciences and Research Centre, Hyderabad, is an active researcher and dental academician. He has nearly eight and half years of experience teaching and practicing forensic odontology. He acquired his master& 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. In addition, he provides expert opinions for the cases referred to the department by police and the Forensic medicine & toxicology department of Osmania Medical College & Hospital, Hyderabad. He delivered more than 15 keynote lectures in various CDE programs, forensic seminars, national and international conferences. He has experience conducting hands-on programs on dental identification and age estimation for postgraduates of various dental institutions. He did research in collaboration with multiple researchers from India and abroad. He constantly researches and has published 35 articles in various national and reputed international journals.

Acid Attack Survivors:
Social Acceptability

About the Workshop

Many countries where acid violence occurs possess high levels of violence against women. Like other forms of violence against women, acid violence arises due to inequitable gender relations. The Pre-Conference workshop focused on ending acid violence and preventing it from happening in the first place by addressing its root causes.

The workshop also shed light on the psychology of Acid Attackers & Culprits. The various rights of acid attack survivors, issues and challenges faced by the victims of acid attacks and the policies taken by the government to overcome the challenges were discussed, along with the legal perspectives of acid attacks in India.

EMINENT RESOURCE PERSONS

LAXMI AGARWAL

Acid Attack Survivor | Founder, The Laxmi Foundation

Laxmi, once known as the acid attack survivor, is now known as just Laxmi, who is a mother, a symbol of courage, hope and love for life. She is a motivational speaker and a messenger for millions of social voices. She was 15 when she was attacked by her stalker with acid in 2005. He thought he will kill her dreams. In her battle against acid violence, Laxmi began a campaign called "Stop Sale Acid" against the unrestricted sale of acid and also to help acid attack survivors in their rehabilitation. The campaign has global support, and was awarded by the Ministry of Women and Child Development, the Ministry of Drinking Water and Sanitation, and UNICEF. She is the Founder/President of The Laxmi Foundation - a NGO dedicated to the support of acid attack survivors and every person in need. Today, she is a synonym of courage and beauty on the globe. Laxmi received 2014 International Women of Courage award by US First Lady Michelle Obama. She was chosen as the NDTV Indian of the Year. She was also awarded by prestigious Mother Teresa Award in 2018. Being a TedEx speaker she has inspired millions of people and emphasised on the strength of inner beauty. Now She is the face of several brands. To name few; NIMAI's new 'Promise' band (a luxury fashion brand with a soul), Viva N Diva (a clothing brand). She has challenged the stereotype by becoming face of a fashion brand even after undergone several reconstructive surgeries. She has helped more than 100 victims of Acid Attacks all over India by providing assistance with treatment, legal aid, counselling and rehabilitation and became the face of every unprivileged acid attack surviving women in India. A Movie named CHHAPAAK made on her undaunted spirit with actor Deepika Padukone portrayed her and directed by Meghna Gulzar was released in Jan 2020.

DR. NAVPREET KAUR

Co-Founder, The Laxmi Foundation | Advocate, Punjab State Legal Services Authority

Dr. Navpreet Kaur is a Chandigarh based Lawyer/Social Activist/Researcher/ Diversity & Inclusion Expert/ POSH Trainer/Co-founder & Vice President of The Laxmi Foundation, who has considerable experience of working with various legal institutions. She began her career as an advocate in the District Courts; Chandigarh and later in 2013, commenced teaching as an Assistant Professor in law. In 2019, she commenced working with the State Legal Services Authority. In fact it was her zest and zeal to pursue quality research in a very complicated and tough social issue of "Vitriolage (Acid Attack)". While pursuing her research she met many acid attack victims and realized the significant psychological, social, medical and legal issues faced by these women and the often inadequate help that they were receiving from Government and other agencies. To address these deficiencies she began the campaign called "Stop Sale Acid" against the unrestricted sale of acid and also to help acid attack survivors in their rehabilitation. The campaign has global support. Dr. Kaur is also Co-founder and Vice-President of The Laxmi Foundation, an NGO dedicated to the support of acid attack survivors.

PROF. (DR.) ABHA SINGH
Senior Expert Behavioural Psychologist

Prof. (Dr.) Abha Singh is a Senior Expert Behavioural Psychologist. She is former Director, IILM Center for Emotional Intelligence and an Ex-Dean Faculty of Arts, Humanities, Journalism and Communication & Social Sciences, Director Research Amity Institute of Psychology & Allied Sciences, Amity University Uttar Pradesh, Noida (India). She has more than 24 years of professional experience and approximately 50 National and International Publications as author and co-author and researches in the fields of Psychology. She has 8 Ph.D. scholars under her and five Ph.D. degrees awarded. She has also authored books on title "Behavioural Science-Achieving Behavioural Excellence for Success" (Wiley Publication) and "Human Values: Psychological Perspective". She is a member of the American Psychological Association, APA No. 5191896, Washington D.C. Her name appears as Educationist and Psychologist in Indo-American `Who's Who' (page 545, Vol. III). She has been Honoured with "Ambassador for Peace Award" at the International Leadership Conference, Seoul Korea in October, 2007 by "Universal Peace Federation" (An NGO in Consultative Status in the Social & Economic Council of UN). Recently she was awarded with "Peace Maker Award, 2017" on the occasion of International Peace Day on 21st September, 2017 by Global Peace & Prosperity Initiative, USA. She authored Rajasthan Police Training Booklet – Manual on 'Personality Enhancement Programme'. Prepared Behavioural Skills Training Booklet for GAIL on 'Effective Habits of Managers' and on 'Effective Communication Skills'.

Silent Witnesses Speak at Crime Scene:

Clue from Scene of Crime

About the Workshop

It is usually said that follow the Evidence wherever it leads as the evidence speaks for itself. After the observations are made and the data is gathered, the conclusions are clearly drawn. This pre-conference workshop contributed to the perception of science as a source of unambiguous certainty. The evidence can helps to establish the guilt or innocence of possible suspects.

The resource person discussed the linking of evidence with crimes that are thought to be related to one another. The forensic analysis techniques and latest advancement in these techniques for the analysis were discussed in the pre-conference workshop organised by the International Association of Scientists and Researchers and Sherlock Institute of Forensic Science, India.

EMINENT RESOURCE PERSONS

DR. HARSH SHARMA
Retd. Director | State Forensic Science Lab, Govt. of M.P

Dr. Harsh Sharma, Retd. Director, State Forensic Science Lab, Govt. of M.P. He has a vast experience of about 38 years as a Scientific Assistant and Senior Scientific Officer in Forensic Science and Crime Investigation. He has inspected almost 4000 various types of scenes of crime. 100% efficiency in solving all the rape cases within 48 hours, where the accused culprits have been sentenced to a minimum punishment of life imprisonment and maximum- death penalty. He has been honoured for his achievement by the State Chief Minister of Madhya Pradesh, Shri. Digvijaya Singh. The Directorate of Forensic Science, Ministry of Home Affairs, Government of India, New Delhi, honoured this Forensic Scientist and Crime Investigator with DFS Meritorious AWARD – 2005, in Crime Scene Management. He has also been honoured by Seventh Academic brilliance AWARD-19 in the director category. And last but not least, he has been awarded by Dr B R Sharma memorial "LIFETIME ACHIEVEMENT AWARD" by legal desire media in 2020. He has delivered numerous invited talks around the globe. He was appointed examiner for the IPS (Indian Police Service) officer's examination in 2013-2014. He was a member of the Indian Society of Toxicology and International Forensic Science Association, U.K. He was also invited to deliver an invited talk at the fourth International Conference on Forensic Research and Technology in Atlanta, USA.

DR. VINOD DHINGRA
Senior Scientific Officer | Forensic Science Laboratory, Gwalior

Dr. Vinod Dhingra, Senior Scientific Officer RFSL, Gwalior, did his PG in Organic Chemistry from the Jiwaji University of Gwalior in 1989 with the first position on the merit list. He was awarded a Doctorate in Philosophy by Jiwaji University, Gwalior, in 1993. In 1998, he was selected by the Government of Madhya Pradesh as a scientific officer in the Forensic Science Laboratory. He has done a Certificate Course in Crime Scene Investigation at NICFS, MHA, GOI, New Delhi, in 1999. During his career as a Forensic Scientist, he underwent several trainings from various Indian premier institutes like ITRC Lucknow, CFTRI, Mysore, etc. He presented and published numerous research papers of national and international reputation. He has a vast experience of about 22 years as an Officer in Forensic Science and Crime Investigation. He has inspected 200 various types of scenes of crime – homicide, suicide, accident, rape, and arson. His experience helped him analyze and reconstruct crime scenes in many doubting and sensational cases. It analyzed about 8800 cases and more than 18000 exhibits of criminal cases of chemistry and toxicology. The Directorate of Forensic Science, Ministry of Home Affairs, Government of India, New Delhi, honoured him with DFS Meritorious AWARD–2008, in the field of Chemical Sciences.

INTERNATIONAL CONFERENCE-2022

FORENSIC
SCIENCE

26th–28th
August 2022

About the Conference

Forensic Science and Anthropology has been growing significantly over the past few decades; the essential demand of progress has been met with bright young minds putting their extensive efforts into advancements of the field. SIFS India and other fellow organizations have been substantial support pillars in establishing the mark of forensics in India and across the globe. The motive of constant learning and sharing recent studies and advancements have been met constantly with their untiring efforts.

The IASR International Conferences (virtual) has been the torchbearer to provide a platform for avid learners to present their work, get better inputs from experienced individuals and learn from esteemed personalities. Therefore, the Conference aims to provide a platform to researchers, academicians and professionals devoting their efforts to the domains of forensics, such as fingerprint, questioned document, crime scene investigation, forensic odontology, forensic medicine and toxicology, forensic biology and serology, forensic psychology, cyber and digital forensics and forensic physics to flourish the dimensions of the theme of the Conference.

THE NEW ADVANCES IN FORENSIC SCIENCE

DR. HENRY C. LEE

Emeritus Professor and Vice President | Institute of Forensic Science, University of New Haven

Dr. Henry C. Lee is one of the world's foremost forensic scientists and has worked with law enforcement agencies in helping to solve more than 8000 cases. He is a recipient of 30 honorary degrees. He is currently an Emeritus Professor and the director of Forensic Research and Training Center at University New Haven, Emeritus Professor at India National University of Forensic Science, Member of Singapore Home Team Science & Technology Agency (HTX) Technology Strategy Advisory Panel (TSAP). He was the distinguished Chair Professor of Forensic Science and Vice President of Global Affair/ Institute of Forensic Science of the University of New Haven (2010-2020). He was the Chief Emeritus for the Connecticut State Police (2000-2010) and was the Commissioner of Public Safety for the State of Connecticut (1998 – 2000) and has served as the state's Chief Criminalist (1978 – 2000). His testimony figured prominently in the O. J. Simpson, Jason Williams, Peterson, and Kennedy Smith Trials; and in convictions of the "Woodchipper" murderer as well as thousands of other murder cases. He has assisted local and state police in their investigations of other famous crimes, such as the murder of Jon Benet Ramsey in Boulder, Colorado, the 1993 suicide of White House Counsel Vincent Foster, the death of Chandra Levy, the kidnapping of Elizabeth Smart, and the reinvestigation of the Kennedy assassination. He has been the recipient of numerous medals and awards, including the 1996 Medal of Justice from the Justice Foundation, the 1998 Lifetime Achievement Award from the Science and Engineer Association, Lifetime Achievement Award from the American College of Forensic Examiners (ACFE) in 2000, Gusi Peace Award from the Philippines in 2008 and many more.

THE C.S.I. CHECKLIST™ APP – "NEVER MISS A STEP."

THOMAS P. MAURIELLO, M.F.S.

Senior Lecturer and Forensic Consultant | Dept. of Criminology and Criminal Justice, University of Maryland

Thomas P. Mauriello, M.F.S., is the creator of the C.S.I. Checklist™ "app" and founder, C.E.O., and forensic consultant, for ForensIQ, Inc. In addition, he is an educator, author, consultant, and public speaker. He is a retired U.S. Department of Defense special agent, former police officer, and criminal investigator. He is a member of the International Association of Identification (I.A.I.) and an American Academy of Forensic Sciences (AAFS) Fellow. In addition, Tom has delivered hundreds of lectures at numerous universities and law schools, police training academies, and government contractor facilities. During the past 45 years, he has also been teaching academic courses and managing the teaching crime laboratory for the University of Maryland, Department of Criminology and Criminal Justice. He is the author of four criminal justice-related books, "Criminal Investigation Handbook - Strategy, Law and Science," "The Dollhouse Murders," "Introduction to Criminalistics - From Crime Scene to Court Room," and most recently in 2021, "Public Speaking for Criminal Justice Professionals - A Manner of Speaking." In addition, he is regularly interviewed on U.S. television and radio news shows and has been featured as the on-camera consultant for several Discovery Channel crime documentaries.

ROLE OF FORENSICS IN MEDIA REPORTING

SHAMS TAHIR KHAN
CSI Anchor/Reporter | T V Today Network Ltd.

Shams Tahir Khan is one of the most popular anchor/reporter in the genre of crime reporting in India. An acclaimed presenter, he is widely known for his investigative skills and a rare sensitive approach toward stories reporting crime. He started off as a crime reporter in 1993 with the Hindi daily "Jansatta". And after seven eventful years with the daily, he joined TV Today Network Ltd. (Aaj Tak) in the year 2000. This was the beginning of the TV news era in India and he quite aptly took on the challenges. Backed by 15 years of experience in crime reporting he started to give a new dimension to crime reportage on Indian television. He conceptualized "Jurm"- a weekly crime show on Aaj Tak that became an instant hit. Thereafter he anchored and produced "Vardaat", a daily half-hour crime show on Aaj Tak which also became hugely popular. Over the years he has most efficiently led the crime team in Aaj Tak. Besides routine crime shows he has also ably guided the coverage of major crime and terrorist-related incidents all over India. Under his supervision, Aaj Tak recently launched a new crime show "Raaz" based on the use of forensics in solving crime. Again this was the first show of its kind on Indian television. He is best known for his unique approach in covering crime with a humane touch.

EXPLORING KNOWLEDGE AND EXPERIENCE IN FORENSIC SCIENCE
THE VALUE OF HANDS-ON EXPERIENCE IN GROOMING AND GROUNDING OF A PROFESSIONAL DOCUMENT EXAMINER

MOHINDER SINGH
Former Government Examiner of Questioned Documents | Shimla, Hyderabad

Mohinder Singh is a former Government Examiner of Questioned Documents. He has been associated with the field of forensic examination for the last about 44 years. He has worked as a Forensic Document Examiner in laboratories of Government Examiner of Questioned Documents Shimla and Hyderabad under the administrative control of the Directorate of Forensic Sciences, Government of India. He has dealt with more than 4000 criminal and civil cases referred by various investigating agencies, including CBI, Govt. Departments and various law courts and tendered evidence in more than 1000 cases. He also worked as guest faculty in forensic documents, associated with various training programs run by NPA, CDTI, NICFS, public sector banks, and Forensic Science departments of Osmania University, Punjabi University, and BHU. He has presented various papers in forensic science at All India conferences, seminars, and Workshops. He has also participated in the recent 19th Wroclaw Symposium on Questioned Document Examination, Poland, in 2020. There are numerous national and international paper publications under his name. He is a Lifetime Membership of the Indian Academy of Forensic Sciences and the Indian Science Congress Association.

FORENSIC INVESTIGATION FOR COLD CASES AND MISCARRIAGES OF JUSTICE: TECHNIQUES AND CHALLENGES

TRACY ALEXANDER FKC

DVI Co-ordinator, UK Home Office | Director of Forensic Science, City of London

Tracy Alexander has worked in forensic science since 1992. Her original post with the Metropolitan Police Service Directorate of Forensic Services incorporated fingerprint expertise and crime scene skills after which she progressed to working on major homicide investigations. She was the head of the Forensic Intelligence Bureau where she worked on multiple projects including the National Ballistics Intelligence Service and DNA search tools for mass fatalities. She is currently working as Disaster Victim Identification Co-Ordinator for the Home Office. In addition, she is Director of Forensic Services at the City of London Police, which comprises responsibility for high tech digital and cybercrime, coronial investigations, scenes of crime, fingerprint bureau, chemical enhancement laboratory and collision investigation unit. She is a Fellow of King's College London, the President of the British Academy of Forensic Scientists, a trustee and advisory panel member of Inside Justice and a member of the Chartered Society of Forensic Scientists. Her current focus in research is the provision of forensic intervention to tackle wildlife crime, with particular emphasis on rhino horn, ivory and pangolin scales.

DOCUMENT EXAMINATION & FORGERY

DEEPA VERMA

Director | Forensic Science Laboratory, Government of NCT, Delhi

Deepa Verma joined as an Assistant Central Intelligence Officer, Grade-I, a Govt. Examiner of Questioned Documents, MHA, GOI, at Shimla (Now part of CFSL, Chandigarh). In 1996, she joined FSL, Govt. of NCT of Delhi as a Senior Scientific officer and then promoted to Assistant Director, Deputy Director. In 2017 she took over the charge of the laboratory and became Director. She had an overall experience of technical Supervision as TM (Doc.) as per NABL certification and Administrative work as HOD (Doc.), including establishing the Computer Forensic Unit. She has also worked as APIO in RTI Act and other miscellaneous duties. She was Link officer of HOO, FSL, In-Charge RFSL Bindapur, Dwarka, Delhi, Member, and Chairperson to various preliminary Enquiry Committee. Under her guidance, the laboratory has been accredited by the National Accreditation Board for Testing and Calibration Laboratories (NABL) as per the standards of ISO/IEC 17025:2005 and NABL 113:2008. One outstanding achievement of the Delhi laboratory under her supervision was that FSL Delhi was notified as Examiner of Electronic Evidence by the Ministry of Electronics & IT, Govt. of India under Section 79 A of the IT Act. In brief, she has more than 30 years of experience in the Forensic discipline. She has the Life Membership of the Indian Academy of Forensic Science Association. She is also a member of the Industry Advisory Board of SGT University, Gurugram and L-Desire Group and has been awarded for good governance in Forensic Science in 2021. She won the Silver Medal of SKOCH Award at the 78th SKOCH Summit in the category of "State of Governance" on 6th January 2022. She was awarded at the felicitation ceremony of Senior Female Forensic Scientists on the occasion of International Women's Day at NFSU, MHA, GOI on 15.03.2022.

CHEMICAL METHODS FOR DETECTION OF LATENT FINGERPRINTS
EVOLUTION FROM SURFACE SPECIFIC TO BROAD-SPECTRUM ONES

DR. G S SODHI

Associate Professor | Forensic Science Unit, SGTB Khalsa College, University of Delhi

Dr. G.S. Sodhi earned his Ph.D. degree from Delhi University and at present is an Associate Professor in Chemistry and Forensic Science at the S.G.T.B. Khalsa College, Delhi University. He has published 100 research papers and filed 10 Indian patents. He was Visiting Fellow, National Crime Records Bureau, Ministry of Home Affairs, New Delhi during 1996-97. He has successfully completed 10 research projects, sanctioned by the University Grants Commission, Department of Science and Technology, Indian National Science Academy, and the University of Delhi. He received Union Home Minister Award; National Technology Day Award; National Search for Innovation Award; Lockheed Martin India Innovation Award; and India Innovation Initiative Award for innovative work in forensic science. His book entitled Indian Civilization and the Science of Fingerprinting was published by the Publication Division, Ministry of Information and Broadcasting, Government of India in 2013. He is a Member of the International Fingerprint Research Group, Jerusalem. He has organized several symposia and training courses in forensic science for students, teachers, army officers, and Indian and overseas police personnel.

COLD CASE INVESTIGATION

SHERYL MCCOLLUM

Crime Scene Investigator | Director, Cold Case Investigative Research Institute

Sheryl McCollum is a Crime Analyst, College Professor, Founder and Director of the non-profit Cold Case Investigative Research Institute based in Atlanta, Georgia. She graduated high school from Woodward Academy, a preparatory school in Atlanta. She received her Bachelor's Degree in Criminal Justice from Georgia State University and her Master's Degree in Criminal Justice from Kaplan University. Her law enforcement career began in 1982 at the Rape Crisis Center at Grady Memorial Hospital in Atlanta, Georgia. From there, she became Director of the Metro Atlanta Cold Case Crime Analysis Squad. During the 1996 Olympic Games, she was the coordinator for the Crisis Response Team that planned and trained for four years and responded to the Centennial Olympic Park bombing, providing victim services. She also served as the Georgia State Director of Mothers against Drunk Drivers. In 2004, she founded Cold Case Investigative Research Institute (CCIRI), a collaboration between Auburn University Montgomery, Faulkner University and Bauder College. In 2017, she held workshops at CrimeCon, a conference advertised as a "true-crime theme park" for amateur sleuths. Her workshops included Wine & Crime sessions.

Conference Proceedings

INTERPOL AND FORENSIC ODONTOLOGY

DR. SELINA LEOW

Deputy Chairperson | INTERPOL DVI Forensic Odontology Sub-Working group

Dr. Selina Leow is the Deputy Chairperson (Elect), INTERPOL DVI Forensic Odontology Sub-Working group and regularly attends the INTERPOL DVI meetings each year as an Australian delegate. She has been a part of the NSW Forensic Odontology Team in Australia for many years which is now based in the new state-of-the-art Forensic Medicine and Coroners Court Complex in western Sydney – the largest Forensic medicine facility in Australia. She is the Forensic Odontology Co-ordinator for the National DNA Program for Missing and Unidentified Persons overseen by the Australian Federal Police. She is one of the most experienced forensic odontology practitioners familiar with the software system (also known as DVISys or PlassData). She is the NSW Forensic Odontology registrar with the Royal College of Pathologists Australia and the State of NSW representative (Forensic Odontology) to the National Institute of Forensic Science that provides advice to the Australian and New Zealand Policing Advisory Agency. She is the Vice-President of the Australian Society of Forensic Odontology Inc. (AuSFO) and is a member of Association of Forensic Odontology for Human Rights (AFOHR), American Society of Forensic Odontology (ASFO), British Association of Forensic Odontology (BAFO) and International Organization of Forensic Odonto-Stomatology (IOFOS).

COMPUTER-ASSISTED SUPERIMPOSITION FOR HUMAN IDENTIFICATION

PROF. EMILIO NUZZOLESE

Forensic Odontologist | Researcher and Professor | Legal Medicine
University of Turin (Italy)

Prof. Emilio Nuzzolese is a forensic odontologist, currently serving as a Researcher and Professor in Legal Medicine at the University of Turin (Italy) and HOD of Forensic Odontology, Medico-legal Institute of Turin. He was graduated in dentistry from the University of Bari (Italy) in 1994. He holds post-graduate degrees in Legal Medicine, Forensic Sciences and Forensic Odontology, plus a Research Doctorate degree (Ph.D.) on Analytic Morphometry. He served as an Expert witness in Civil and Penal Court for dental disputes and professional liability and an Expert before the International Penal Court. He is associative involvements which include participating as an odontologist in the INTERPOL DVI Forensic Odontology Sub-Working Group, since 2010. He is also President and Founder of the Civil Protection Association Dental Team DVI Europe. Prof. Emilio is a co-founder of Association Forensic Odontology for Human Rights. He is a Fellow of the Odontology Section of the American Academy of Forensic Sciences, since 2011. He has presented over 100 papers in national and international forensic science meetings and journals and has been invited as a speaker in several congresses in Italy and abroad (Canada, Indonesia, India, Hungary, Nepal, Romania, USA, UK), among which the forensic dentistry session of the 2006 FDI World Dental Congress in Shenzen (Republic of China).

THE NEW MEDICAL EXAMINER SYSTEM IN ENGLAND & WALES: A NEW ASPECT OF DEATH INVESTIGATION

PROF. JASON PAYNE-JAMES

Specialist in Forensic & Legal Medicine | Clinical Professor at the William Harvey Research Institute

Prof. Jason Payne-James is a Specialist in Forensic & Legal Medicine. He is an independent forensic physician in active clinical practice. He is Director of Forensic Healthcare Services Ltd and President of the Faculty of Forensic & Legal Medicine of the Royal College of Physicians from 2015 to 2017 and World Police Medical Officers from 2011 to 2014. He is co-author of Faculty of Forensic & Legal Medicine documents related to medication management in custody, management after exposure to Taser® and irritant spray, head injury and choking. He is an Honorary Professor at the Department of Forensic Medicine, University of Belgrade, Serbia and a Clinical Professor at the William Harvey Research Institute, Queen Mary University of London, UK. He is Chair of the Scientific Advisory Committee on the Medical Implications of Less-Lethal Weapons. He has developed, co-edited, co-authored and contributed to several books. Together with Joe Beynon and Duarte Nuno Vieira, their book Monitoring Detention, Custody, Torture and Ill-treatment was highly commended in the BMA Medical Book Awards. He was the first Editor-in-Chief of the peer-reviewed Journal of Forensic & Legal Medicine. He has developed new scales for use in forensic imaging. He designed the forensic medical documentation App, ForensiDoc®. He has presented 12 episodes of the Channel 5 series, Autopsy and serial killer Trevor Hardy.

DESIGN AND DEVELOPMENT OF NOVEL SINGLE MULTIPLEX SYSTEM INCORPORATING 26 RAPIDLY MUTATING Y-STRS; 26 RM YPLEX

LT. COL. DR. RASHED ALGHAFRI

Forensic Scientist & Head | Biology and DNA Section, Dubai Police HQ

Lt. Col. Dr. Expert Rashed Alghafri is Chairman of the Dubai Police Scientist Council, Director of Training and Development Department at the General Department of Forensic Sciences and Criminology. He is an active Forensic Investigator and Researcher, specialising in Forensic Genetics. He has many memberships in several international organizations like Head of Youth Scientists Committee at MBRAS, President of Arabian Speaking Working Group in the International Society of Forensic Genetics, etc. He is an Adjunct Professor at Murdoch University in Australia and teaching also at United Arab Emirates University in Al-Ain. He has received various awards, locally, regionally and internationally. He is alumni of Impactful leadership and social leadership programs organized by MBRCLD and the National Expert Program organized by Crown Prince Court of Abu Dhabi.

DENTAL JURISPRUDENCE IN INDIA

DR. HEMLATA PANDEY

Assistant Professor, Forensic Odontology Consultant |Dept. of Forensic Medicine and Toxicology, Seth GS Medical College and KEM Hospital, Mumbai

Dr. Hemlata Pandey is an Assistant Professor, Forensic Odontology Consultant at the Department of Forensic Medicine and Toxicology at Seth GS Medical College and KEM Hospital in Mumbai (India). She is the first in India to have established a forensic odontology and human identification laboratory at a government autopsy centre. She has done BDS (India), MSc. in Forensic Odontology (Wales, UK), LLB from India, Diploma in Forensic Human Identification (London, UK) and a PhD Scholar. She is also trained in International Humanitarian Law and the Criminal Justice system. She is the first in India to have been involved in the DVI team as a forensic odontologist and was involved with disaster response team for Plane Crash Incident at Air India Express Flight 1344, Kerala 2020; Chartered Plane Crash Ghatkopar, Mumbai, 2018; and Crystal Towers Fire, 2018. She provides expertise at the request of the State Police and Central Bureau of Investigation in Courts in India. She is the Chief Faculty of the Indian Board of Forensic Odontology, Chief Faculty-Forensic Odontology Section of the Indian Dental Association, and Faculty in several Postgraduate courses. She is Visiting Faculty of the State Police Academy and Police Training School in Maharashtra, India. She is Visiting Professor at the University of Turin, Italy and Honorary Professor at D Y Patil University. She is President of Association Forensic Odontology for Human Rights (AFOHR), Executive Committee member of the Indian Association of Forensic Odontology (IAFO), Member, American Society of Forensic Odontology (ASFO), Member, Indo-Pacific Academy of Forensic Odontology. She is also a TEDx speaker, Recipient of the Mid-day Young Achiever Icon Award and Maharashtra State Police Nari Shakti Award.

FORENSIC ASPECT IN CLINICAL PRACTICE

PROF. MOHAMMED NASIMUL ISLAM

Professor | Faculty of Legal Medicine, Universiti Technologi MARA, Malaysia

As a forensic pathologist, Prof. Mohammed Nasimul Islam had worked for Bangladesh, Japan, and the United Nations assigned to Samoa. He is currently working in UiTM in Malaysia and is active in research mainly on sudden unexpected death, cardiac pathology, drug abuses, crimes, and sexual offenses. He has published 72 national and international scientific articles to his name. He is the current Executive Council member of the INPALMS and INPAFO. Besides this, he has been acting as executive editor, editor, and reviewer of national and international journals.

ADVANCEMENT IN FORENSIC PATHOLOGY AND ANTHROPOLOGY

DR. EVI UNTORO

Lecturer and Head | Faculty of Medicine, Dept. of Forensic MedicoLegal & Sciences, University of Trisakti, Indonesia

Dr. Evi Untoro, is a member of the INDONESIAN National DVI Team (since 2007), INDONESIAN BANTEN Province DVI Team (since 2016), The Advisory Team in Forensic Pathology, and Forensic Anthropology SubWorkingGroup in INTERPOL DVI Team (since 2017). Right now she has the position of the Vice President Indonesian Region on INPALMS (Indo Pacific Associations of Law, Medicine, and Science) since 2013, the Member of APMLA (Asia Pacific Medico-Legal Agency) since 2013, IALM (International Academy of Legal Medicine) since 2011, AFOHR (Association of Forensic Odontology for Human Rights) Board Member 2019. She has written some articles and publications as well as forensic books, and researches in the Forensic DNA Database of Indonesian and Asian (publications on Elsevier 2009 on Allele Frequency of CODIS 13 of Indonesian DNA Database). She has 5 years of experience (2005-2010) in the Identification of the Japanese Soldiers Human Remains of World War II victims of MIA (Missing in Action) in Papua and Makassar, Indonesia with the permission and invitation of the Japanese Government and Japanese Embassy in Indonesia which added more knowledge and skills of performance in forensic works. She was involved in managing many Disasters in Indonesia (Natural and Un-Natural) and took the joint training on DVI in several abroad countries using the DVI INTERPOL Guide as International Standards.

OPERATION MAGNUM: THE FIRST USE OF FAMILIAL DNA SEARCHING TO CONVICT A MURDERER

DR. ROBERT GREEN OBE

Reader in Forensic Science | Chemistry and Forensic Science, University of Kent

Dr. Robert Green, Bob, is currently a Reader in Forensic Science and the Director of Student Engagement within the School of Physical Sciences at the University of Kent, UK, and teaches extensively in the forensic science program within the school. Before joining the University, he worked in Research and Service Development at the Forensic Science Service. He led the Science and Technology Unit within the Police Standards Unit at the UK Home Office. He is well known for developing and leading the national cold case rape investigation program – Operation Advance, and being a national and international speaker on the development of DNA and other biometric databases. He has managed several national and international projects throughout his career, namely CCTV, street crime, and homicide reduction initiatives, to ensure the most effective use of technology to combat crime. He was made an OBE in the Queen & Birthday Honours list of 2008 for his services to forensic science. Over 34 years, he has led many consultancies both in the UK and abroad, dealing with science, technology and how we maximize our business processes to get the best from the investment in science. He is the keynote speaker at the 2021 International Association of Scientists and Researchers on the forensic applications of DNA.

CHALLENGES AND EMERGING TECHNOLOGY IN FIREARM AND TOOLMARK IDENTIFICATION

RONALD NICHOLS

Firearm and Tool mark Examiner and Consultant | Nichols Forensic Science Consulting

Ronald Nichols has 28+ years of experience as a firearm and toolmark examiner at the local and federal levels in accredited laboratories. He has several publications routinely referenced in published court decisions with respect to Daubert and Frye evidentiary hearings. He has testified in over 100 criminal cases and evidentiary hearings involving firearm and tool mark evidence at the state and federal levels. He brings 17+ years of experience developing training curricula, modules and workshops and providing training in various national and international venues for new and experienced examiners and technicians. With his expertise and training in ISO/IEC 17025 and ISO/IEC 17020, he is one of the primary architects of the successful redesign of a nationwide ballistic information network. Most recently he has authored Firearm and Toolmark Identification: The Scientific Reliability of the Forensic Science Discipline available through Academic Press and Building a Preventive Crime Gun Strategy available through Ultra Electronics Forensic Technology.

BE CAREFUL WHAT YOU WISH FOR - IS SCIENCE TAKING OVER THE ART OF CRIME SCENE INVESTIGATION?

WILL DODDS

Sergeant in charge, Forensics Unit | Saanich Police Department in Victoria, British Columbia, Canada

Will Dodds is the Sergeant in charge of the forensics unit at his police department in Victoria, British Columbia, Canada. He has been working in the field of forensics and collision investigation for 17 years. He worked as Head Coach and Coordinator of the Canadian National Junior Rowing Team in Rowing Canada Aviron. He has an experience of almost 7 years in the field of teaching. He is a certified Municipal Constable in the Police Academy and graduated from the Justice Institute of British Columbia. He has obtained Level IV Professional Coaches Certification for Rowing Canada Aviron. He served as the President of the Saanich Lacrosse Association (from 2010 to 2016). He has numerous publications under his name in several National and International journals.

WILDLIFE FORENSICS: CHALLENGES AND THE WAY FORWARD

PROF. RAJINDER SINGH CHANDEL

Professor | Department of Forensic Science, Punjabi University, Patiala

Prof. Rajinder Singh Chandel is currently working as a Professor at the Department of Forensic Science, Punjabi University, Patiala. He has a total of 19 years of teaching experience. He completed his Ph.D. in Forensic Science in the year 2008 and M.Sc. in Forensic Science in the year 2001 from Punjabi University, Patiala where he was the gold medalist. He is also a Visiting Professor at Xi'an Jiaotong University, Shaanxi, China since 2016. He was the Chair Professor at East China University of Political Science and Law at Shanghai, China from 2017 to 2020. He is a Visiting Faculty at LNJN-NICFS, MHA, New Delhi, Vice President at Indo-Pacific Academy of Forensic Odontology (INPAFO) as well a Resource Person in many conferences/symposia/workshops of national and international repute. He has taken membership of the Advisory Board of "The Silk Road Forensic Consortium (SRFC), Xi'an, Shaanxi, China and was a member of the International Scientific Program Committee of the 23rd Annual Congress of the World Association for Medical Law, 50th Golden Anniversary Meeting, "Medical Law, Bioethics and Multiculturalism" at Baku, Azerbaijan in the year 2017. Moreover, he has published about 72 research papers, 04 book chapters and 01 book.

DIGITAL CRIMES IN THE METAVERSE ECOSYSTEM

SANJAY SAHAY

Former IPS, Founder and Director | TechConPro Pvt Ltd, Bangalore

Sanjay Sahay is the Founder and Director TechConPro Pvt Ltd, Bangalore. He has 20+ years of experience in the Tech field, including Cyber Security, Network Security, Cyber Audits, Cyber Safety and Awareness, ERP, Video Surveillance, Cyber Technical Advisory, Data Center and Networking. He is a well-recognized Cyber Security expert in the country, delivering dozens of lectures on all well-established forums and institutions in the country, from IITs, and IIMs, to FICCI, CII, eGov India, and Express Technology Sabha. He is also the Founder and Mentor of the Center for CCTV Research. He is an Ex. IPS, ADGP, Karnataka, and therefore, has accomplished high professionalism in wide and varied professional assignments. He got groomed and refined into an officer who has 360 degrees of experience in all policing tasks, simultaneously maintaining a keen interest in all staff functions and a passion for using appropriate technology in policing at all levels and in all fields. He has done various projects like CCTV Project for Bangalore Central Business District, Camera and Integration for Mobile Command and Control Vehicle for Hubli and Dharwad, Installation of CCTV cameras for the police stations in Karnataka and Mangalore coastal area. He is instrumental in creating the first cyber crime police station, CID, Bangalore, Karnataka. He was also consulted on Bangalore City Nirbhaya Project in the initial stages.

FORENSIC INTERFACE IN THE INVESTIGATION OF LWE (LEFT WING EXTREMISM) CASES: EXPERIENCE THEREOF

KESHAV KUMAR

Former IPS, Retired Director General of Police
Director Anti-Corruption Bureau, Gujarat

Keshav Kumar, Former IPS is the Retired Director General of Police & Director Anti Corruption Bureau, Gujarat, India. He has been in the active Police Service for 35 years and has retired from the Indian Police Service in April 2021. He has specialized in the application of Forensics in Crime investigation and has been able to get a conviction for 58 people solely based on Forensic application during the investigations through the latest Scientific Aids and tools. He is one of India's most respected police officers, and his forte lies in the application of forensics and the usage of new investigative techniques and tools in crime investigation. He was the police officer investigating the poaching of 10 Asiatic lions in early 2007 at the Gir National Park in Gujarat. While investigating the Lion Poaching case of Gir Sanctuary in Gujarat, he stumbled upon a new area and created a new domain in Wildlife Crime Investigation. The new area was recognised by WWF Expert Shri Samir Sinha, IFS. He christened the area as, "Use of Conventional Forensics in Wildlife Crime Investigation". 4.68/5 was the Interpol (Environmental Crime Division) rating of his presentation on this issue. For his unstinting service to the nation, he was presented with the President's Police Medal for Distinguished Service on Independence Day, 2012. He was also responsible for the creation of the CID Wildlife Crime Cell.
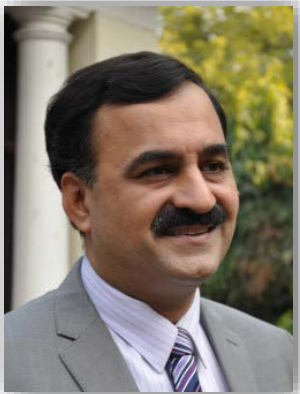
GLOBAL CYBER LAW TRENDS

DR. PAVAN DUGGAL

Advocate, Supreme Court of India | Chairman, International
Commission on Cyber Security Law

Dr. Pavan Duggal has been practicing as an advocate for the Supreme Court of India for over two decades and has made an immense impact in the unfolding fields of Cyberlaw and laws related to E-Commerce. He is the Founder & Chairman of the International Commission on Cyber Security Law. He is also the President of Cyberlaws.Net and has been working in the pioneering area of Cyber Law, Cyber Security Law & Mobile Law. He has been acknowledged as one of the top 4 Cyber Lawyers worldwide. He is the President of Cyberlaw Asia, Asia's pioneering organization committed to passing dynamic cyber laws on the Asian continent. He is also a member of the WIPO Arbitration and Mediation Center Panel of Neutrals. He has spoken at over 2000 Conferences, Seminars and Workshops in the last two decades and has lectured extensively in select Law Colleges. As a writer, he has made his mark with 154 Books on various aspects of the law in the last 20 years. For almost a decade, he had contributed a continuing weekly column on diverse aspects of the law, titled 'Brief Cases' to the Economic Times.

CONTEMPORARY METHODS OF INVESTIGATIONS OF CRIMES RELATED TO FIREARMS AND AMMUNITIONS

DR. RAJESH BABU

Associate Professor, School of Forensic Science, National Forensic Sciences University, Gujarat

Dr. Rajesh Babu joined National Forensic Sciences University as Assistant Professor from 2009 to 2019 and currently, he is working as Associate Professor in the School of Forensic Science and Head of the International Centre for Humanitarian Forensics at NFSU. He has developed a curriculum of Humanitarian Forensics in association with the ICRC experts. He has been involved in professional training in the field of contemporary forensic sciences with the advanced techniques in criminal identification to the police officers of India and other nations such as Nepal, Myanmar, Bangladesh, Iraq, Sri Lanka, Ghana, Uganda, Ethiopia, Belarus and many other nations in South East Asia and Africa. He has been involved in teaching with ardent professionalism and cutting edge research in the core forensic science areas since September 1996 (almost 26 years). He has designed and developed the curriculum for Forensic Nursing. Forensic Accounting, Forensic Odontology with the diploma and postgraduate degree programs. He has also developed curriculum in humanitarian Forensic in association with the ICRC. He has been conducting guest lectures for the officers of NIA, CBI and the NPA. He has been involved in cutting edge research with the DST funded projects (hard armoured panel materials and nano-technology based armour materials). He is currently posted/deputed to Namibian Police by the Ministry of External Affairs, Govt. of India for developing and capacity building forensic expertise for the Namibian Police Force.

PREDICTING NEXT 10 CHALLENGES AWAITING DIGITAL FORENSICS GOING FORWARD

DR. GAURAV GUPTA

Additional Director / Scientist 'E' at Ministry of Electronics & Information Technology (MeitY)

Dr. Gaurav Gupta is currently working as an Additional Director / Scientist 'E' at Ministry of Electronics & Information Technology (MeitY). He is the first in country to be awarded Ph.D. in the area of Digital Forensics on the topic 'Study On Digital Forensics For Detection Of Computer Frauds And Cyber Crimes' in the Department of Computer Science and Engineering, Jadavpur University, Kolkata in 2009. He has been awarded ISCA Young Scientist Award from Dr. A P J Abdul Kalam Sir in 2010 for his work in Digitized Document Fraud Detection. Currently, he has more than 18 years of research experience in the field of Digital Forensics to detect computer frauds and cyber-crimes. He has developed scalable and efficient solutions for "Detection of Computer Frauds and Cyber Crimes". His research interests include development of efficient, low cost portable digital forensic solutions. He worked on Self Authenticating Documents, Document fraud detection, privacy preserving efficient digital forensic investigation, next generation Color QR codes with 3 to 4 time of storage capacity. Prior to joining KPMG, he has worked with Directorate of Forensic Science, Hyderabad. He was responsible for identifying and developing methodologies/solutions for key issues facing digital forensics to investigate computer frauds.

TECHNOLOGIES FOR DETECTION OF DECEPTION

DR. RUPAALI ANDALURI
Senior Scientific Officer-I at CFSL/CBI New Delhi

Dr. Rupaali Andaluri is currently working as Senior Scientific Officer-I at CFSL/CBI New Delhi. She has done Masters in criminology and Forensic Science from Dr Harisingh Good, Sagar University. She has done PhD in Polygraph and PG Diploma in Psychological Counseling. She is a Certified examiner for Brain fingerprinting and Layered voice analysis technique. She has worked as Faculty at Sagar Police Academy, as a Counselor in Mahilaa thana and Army School. She is working with Central Forensic Science Laboratory since 11 years.

THE VALUE OF CYBER THREAT INTELLIGENCE FOR THE DIGITAL FOOTPRINT

PROF. JOHN WALKER
Principle at Shadow-Intelligence (Si)

John is the Principle at Shadow-Intelligence (Si), partnering with PALISCOPE, BreachAware and iStorage. He is a Visiting Professor at the School of Science and Technology, Nottingham, Trent University (NTU) and holds the appointment of Editor in Chief for the International Journal of Cyber Forensics and Advanced Threat Investigations (CFATI). For the last decade, he has delivered training courses in the Middle, and Far East to Commercial, Industrial, Financial Services sectors, and Military Agencies, including the UAE, US, Pakistan, Saudi Arabia, Malaysia (KL), Singapore, Argentina, and Sao Paulo. He served in the Royal Air Force for 22 years, specialising in Counterintelligence, working with UK Agencies such as GCHQ/CESG, and others in the fields of SIGINT, COMINT and Satellite Communications, holding appointments such as System ITSO for a CIA SCIF. In the commercial sectors of IT/Cyber he has worked for/with Logica, Bae, T5, GM, Experian, Betfair, Palace of Westminster, House of Lords/Commons, TSol (Treasury Solicitors) and provided Consultancy to the Saudi Arabian MOD, TRA (Telecommunications Authority (Dubai) and the Military Academy of Malaysia (KL) on SOC, CSIRT, Digital Forensics and OSINT. Within the last 5 years, he has focused on Geopolitics, with global expertise around the UAE and Russia, Anti-Terrorist Operations (ATO), Cyber-Warfare, Dezinformatsiya (Disinformation) and Maskirovka (Military Deception).

ESTEEMED CHAIRPERSONS

26TH AUGUST 2022 KEYNOTE TALK	27TH AUGUST 2022 KEYNOTE TALK	28TH AUGUST 2022 KEYNOTE TALK
Dr. Harsh Sharma Retired Director, State Forensic Science Laboratory, Madhya Pradesh	**Prof. (Dr.) Mukesh Yadav** President, IAFM, Rani Durgavati Medical College, Banda, Uttar Pradesh	**Omveer Singh** Former Director/ Scientist 'F', Ministry of Electronics & Information Technology, New Delhi
Ma Teresa G de Guzman, PhD University of the Philippines, Manila, Philippines	**Prof. Mukesh Kumar Thakar** Former Deputy Director, Retired Director, ISSM, Rashtriya Raksha University, Gujarat	**Lt. Gen. Arun Kumar Sahni PVSM, UYSM, SM, VSM** Former General Officer Commanding in Chief, Indian Army
K. V. Ravi Kumar Former Deputy Director, Retired Director, ISSM, Rashtriya Raksha University, Gujarat	**Dr. Rakesh Kumar Gorea** Department of Forensic Medicine, Gian Sagar Medical College & Hospital, Ram Nagar	**Dr. Shubhra Sanyal** Retired Senior Reader, LNJN NICFS, New Delhi
Dr. Arun Sharma State Forensic Science Laboratory, Himachal Pradesh	**Dr. Vijay Arora** Department of Forensic Medicine, Dr. Rajendra Prasad Government Medical College, Himachal Pradesh	**Sh. Nilendu Bikash Bardhan** Former Director, CFSL, CBI, New Delhi

PLENARY TALK	PLENARY TALK	PLENARY TALK
Prof. Komal Saini Department of Forensic Science, Punjabi University, Patiala	**Dr. Madhulika Sharma** Former Director, Forensic Science Laboratory, Delhi	**Santosh Khadsare** DFIR & Expert Witness
Arun Sharma State Forensic Science Laboratory, Lucknow	**Prof. (Dr.) Akhilesh Pathak** Department of Forensic Medicine and Toxicology, All India Institute of Medical Sciences, Bathinda, Punjab	**Dr. N.P. Waghmare** Director, Forensic Science Laboratory, Goa
Dr. Rakhi Khanna State Forensic Science Laboratory, Kota, Forensic Training & Research Institute, Jaipur	**Dr. Jayasankar P. Pillai** Department of Oral Pathology, Government Dental College and Hospital, Ahmedabad, Gujarat	**Dr. Rajiv Pandey** Amity Institute of Information Technology, Amity University, Lucknow
	Dr. Prateek Rastogi Department of Forensic Medicine, Kasturba Medical College, Mangalore, Karnataka	**Prince Boonlia** Editor-in-Chief, Digital 4n6 Journal, Udaipur

ESTEEMED PANEL OF JURY MEMBERS

PROFESSIONAL PAPER PRESENTATIONS

- **Dr. Neeti Kapoor** Government Institute of Forensic Science, Nagpur
- **Dr. Kapil Kumar** Gujarat University, Ahmedabad
- **Dr. Ritesh Shukla** School of Arts & Sciences, Ahmedabad University, Ahmedabad
- **Dr. Jeyaseelan Augustine** Maulana Azad Institute of Dental Sciences, MAMC, Delhi
- **Dr. Parul Khare Sinha** School of Dental Sciences, Sharda University, Noida
- **Dr. Gunvanti Rathod** All India Institute of Medical Sciences, Bibinagar
- **Dr. Mohineesh Chandra** State Forensic Science Laboratory, Rohini
- **Prof. (Dr.) Bharath Kumar Guntheti** Mamata Medical College, Telangana
- **Mebin Wilson Thomas** Jain (Deemed-to-be University), Bengaluru
- **Heena Goswami** Gujarat National Law University, Gujarat

PROFESSIONAL POSTER PRESENTATIONS

- **Dr. Ankit Srivastava** The West Bengal National University of Juridical Sciences, Kolkata
- **Dr. Richa Rohatgi** LNJN NICFS, NFSU Delhi Campus, New Delhi

STUDENT PAPER PRESENTATIONS

- **Vinny Sharma** Galgotias University, Greater Noida
- **Dr. Priyanka Singh** Amity Institute of Forensic Science, Amity University, Noida
- **Dr. Ashish Badiye** Government Institute of Forensic Science, Nagpur
- **Dr. Uttara Deshpande** Dental Surgeon, DentoUPanishad Dental Clinic and Implant Centre, Pune
- **Dr. Abirami Arthanari** Saveetha Dental College and Hospitals, SIMATS, Saveetha University, Chennai

STUDENT POSTER PRESENTATION

- **Dr. Pooja Puri** Amity Institute of Forensic Science, Amity University, Noida
- **Dr. J. James Rajesh** Velammal Medical College Hospital and Research Institute, Madurai
- **Dr. Sudhir Yadav** Guru Ghasidas Central University, Bilaspur
- **Dr. Yadukul S.** All India Institute of Medical Sciences, Hyderabad
- **Dr. Vindresh Mishra** Central Forensic Science Laboratory, DFSS, Ministry of Home Affairs, GOI, Kolkata

Conference Proceedings

WINNERS!

SCIENTIFIC PRESENTATIONS

Professional Paper Presentations

🏆 **LOVEPREET KAUR | VERNIKA MEHTA | DR. CHANDRAKALA GADIGE | BHARTI JAIN**

🏆 **DR SMITHA RANI | PROF. T. NATARAJA MOORTHY | DR SHOBOROSE TANTRAY DR. NAVEEN SHARMA | MANIKA GUPTA**

Professional Poster Presentations

🏆 **DR. PANKAJ CHHIKARA**

🏆 **TINKY SAINI**

Student Paper Presentations

🏆 **K. HEMANTH SAI REDDY | AMALA JOSE**

🏆 **DR. SANGRAM SINGH YADAV | DR. VIKAS VERMA**

Student Poster Presentations

🏆 **M.S. RAMYA SURESH | DR. RISHI RAJINDRAN | SHELLA MORINA**

🏆 **NEHA KANNAN | VERNANDO PARLINDUNGAN | DR. MONIKA**

PAPER PRESENTATION (PROFESSIONAL CATEGORY)

∨ **IASR/11/PPA01 | SHUBHAM SAINI**
Age Identification of Blackbuck from their Pugmarks Using Deep CNN Architects

∨ **IASR/11/PPA02 | JASWINDER SINGH**
Qualitative Analysis of Fingermark Patterns in One of the North Indian State

∨ **IASR/11/PPA03 | PROF. T. NATARAJA MOORTHY**
Crime Concealment Act and Crime Scene Confusion. Forensic Way of Solvation - Crime Scene Investigation Report

∨ **IASR/11/PPA04 | SAMIKSHA DAS**
Understanding the Authenticity of Eyewitness Recall Using Neuro Signature Profiling

∨ **IASR/11/PPA05 | JYOTI GULLAIYA**
Efficiency of Honey in Tissue Preservation

∨ **IASR/11/PPA06 | ARCHANA ZALA**
Dendrimer: Sensing Platforms for Mycotoxins

∨ **IASR/11/PPA07 | SHEFALI ANAND**
Microbial Forensics: A New Breakthrough in Forensic Investigations

∨ **IASR/11/PPA08 | VERNIKA MEHTA**
Examination of Mimic Voices: A Forensic Prospect

∨ **IASR/11/PPA09 | RUCHITA RATHI**
Examination of Carcinogens Present in Dyed and Printed Textile Fabrics

∨ **IASR/11/PPA10 |HIMALI UPADHYAY**
Calixarene: A New Approach for Spotting Explosives

∨ **IASR/11/PPA11 | DR SMITHA RANI**
Significance of Death Scene Investigation by Forensic Medicine Expert: A Case Report

∨ **IASR/21/PPA01 | DR. S. PRAVEEN**
Reconstructive Post- Mortem Dental Profiling

∨ **IASR/21/PPA02 | DR. PRITI D DESAI**
A Review on Dental Autopsy

∨ **IASR/21/PPA03 | EMEL AKPOLAT**
The Reconstruction of an Anatomic Case of Hydrocephalus, Cleft Palate, Lip and Joint Contractures in a Byzantine Woman from Konya, Turkey

∨ **IASR/21/PPA04 | DR. SHOBOROSE TANTRAY**
DNA Extraction and Sex Determination from Teeth by Subjecting it to Various Chemical Solutions: A Guide in Forensic Identification

IASR/21/PPA05 | LOVEPREET KAUR

Personal Identification from the Facial Features by using Harris Detector

IASR/21/PPA06 | DR. ARJUN KUNDU

A Review on Forensic Facial Reconstruction Techniques

IASR/22/PPA01 | RICHA GUPTA

Mutilated and Skeletonised Dead Bodies Post-mortem Examination: Challenges and Need of Advanced Forensic Technologies - A Case Series Report

IASR/22/PPA02 | DR. ALEMAYEHU SHIFERAW LEMA

Accuracy of Medical Certification of Cause of Death- Discrepancies between Clinical and Autopsy Diagnosis

IASR/22/PPA03 | G V SAI SOUMYA

Estimation of Post Mortem Interval by using Histological Analysis - A Review

IASR/22/PPA04 | DR. PRAKASH MANICKAM KUMARASAMY

Investigation to Improve Cleaning Procedure on Post-Mortem Table from Cross Contamination

IASR/22/PPA05 | DR. NAVEEN SHARMA

Asphyxial Injuries in a Neonate: A Case Report

IASR/22/PPA06 | DR. SUNDEEP INGALE

Forensic Radiology – New Advent in Application of 3D Imaging Techniques in Forensic Medicine

IASR/22/PPA08 | DR. CHANDRAKALA GADIGE

A rare case of bilateral symmetrical Temporo-parietal Extradural Hematoma in Road Traffic Accidents

IASR/22/PPA09 | POOJA MENON

A Forensic Serological Study of Degradation on Immunogenic Properties in Blood Stains

IASR/31/PPA01 | BHARTI JAIN

Filter Paper Based Colorimetric Strip for Determination of Aspirin and Salicylic Acid Exploiting Digital Image Colorimetry (DIC) Coupled with Dispersive Liquid Liquid Microextraction (DLLME)

IASR/31/PPA02 | PRAVESH CHARAN ISAI

Impact of Artificial Intelligence in Investigative Psychology Domain: An Approach in Neurocognitive Setup

IASR/31/PPA03 | MEENAKSHI BHARDWAJ

Understanding the Psychology of Terrorism through Profiling of Terrorists- Case Studies

IASR/31/PPA04 | BETA AHLAM GIZELA

Child Abuse Cases: comparing before and during the Covid-19 Pandemic

IASR/31/PPA05 | SHEBA JOHN

Effect of Structured Teaching Programme on Knowledge Regarding Child Sexual Abuse and its Prevention Among Mothers of School Children

IASR/31/PPA06 | NAMRATA DHADNEKAR
Insights into applications of Azo Dyes in Forensics Sciences

IASR/22/PPA07 | MANIKA GUPTA
Antibodies Modified Screen Printed Electrodes Functionalised with Gold Nanoparticles for Electrochemical Detection of Morphine

POSTER PRESENTATION (PROFESSIONAL CATEGORY)

IASR/31/PPO01 | S.SELENGE
Signs to Detect Counterfeits: In Practice of Mongolia

IASR/31/PPO02 | USHA SISODIA
Effect of Temperature and Diet on different species of Blowflies: Review

IASR/31/PPO03 | DR. PANKAJ CHHIKARA
The Evolution of Medical Termination of Pregnancy Act: Then & Now

IASR/31/PPO04 | TINKY SAINI
Forensic Examination of Hand-printed writing- A Review

PAPER PRESENTATION (STUDENT CATEGORY)

IASR/12/PA01 | DIVYASHREE N R
Organophosphate poisoning – Medico-Legal Overview

IASR/12/PA02 | TISHA R. RAMTEKE
Entomology

IASR/12/PA03 | DR. ATTAM PRAKASH
Cheiloscopy - A Tool for Identification

IASR/12/PA04 | K. HEMANTH SAI REDDY
Forensic Psychological Investigative Technique's in India: Their Status as aid in Investigation and as Corroborative Evidence – as seen from Judgements

IASR/12/PA05 | MANSHI DASH
A Comparative Study of Natural Variation Seen in Signatures Done on the Paper and on the Electrical Pad/Application

IASR/12/PA06 | ADARSH TIWARI
The Profiling of RNA Degradation for Estimation of Post Mortem Interval in Animal Model

IASR/12/PA07 | SHRIYA MEHTA
How to Handle Accidental Defrosting in Forensic Laboratories?

IASR/12/PA08 | ROHITH KRISHNA

A Novel Paper-based Microfluidic Device and UV-Visible Spectroscopy Coupled Method for the Field Detection and Analysis of Seized Marijuana Samples

IASR/12/PA09 | MAULI S. KHURD

The Emission Rate and Effects of VOC in Paints: A Systematic Review

IASR/12/PA10 | DR SANGRAM SINGH YADAV

Pink Teeth, A Phenomenon in Homicidal Asphyxial Death: A Case Report

IASR/12/PA11 | PAYAL DHANWANI

Role of Forensic Psychology in the Criminal Justice System

IASR/21/SPA01 | DR. RAHUL KAUSHIK

Forensic Odontology and its Medico Legal Significance

IASR/21/SPA02 | DR. ASHISH TYAGI

Transplantation of Human Organs Act

IASR/21/SPA03 | DR. VIKAS VERMA

The Criminal Procedure (Identification) Bill, 2022

IASR/21/SPA04 | AMALA JOSE CHIRAYATH ALUKKAL

A Study on Fingerprint Pores for Determination of Gender

IASR/21/SPA05 | NANDITHA NANDAKUMAR

Molecular Genetic Analysis to Differentiate Monozygotic Twins for Forensic Caseworks

POSTER PRESENTATION (STUDENT CATEGORY)

IASR/21/SPO01 | DR. PRITI SINGH

Accessory Hyoid Bone with Completely Calcified Stylohyoid Ligament – A Rare Case Report

IASR/21/SPO02 | NEHA KANNAN

Recent Advances in Forensic Odontology and its Implications in Mass Fatalities

IASR/21/SPO03 | N. FAZULUNNISA BEGUM

Right Analysis of Wrong Abuse in Forensic Odontology

IASR/21/SPO04 | M. S. RAMYA SURESH

Forensic Facial Reconstruction

IASR/21/SPO05 | P. DEEKSHEETHA

Recent Advances in Digital Forensics

IASR/31/SPO01 | DHARINI. S

Advancements in Crime Scene Investigation Techniques

PAPER PRESENTATION PROFESSIONAL CATEGORY

AGE IDENTIFICATION OF BLACKBUCK FROM THEIR PUGMARKS USING DEEP CNN ARCHITECTS

Shubham Saini[1], Saurabh Shukla[2], Prashant Singh Rana[3], Jaskaran Singh[4]

[1]Research Scholars, Department of Forensic Science, School of Bio engineering and Bio Sciences, Lovely Professional University, Phagwara, Punjab

[2]Asst. Professor, Department of Forensic Science, School of Bio engineering and Bio sciences, Lovely Professional University, Phagwara, Punjab

[3]Associate Professor, Computer Science & Engg Department, Thapar Institute of Engg & Tech, Patiala, Punjab

[4]Associate Professor, Department of Forensic Science, University Institute of Applied Health, Sciences, Chandigarh University, Mohali, Punjab

Abstract

Wildlife forensics is the application of forensic science which help in solving wildlife crimes. Wildlife crimes are increasing day by day which causes the extinction of wildlife. Blackbuck is antelope species that is killed for its body parts and meat. Blackbuck is a protected animal under schedule 1 of the wildlife protection act 1982. To protect them we need advanced monitoring methods. In this study, we used blackbuck pugmarks to identify their age group by using advanced deep learning classification techniques. Methodology: The pugmarks samples of blackbuck were collected from Abohar wildlife sanctuary and Deer safari Chhatbir zoo. We used six pre-trained deep learning architectures on RGB images, but the results were not satisfying due to environmental noises in the image's background. Then we annotate the pugmarks images and generate binary masks of images and made a 6-layer PugNet model. Result: In this study, we come up with a noble PugNet model which is made up of only 6 layers and is very light as compared to the existing state-of-the-art architectures. The advantage of having only 6 layers is that it yields very fast and accurate results. The overall accuracy of the PugNet model was very high i.e., 65% as compared to the pre-trained CNN architectures. Conclusion: The accuracy of the PugNet model will be increased by adding a greater number of pugmarks samples. Artificial intelligence is emerging in the field of wildlife conservation, and it helps in identifying animals automatically by using different means. The advantage of using AI is it reduces manpower and reaches different areas in the wild without disturbing the natural habitat of wildlife.

Keywords: Blackbuck, Pugmarks, Wildlife, PugNet, Deep CNN, Architectures

QUALITATIVE ANALYSIS OF FINGERMARK PATTERNS IN ONE OF THE NORTH INDIAN STATE

Jaswinder Singh[1], Mukesh Kumar Thakar[2], Husanpreet Kaur[3]

[1]Assistant Professor, Department of Distance Education, Punjabi University, Patiala

[2]Professor, Department of Forensic Science, Punjabi University, Patiala.

[3]M.Sc. student, Department of Forensic Science, Punjabi University, Patiala

Abstract

Fingerprints, because of their uniqueness and persistence, used worldwide for personal identification and have become an infallible tool for investigators in both civil and criminal cases. In 1892, Inspector Eduardo Alvarez who was trained by Vucetich used fingerprint for the first time in criminal trail to solve a murder case of two children of a woman in Buenos Aires (Szczepański, 2019). Then onward finger print has consistently been used as evidence for personal identification. Kuken et al observed in 2005 that fingerprints cannot be duplicated and are immutable as they are formed by buckling instability in basal cell layer of embryo. Number of authors have worked on fingerprints to study the Dermatoglyphics of different populations and ethnic groups across the world (Kanchan and Chattopadhyay,2006; Ekanem et al., 2009; Nithin et al., 2009; Nanakorn et al.,2013; Kapoor and Badiye, 2015; Bansal et al., 2014; Koneru et al., 2014; Karki and Singh, 2014 and Gupta and Shah,2019). But very little data is available related to the fingerprint pattern types present in the Jat Sikh populations of Punjab. Therefore, it was thought desirable to undertake the study the dermatoglyphics of Jat Sikh population residing in Punjab. In the present study, rolled distal fingermarks were collected from 200 individuals (97 females and 103 males) belonging to Jat Sikh population and studied to determine the pattern types and their frequency. Different population groups have different finger mark pattern type distribution all over the world. In the present study, frequency of occurrence of fingerprint patterns was observed and calculated. The frequency of ulnar loops was found to maximum, followed by whorls pattern, central pocket loop, radial loop, plain arch, twinned loop, lateral pocket loop and minimum in tented arch.

Keywords: Jat Sikh, North Indian Population, Fingerprints, Fingermarks, Pattern Distribution, Dermatoglyphics.

CRIME CONCEALMENT ACT AND CRIME SCENE CONFUSION. FORENSIC WAY OF SOLVATION - CRIME SCENE INVESTIGATION REPORT

Prof. T. Nataraja Moorthy[1]

[1]Professor of Forensic Sciences, Management and Science, University, Malaysia, Formerly Government Forensic Crime Scene Investigator, India

Abstract

Concealment is an act of intentionally or unintentionally not revealing information. The concealment of the dead body following homicide undermines different moments of the forensic investigations. Assailants are very keen in concealing the crime by different methods. In order to destroy crucial evidence of a murder and/or to delay or avoid the discovery of the corpse, perpetrators may hide or destroy the body of their victim, or part of it, after the homicide. In the forensic literature, several disposal methods have been described, starting from simple abandonment in an isolated area, with or without a covering or wrapping of the body (grade 1), followed by burial and dumping in water (grade 2), bricking up or embedding in concrete, dismemberment, feeding to animals, and burning (Grade 3). In cases of submerged victims or of higher grades of concealment (e.g., burned corpses), the distinction among ante- mortem and post-mortem lesions can be very challenging. Death Scene Investigation (DSI) needs keen observation and a complete photographic documentation with inventorying of clothing and personal objects could be also the means of a positive identification. I am herewith presenting selected "crime concealment cases" as involved in the investigation during my forensic career, India and also share the knowledge of crime concealment incidents reported during my academic career, Malaysia.

Keywords: Concealment, Death Scene Investigation, Embedding, Homicide, Photographic Documentation.

UNDERSTANDING THE AUTHENTICITY OF EYEWITNESS RECALL USING NEURO SIGNATURE PROFILING

Samiksha Das[1], Dr. Priyanka Kacker[2]

[1]M.Phil. Scholar, National Forensic Sciences University, Sector 9, Gandhinagar, Gujarat

[2]Senior Assistant Professor, National Forensic Sciences University, Sector 9, Gandhinagar, Gujarat

Abstract

Research convincingly depicts that memory is malleable and eyewitness misidentifications are the well-known factor for the wrongful convictions of innocents in many cases. Countering this, there has been research showing eyewitness recall can be reliable if kept uncontaminated. However, in this era of delayed trial proceedings, memory adulteration is inevitable. Application of neuro signature profiling to detect the genuininty of eye-witness recall who has been exposed to repeated post event misleading information has been nearly absent. In the backdrop of an extensive research on the debate to categorize eye-witness recall as a reliable or unreliable source of evidence in court, this study aimed to understand the authenticity of eye-witness recall using the neuro signature profiling. There were two objectives set for the study. First, to understand the effect of leading questions on the number of Experiential Knowledge and second, to understand the effect of leading questions along with negative feedbacks on the number of experiential knowledge. The sample consists of 60 participants with matched cognitive flexibility and response inhibition. Each participants underwent two sessions of BEOS Profiling after getting exposed to a real-life simulation with a time gap of 15 days. The Encoding++ & Experiential Knowledge generated in each session were analyzed using SPSS software. Conceptualizing the findings, it was found that there is no significant difference between the EK generated in pre-test conditions and post-test conditions in the three groups. Indicating that the repeated exposure of leading questions and negative feedback were not able to alter the BEOS readings. Therefore, this study advocates that the original account of the event of crime can be extracted even after being exposed to misleading informations post the event using Neuro Signature Profiling.

Keywords: Authenticity, Eye-witness Recall, Neuro signature Profiling, BEOS Profiling, Misleading Information, Real-Life Simulation.

EFFICIENCY OF HONEY IN TISSUE PRESERVATION

Jyoti Gullaiya[1], Dr. Naresh Kumar[2], Dr. Neeharika Srivastava[3]

[1]Research Scholar, School of Engineerig & Sciences, GD Goenka Univeristy, Gurugram, Haryana

[2]Senior Scientific Officer, Biology Division, Forensic Science Laboratory, New Delhi

[3]Assistant Professor, School of Engineerig & Sciences, GD Goenka Univeristy, Gurugram, Haryana

Abstract

Tissue preservation is very important from forensic science point of view. A well preserved tissue enables a forensic scientist to extract good quatity of DNA from tissues recovered from a scene of crime so that profiling can be done and accused can be convicted based on the scientific evidence. DNA analysis has been recommended by the INTERPOL as one of the primary method of identification along with fingerprint and dental analysis. In cases of disaster victim identification, sexual assaults and ofcourse paternity testing, identification through DNA is really crucial. For this reason, there is a need to find a preservative that enables one to yield proper amount of DNA. Formalin known as the "gold standard'' in tissue preservation imposes different health hazardous to its users and the environment. We present ongoing work to understand the difference in DNA yield from tissues preserved in different concentrations of honey for a period of 6 months at 4°C. This study has been approved by the Institutional Ethics Committee, Civil Hospital, Gurugram. Human tissue samples have been preserved in various concentrations of honey and formalin has been used as a standard. Promega PowerQuant Kit has been used in quantification of DNA. Results have indicated that higher concentrations of honey gave better results than lower concentrations in aspect of DNA yield. Hence, honey being a natural and safe alternative to formalin can be used in tissue preservation to have better DNA yield in tissue preservation.

Keywords: Tissue Preservation, Formalin, Honey, DNA yield, Fixation, Natural Substitute.

DENDRIMER: SENSING PLATFORMS FOR MYCOTOXINS

Archana Zala[1], Harshad Patel[1]

[1]School of Engineering and Technology, National Forensic Sciences University, Gandhinagar, Gujarat

Abstract

Introduction: A secondary metabolite produced by fungi is known as mycotoxin. Mycotoxins are toxic metabolites or dangerous by-products. Fungi that cause food product contamination can develop on various food items, including crops before, during, and after harvest. Mycotoxins can be analyzed using chromatographic techniques that offer a sensitive, accurate, and selective determination of known mycotoxins and the identification of new or modified compounds using tandem mass spectrometric detectors. Immunochemical-based techniques are primarily used for normal controls and rapid, on-site detection. Review of the literature: Dendrimer can detect significantly less concentration at nanomolar (nM) Concentration using electrochemical impedance spectroscopy (EIS), and cyclic voltammetry (CV) acts as a mycotoxin Sensor. PAMAM Dendrimer was reported for Cry 1Ab Protein, Deoxynivalenol (DON), aflatoxin, aflatoxin B1, and aflatoxin M1. The photocurrent of the electrode (Cry1Ab/BSA/Ab/CdSe/PAMAM-Au/ITO) was fabricated and measured in PBS (0.1 M, pH 7.4) solution. The plasmonic-enhanced photoelectrochemical PEC immunosensor' s detection limit for Cry1Ab analysis is three pg mL-1. The detection limits LOD = 0.4 ± 0.03 nM for AFB1 established in treated certified peanuts extract were used to develop the PAMAM aptamer-based biosensor. Based on PAMAM dendrimers, the Au/Cys/PAMAM/Mab Sensor has high sensitivity and a low detection limit of 1 ppb. Conclusion: There is a high demand for developing rapid, sensitive, and focused technology for mycotoxin detection at low concentrations. A dendrimer is one of the most efficient sensors for detecting mycotoxins. This review focuses solely on cutting-edge sensors for mycotoxins, particularly on Dendrimer.

Keywords: Dendrimer, Mycotoxins, Cyclic Voltammetry (CV), Sensor, Food Forensics.

MICROBIAL FORENSICS: A NEW BREAKTHROUGH IN FORENSIC INVESTIGATIONS

Shefali Anand[1], Farah Azmeen[2], Kunal kishor[3]

[1]Ph.D Scholar, Department of Forensic Science, School of Allied Health Sciences, Sharda University, Greater Noida, India.

[2]Ph.D Scholar, Department of Microbiology, School of Allied Health Sciences, Sharda University, Greater Noida, India.

[3]Professor, Department of Microbiology, School of Allied Health Sciences, Sharda University, Greater Noida, India.

Abstract

Microbial Forensics is a promising branch of Forensic Science that fills the knowledge gaps and empowers the conventional and traditional forensic investigative procedures. Microbial fingerprinting can assist in the field of forensics in the areas like source tracking, geolocation, circumstances of death and trace evidences. The studies performed for the forensic investigations mostly focus on the internal organ samples and the soil samples, whereas the microbiome present in mouth, skin and vaginal samples are routinely collected in the cases like femicide and sexual assault. Microorganisms are ubiquitous in nature and hence, are involved in the natural metabolic activities, and therefore they are considered as physical evidence in the forensic investigations. The microbial species attacks the cadaver after the death of an organism and starts the decomposition of the body. The whole process of decomposition is an amalgamation of microbial and entomological attack which is dependent on various factors like soil, surrounding environment, temperature, humidity etc. The study of the microbial species can be an important aspect of the forensic investigations as it helps in the estimation of Post Mortem Interval (PMI). From the last few years, microbial forensics is gaining limelight as microbes can prove to be better evidence than entomological species for estimating Post Mortem Interval. Conclusion: Microbial forensics as one of the branches of forensic sciences, is highly capable to providing multiple information from the scene of crime that can ultimately help in the forensic investigations. The estimation of Post mortem interval of the cadaver and time since deposition of the biological stains can be the main focus during the investigation to rule out other possibilities. The successional changes of the microbial species can be identified to as to relate it with the stage of decomposition. Hence, incorporating microbial study in the forensic investigation can be very helpful for the estimation of various criteria.

Keywords: Microbial Forensics, Post Mortem Interval, Microorganisms, Entomological evidence, Microbial analysis.

EXAMINATION OF MIMIC VOICES; A FORENSIC PROSPECT

Vernika Mehta[1], Dr. Neeharika Srivastava[2], Dr. Shivani Sharma[3], Shri D.P Gangwar[4], Dr. Surbhi Mathur[5]

[1]Teaching & Research Assistant, School of Forensic Science, National Forensic Sciences University

[2]Assistant Professor, School of Engineering & Sciences, GD Goenka University

[3]Junior Scientific Officer, Central Forensic Science Lab., MHA, Chandigarh

[4]Assistant Director & Scientist-C (Physics), Central Forensic Science Lab., MHA, Chandigarh

[5]Sr. Assistant Professor, School of Forensic Science, National Forensic Sciences University

Abstract

With the pace of technology, criminal minds are also on the move. Different ways are being used to commit crimes with the help of digital gadgets. When it comes to speaker identification, forensic experts deal with cases in which criminals disguise their speech by using various methods such as putting handkerchiefs over their mouths or mimicking a different voice in order to disguise their true voices. Occasionally, it can be hard to distinguish between mimic voice and original voice. Comparing the mimicry samples and the original voice of the person being mimicked on the one hand, and the specimen voice of the person doing the mimicry on the other, was used to evaluate the mimicry samples. A very detailed Auditory Analysis and a Spectrographic Analysis are included in this analysis. This study investigated variations in pitch contour, harmonic patterns, formant frequencies, and formant shapes & patterns as a possible remedy for mimic-related crimes, which may threaten forensic science in the future, and has shown remarkable results.

Keywords: Mimicry, Voice Spectrogram, Pitch, speaker identification, formant frequency.

EXAMINATION OF CARCINOGENS PRESENT IN DYED AND PRINTED TEXTILE FABRICS

Ruchita Rathi[1]

Abstract

Since the dawn of civilization fabric is the basic need of human being. With the development of industries quality and requirements of fabric has been changing and for enhancing fabric qualities various types of dyes and chemicals are used during processing of textile fabrics. During this manufacturing process some carcinogenic elements like formaldehyde, Heavy metals, Amines, Pesticide residue, AOX, PCP, Phthalates, APEO, Flame retardants etc. get transferred to the fabrics. Carcinogenic elements within the context of different ECO standards which present in textile products or accessories and exceed a maximum amount or which evolved during normal or prescribed use and which may have some kind of effect on people during normal and prescribed use and may according to current scientific knowledge, be injurious to health. As these elements have harmful effects on environment and human health both, so strict quality controls should be advocated for the prevention of their use in textiles. Though laws are available but not followed rigidly especially for the garments which are sold in Local Indian Markets. Various samples of textile fabrics were collected from Local markets and examined for the presence of carcinogenic elements by using different instruments like UV –VIS, AAS, EDXRF, and HPTLC.

Keywords: Carcinogens, Eco Standards, Fabric, UV–VIS, AAS, EDXRF, HPTLC.

CALIXARENE: A NEW APPROACH FOR SPOTTING EXPLOSIVES

Himali Upadhyay[1], Kapil Kumar[2], Uma Harikrishnan[3]

[1]Department of biochemistry and forensic science, Gujarat University, Navrangpura, Ahmedabad

[2]Department of biochemistry and forensic science, Gujarat University, Navrangpura, Ahmedabad

[3]St. Xaviers's collage, Navrangpura, Ahmedabad

Abstract

Active research areas include the detection of explosives, energetic materials, and their related compounds for security screening, demining, the identification of unexploded ordnance, and pollution monitoring. In this extremely difficult field, a large array of detection techniques and an even wider diversity of physical chemistry challenges are involved. Compared to earlier times, explosives are readily available nowadays. Thus, identification of explosives has become the top priority for homeland security. In the past few decades, numerous fluorescence-based sensing materials for the detection of explosives in solid, vapour, and solution forms have been produced. In order to attain super-sensitivity, ultra-selectivity, and a quick response time, significant efforts have been made in recent years to create new fluorescent materials with a variety of sensing methods for detecting explosives. Due to their advantageous structural features, modified calixarenes have the ability to detect nitroaromatic compounds (NACs). It summarises the detection of NACs by the complex's modified calixarene system. This review paper focuses on the various approaches responsible for complex formation and binding mechanisms (PET, FRET, EE, etc.). This article extols calixarene, a new class of selective and sensitive forensic sensors. It has become evident that calix[n]arenes are particularly desirable building blocks for supramolecular chemistry due to their large-scale production, characteristic concave molecular architecture, variable inner cavity size, remarkable derivatization capabilities, and extensive applications.

Keywords: Calixarene, Explosives, Sensors, Fluorescence, Nitroaromatic.

SIGNIFICANCE OF DEATH SCENE INVESTIGATION BY FORENSIC MEDICINE EXPERT: A CASE REPORT

Dr Smitha Rani[1]

[1]Assistant Professor, Department of Forensic Medicine, and Toxicology, JSS Medical College, JSS Academy of Higher education and Research, Mysuru

Abstract

The role of the medicolegal expert is regarded as crucial in the death investigation. Forensic doctors are by large involved in dead body examination and evidence collection which are mostly done after the inquest procedure is completed. In India, only police and magistrate conduct inquests as per sections 174 and 176 CrPC respectively. These individuals have limited knowledge about Forensic Pathology. Since the crime scene investigation and autopsy are handled by different agencies that work in isolation, there is minimal coordination between them. When the same individual visits the crime scene for an inquest, conducts an autopsy and correlates laboratory findings, they will be better placed in interpreting the available findings. In many cases, the scene investigation is more important than the autopsy. A thorough and complete investigation commonly leads to the proper diagnosis of the cause and manner of death before an autopsy. We report a case of an unidentified male whose body was found in an advanced state of decomposition. Autopsy and death scene findings will be presented and discussed. The present case highlights the importance of a death scene visit by a forensic medicine specialist to deduce the manner of death.

Keywords: Death scene investigation, Cause of Death, Forensic Medicine Expert, Manner of Death, Medical Examiner's system.

RECONSTRUCTIVE POST- MORTEM DENTAL PROFILING.

Dr. S. Praveen[1]

[1]VGS Dental Clinic, Tamil Nadu

Abstract

Forensic odontologist play an important role in identification of the victims of crime and disaster with the help of dental records which aids in crime investigation. Forensic dental identification is of two types. Firstly comparative dental identification which is carried out if both ante- mortem and post- mortem dental records are available. Secondly if ante mortem records are not available for identification, a post-mortem dental profiling is carried out by the forensic odontologist by analysing the parameters like ethnicity, age, sex, socioeconomic status etc to restrict the hunt for ante- mortem dental records. This process is called post- mortem dental profiling. Having done this, still if not able to establish the identity of the victim, a skeletal analysis team can be formed by forensic anthropologist, forensic odontologist and reconstructive practitioner for further search. Therefore on the basis of skull of the deceased and with the help of forensic odontologist the reconstructive practitioner can give lifetime resemblance of the skull. This process of regenerating, re- establishing and recovering of needed information for the reconstruction of life time resemblance of skeletal remains by post mortem dental profiling is called reconstructive post mortem dental profiling. This reconstructive post mortem dental profiling gives unique dental features of each person which has more practical values for the identification of the unknown persons. This helps the forensic odontologist to review their jobs with wider prospective and to document the dental profiles in the absence of ante- mortem records.

Keywords: Forensic Odontologist, Ante- Mortem, Post Mortem, Dental Profiling, Reconstruction.

A REVIEW ON DENTAL AUTOPSY

Dr Priti D Desai[1], Dr Arjun Kundu[2]

[1]Professor, Gurunanak Institute of Dental Science and Research, Kolkata

[2]PhD Research Scholar (NFSU)

Abstract

An autopsy (post-mortem examination, obduction, necropsy, or autopsia cadaverum) 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. The word autopsy is derived from the Greek autopsia, meaning "the act of seeing for oneself." The objective of an autopsy is to identify significant clues for an ongoing forensic investigation. However, in certain circumstances, it is difficult to conduct an oral examination owing to the anatomic location of the oral cavity and also due to onset of rigor mortis after death resulting in restricted opening of the jaws. Thus, systematic and sequential dissections of the oral and surrounding structures are required to expose the dentition. Dental autopsy includes incisions and resection of the jaw 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. Types of autopsy include clinical/pathological, medicolegal or forensic, academic/ anatomical autopsy and each type has different objective. Recently new methods are developing, amongst them, virtual autopsy is introduced to overcome the limitation of conventional autopsy technique.

Keywords: Autopsy, Forensic Investigation, Radiographic Examination

THE RECONSTRUCTION OF AN ANATOMIC CASE OF HYDROCEPHALUS, CLEFT PALATE, LIP AND JOINT CONTRACTURES IN A BYZANTINE WOMAN FROM KONYA, TURKEY

Emel Akpolat[1]

Abstract

Cleft lip and palate are one of the most prominent and popular pathologies in congenital disease literature. But in an archaeological context, it is one of the rarest pathological conditions to find. The etiological factors behind this not-so-common occurrence are unknown and its causes can be either environmental or from genetic heritage due to reports of affected family members and autosomal dominant inheritance, or both. The case of cleft lip and palates breaks down to two main types: Bilateral and lateral. The disfigurement may start to form in the womb when the cranium is starting to take shape and it may be the result of missed steps or genetical errors and can lead to craniofacial morphology. Hydrocephalus, cleft palate, lip and joint contractures is a rare genetic disorder characterized by a buildup of fluids in the brain (hydrocephalus) due to a brain abnormality called Dandy-Walker malformation, cleft plate and stiff or "frozen" joints. Other symptoms may include thin fingers with absent knuckles and reduced creases over the joint ear abnormalities, heart defects, lalopathy and clap foot. The subject of the case is around 25-30 years old, female, mother to four reported children, with her paternal family being the Comnenos family, who have an authority figure in Byzantine. The skeletal remains of the individual points out that the individual is approximately 1.65 meters (5.4 ft.) tall and weighs 50-55 kilograms (110-120 lbs.). She has also been diagnosed with the aforementioned, rare Dandy-Walker syndrome. 3 In chronicles, the archaeological team found an individual who has lalopathy (disorder in speaking) and hearing impairment that have been talked about in the past, and during the excavation the anatomical figures that match with said defects led to certain skeletal remains to be identified as the said person. Using the pathological and anthropometric measurements, the individual's cranium has been copied with filament print (ABS) in the 3D printing facility. After the printing, the remains went under a DNA analysis which helped the scientific board determine how the individual looked back in the day. The soft tissue depths of 10 lateral, 21 bilateral points were measured and drilled on the cranium replica of the individual. On the second base, the face was sculptured with all pathological information given by the DNA and anthropometric measurements. Cosmetic details such as the clothing, makeup and facial nuances have been done by the sculptor and the individual gets ready for the museum exhibition. This project concludes that the pathological traits of the unidentified remains can be used to positively ID the unidentified subject or certain excavations and found remains in the rubbles that have been recovered by the proper forensic authorities.

Keywords: Cleft lip, Palate, 3D printing, Dandy-Walker malformation, Hydrocephalus.

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

Dr Shoborose Tantray[1]

[1]Senior Lecturer Oral and Maxillofacial Pathology and Microbiology, Santosh Dental College, Ghaziabad

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. AIM: The aim of this study is to evaluate the extraction of dental DNA exposed to different chemical solutions. Materials and Methods: 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. RESULTS: 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. Conclusion: 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: Human Identification, Sex determination, DNA isolation.

PERSONAL IDENTIFICATION FROM THE FACIAL FEATURES BY USING HARRIS DETECTOR

Lovepreet Kaur[1], Mukesh Kumar Thakar[2], Navdeep Goel[3]

[1]Research Scholar, Department of Forensic Science, Punjabi University, Patiala, Punjab

[2]Professor, Department of Forensic Science, Punjabi University, Patiala, Punjab

[3]Associate Professor, (ECE), Yadavindra Department of Engineering, Punjabi University, Guru Kashi Campus, Punjab

Abstract

Criminal activities are increasing in the society at a faster pace, so there is a need to set up surveillance systems to monitor the activities of surroundings. Forensic Science Laboratories are receiving plethora of cases which involves the recognition of the individuals from the images/videos recorded by the CCTV cameras installed at various places. Due to the ever-increasing count of such cases, the field of facial recognition is witnessing an acceleration in the methods that could provide efficient results in a short span of time. In 1960, Bledsoe et al. commenced the utilization of computers to recognize the human faces. Goldstein et al. in 1970, included certain anthropological markers such as hair color and thickness of hair to automize the face recognition processes. In 1988, Sirovich and Kirby applied linear algebra for facial recognition. Further, in the twentieth century, holistic and feature based approaches dominated the field. Recently, hybrid techniques are being used by the researchers in the field. In the present study, an attempt has been made to recognize 200 human face images which have been recorded with the help of a CCTV camera. The analysis of collected samples has been carried out by generating A Graphical User Interface which is based on Harris features. The analysis involves the comparison of questioned and references images to establish the identity of the individuals. The results obtained from the present study are quite satisfactory and it has been concluded that Harris features can act as a boon for the forensic experts to deal with cases of facial recognition.

Keywords: Forensic Science, Crime, Facial Recognition, Images, Harris Features.

A REVIEW ON FORENSIC FACIAL RECONSTRUCTION TECHNIQUES

Dr. Arjun Kundu[1]

[1]PhD Research Scholar, National Forensic Sciences University, Gandhinagar, Gujarat

Abstract

The face of an individual has several different types of exclusive features and thus, is of great importance in identification and recognition of a person. Facial reconstruction is an effective forensic technique that can help recreate a victim's facial appearance from the skull sufficiently accurate to achieve identification. Forensic facial reconstruction is used in both forensic science and investigation and also in archaeological studies. In forensic science, this method is used to assist law enforcement agencies to identify missing deceased persons where the conventional methods of identification are unsuccessful. In archaeology, it is used to identify the faces of the people from the history, bone remains, embalmed bodies, etc. Reconstruction techniques are usually based on the relationship between the underlying hard tissues, such as bone structure, and soft tissues such as the facial muscles and facial features. Facial reconstruction can be a feasible alternative to identify the remains from a decomposed, mutilated, or skeletonised corpse. It is important to remember that although the outcomes are empirical in nature, the technique has been applied widely in many situations. The reconstruction techniques can be divided into two types: Two dimensional (2D) and three dimensional (3D) techniques; even, they are carried out and analysed either manually or by using specific software's on a digital format. Recent advancements in technology and computer-based techniques have increased the accuracy and validity and also decreased the time needed to analyse the process. I consider the most commonly used facial reconstruction techniques in this paper with a brief description the techniques.

Keywords: Forensic facial reconstruction, Forensic facial approximation, two-dimensional reconstruction, three-dimensional reconstruction, identification, facial modeling, forensic art, forensic science.

MUTILATED AND SKELETONISED DEAD BODIES POSTMORTEM EXAMINATION: CHALLENGES AND NEED OF ADVANCED FORENSIC TECHNOLOGIES- A CASE SERIES REPORT

Richa Gupta[1], Anjesh Mittal[2], Mausim Khan[2], Ajay Agarwal[3], Garima Singh[4], Gaurav Sharma[4]

[1]Associate Professor and Head, Department of Forensic Medicine, S. N. Medical College, Agra

[2]Post Graduate resident, Department of Forensic Medicine, S. N. Medical College Agra

[3]Professor, Department of Forensic Medicine, S. N. Medical College Agra

[4]Assistant Professor, Department of Forensic Medicine, S. N. Medical College Agra

Abstract

Determination of the identity is the determination of the individuality of a person. According to the Universal Declaration of Human Rights, everyone has the right of recognition everywhere as a person before the law either living or dead. However identification in living and dead can be established by various data and examination but in rare cases of mutilated bodies, dismembered body parts or skeletonised body its get difficult to establish identity and cause of death. Aim of study- Main purpose of this study is to establish identity of person in relation to age and sex, to know the cause of death and to recover evidential material samples from the corpse which may help further in crime investigation and reconstruction of crime scene. Method and Methodology- We analysed postmortem examination done at Mortuary of S. N. Medical College, Agra of 2 different cases brought here for medicolegal autopsy to be conducted by a panel of doctors including one Forensic expert. Result and Conclusion- Postmortem examination of burned, mutilated, decomposed or skeletonised remains raises following questions 1) Whether the remains are of human origin or animal 2) To establish the identification of the individual 3) To establish the cause and time since death. To answer this, complete autopsy examination including a dental examination is very beneficial. In few cases even a small postmortem finding alone is useful to derive the cause of death but sometimes autopsy examination alone is insufficient in establishing identification particularly in skeletonised and mutilated corpses. In such cases, collobaration of recent advanced technologies like Forensic DNA analysis, Forensic imaging and Facial recognition techniques with Forensic medicine may open the doors of hope to extract best possible information helpful in crime investigation.

Keywords: Mutilated Bodies. Skeletonised bodies, dismembered body parts, Autopsy examination and Post-mortem examination.

ACCURACY OF MEDICAL CERTIFICATION OF CAUSE OF DEATH-DISCREPANCIES BETWEEN CLINICAL AND AUTOPSY DIAGNOSIS

Dr. Alemayehu Shiferaw Lema[1]

[1]MD, Assistant professor of Forensic Medicine and Toxicology, Candidate for MPH in Epidemiology, St. Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia

Abstract

Postmortem examination is considered the "gold standard" for diagnosing a cause of death, and plays a significant role in evaluating the quality of health care. The objective of this paper is to evaluate the accuracy of the cause of death as determined by autopsy in adults who had undergone hospitalization and died from natural cause in 2019 at Saint Paul's Hospital and Millennium Medical College. Among cases hospitalized before death, 84 death certificates were collected and cause of death on the death certificates, compared with the cause of death recorded at autopsy. The overall sensitivity and positive predictive value of the death certificate for each underlying cause of death, were 0.53 and 0.6 respectively. The sensitivity of the death certificate in predicting a cause of death by organ system with sensitivities ranging from 0.70 in the neurological system to 0.32 in the cardiovascular system, and the sensitivity for respiratory and gastrointestinal causes of death was 0.68 and 0.5 respectively. Cardiovascular pathologies were the most common clinically unrecognized causes of death. There was a significant overall difference ($p < 0.001$) when comparing causes of death by organ system on the death certificate with those at autopsy. To implement the most effective health policies and make appropriate decisions about the allocation of resources, decision-makers require high-quality, cause-specific mortality data on causes of death. However, there is a significant discrepancy between the diagnosis given on death certificates compared with autopsy and overall death certificates are inaccurate. Many studies have reported that most problems with the accuracy of death certificates arise from the limited formal training and perceived lack of certificate importance. An integrated education program on medical certification of death targeting all three levels of physician; medical students, junior physicians and senior clinicians, is critical to ensure the generation of high-quality mortality statistics.

Keywords: Autopsy, Cause of death, Certification, Certificate, Death certificate, Mortality, Training

ESTIMATION OF POST MORTEM INTERVAL BY USING HISTOLOGICAL ANALYSIS- A REVIEW

G V Sai Soumya[1], Dr. Rushikesh Joshi[2]

[1]Research Scholar, Department of Biochemistry and Forensic Science, Gujarat University.

[2]Assistant Professor, Department of Biochemistry and Forensic Science, Gujarat University.

Abstract

Post mortem interval (PMI) is the estimation of the approx. death time of the individual. We also can know the cause and sometimes the manner of death. There are various analysis and examinations which are performed for identification. Histology is the microscopic examination of the transverse section or longitudinal section of the body tissue on a glass slide, stain it with specific stains required fix the slide and observe under microscope. When observed under advanced microscope like phase contrast microscope, confocal microscope, etc. When we bring histology and forensic science together for the estimation of the post mortem interval it would help in easy estimation. According to the review which I have performed (secondary data) that every form or manner of death have specific effect or impact on the tissue like electrocution, acid attack, aspiration, inhalation, drug abuse, heart diseases, any tissue/organ disorders. If there is any opportunity to perform this theory in practical then we can find a new way for estimation of PMI.

Keywords: Post Mortem Interval, Histology, Microscope, Organ Disorders, Drug Abuse.

INVESTIGATION TO IMPROVE CLEANING PROCEDURE ON POST-MORTEM TABLE FROM CROSS CONTAMINATION

Dr.Prakash Manickam Kumarasamy[1]

[1]MBBS (AIMST), M.Sc Forensic Science (USM)

Abstract

Post-mortem examination is a routine procedure carried out by a certified medical officer in the hospital to obtain information about the cause of death or the nature of injuries. During the post-mortem procedure, evidence is collected from the dead body and sent for laboratory analyses. After the post-mortem procedure, the post-mortem table must be washed and cleaned to ensure no contamination for the subsequent procedure. However, it is questionable on the cleanliness of the post-mortem table and the effectiveness of cleaning procedure from biological fluid contamination. The aim of this study was to investigate the effective cleaning procedure on post-mortem table from cross contamination. In this study, discarded blood samples were used wand cleaned at varying time. Four different cleaning procedures were tested. After each cleaning, the surfaces were sampled and tested with Teichmann reagent and noted the level of contamination A clean and free contamination forensic procedure is important to establish analytical result which can upheld the integrity of forensic analyses

Keyword: Post Mortem, Contamination, Cleaning Procedure, Detergent, Teichmann.

ASPHYXIAL INJURIES IN A NEONATE: A CASE REPORT

Dr. Naveen Sharma[1]

[1]Senior Resident, Department of Forensic Medicine and Toxicology, Kalpana Chawla Government Medical College & Hospital, Karnal, Haryana

Abstract

Strangulation is a type of mechanical asphyxia produced by constriction of neck by a force other than the weight of the body. Strangulation is divided into two main types: manual and ligature. Ligature strangulation associated with external and internal neck injuries, which in some cases may be minimal, but in most cases are easily seen. Petechial hemorrhages are also a characteristic, although not diagnostic, finding in such deaths. Petechiae occur in a wide variety of non-asphyxial states. In strangulation, there may be partial or complete obstruction and compression of all of the principal anatomical structures in the neck, including the veins, arteries, airway and nerves. Occlusion of the neck veins is almost solely responsible for the classic signs of congestion, cyanosis and petechiae above the level of neck constriction. Not infrequently however, in the homicidal situation, strangulation may be as a result of the combination of manual and ligature compression of the neck. In present case, a corpse of female neonate was recovered from water canal. The body was tied with a heavy stone and thrown in water canal to hide the crime.

Keywords: Asphyxia, Homicide, Post mortem drowning, Ligature Strangulation, Female foetus.

FORENSIC RADIOLOGY – NEW ADVENT IN APPLICATION OF 3D IMAGING TECHNIQUES IN FORENSIC MEDICINE

Dr Sundeep Ingale[1], Dr Toshal Wankhade[2], Dr Prakash Mohite[3]

[1]Assistant Professor, Dept of Forensic Medicine, DMMC, Nagpur.

[2]Assistant Professor, Dept of Forensic Medicine, DMMC, Nagpur.

[3]Professor, Dept of Forensic Medicine, DMMC, Nagpur.

Abstract

Identification of the dead is commonly encountered problem of the forensic practice all over the world. Age and Gender assignment to the skeletal remains is the important aspect to cone down the probability of the individual's identification. Dead bodies are commonly encountered at crime scene, Mass Disaster, accident sites where identification of the individual becomes essential to determine in addition to cause & manner of death, search for any injury/disease on the deceased. Forensic pathologist is recruited in such cases to meticulously examine the body for relevant findings. Since many social, religious values and belief can cause hindrance along with multiple dead bodies found at the site of mass disaster with constraint of time. To overcome this drawback various radiological imaging techniques can be used to help forensic pathologist to come to conclusion. With the help of radiological techniques forensic pathologist can observe minute details on different regions of the body. It will enhance understanding of the deceased in relation to medico-legal aspects and can be used in cases. The aim of this review is to define the utilization and integration of recent imaging advancement in forensic medicine. We also present the advantages of application of current radio-imaging technologies and their respective pros and cons, thus proving the role of modern radio-imaging in the field of Legal Medicine.

Keywords: Radiology, Imaging, Forensic Pathologists, Dead bodies, Identification.

A RARE CASE OF BILATERAL SYMMETRICAL TEMPORO-PARIETAL EXTRADURAL HEMATOMA IN ROAD TRAFFIC ACCIDENTS

Dr. Chandrakala Gadige[1], Dr. Akhilesh Pathak[2], Dr. Ajay Kumar3, Dr. Jyoti Barwa4, Dr. Rattan Singh5, Dr. Gurpreet Singh6

[1]PG, Dept of Forensic Medicine and Toxicology, AIIMS Bathinda

[2]Prof & Head, Dept of Forensic Medicine and Toxicology, AIIMS Bathinda

[3]Additional Professor, Dept of Forensic Medicine and Toxicology, AIIMS Bathinda

[4]Associate Professor, Dept of Forensic Medicine and Toxicology, AIIMS Bathinda

[5]Assistant Professor, Dept of Forensic Medicine and Toxicology, AIIMS Bathinda

[6]SR, Dept of Forensic Medicine and Toxicology, AIIMS Bathinda.

Abstract

The autopsy findings of extradural hematoma (EDH) are an uncommon consequence of head injury and bilateral symmetrical extradural hematoma is extremely rare. In the case presented here, the author has encountered a case of road traffic accident in which the bilateral extradural hematoma observed symmetrically over the both parietal areas of the brain during autopsy. The autopsy findings and medicolegal implications of the case discussed, as it is rare of its kind.

Keywords: Extradural Hematoma, Head Injury, Autopsy

A FORENSIC SEROLOGICAL STUDY OF DEGRADATION ON IMMUNOGENIC PROPERTIES IN BLOOD STAINS

Dr. G.B. Aravind[1], Pooja V Menon[2]

[1]Associate Professor and Co-ordinator of Forensic Science, Dept. Forensic Medicine and Toxicology, JSS Medical College, Mysuru

[2]Ph.D. Scholar, Dept. Forensic Medicine and Toxicology, JSS Medical College, Mysuru

Abstract

Forensic serology deals not only with a variety of body fluids (blood. semen, saliva urine etc.), and more frequently with the samples that are in stain form. They are often degraded or deteriorated, thereby making successful analysis a challenge to the analyst. The quantity and condition (degree of degradation and putrefaction) of evidentiary stains may depend on a number of factors, many of which are not within the power of the forensic analyst to control. Sample quantity and condition often dictate the manner or strategy adopted by an examiner to deal with the specific piece of evidence or indeed, the analysis could be done at all and here is a study on how the rate of degradation affects the serological properties of blood through different screening procedures. Objectives of the current study are to ascertain the preliminary screening of blood stains under different conditions and to determine the rate of degeneration of immunogenic properties of blood in a specified duration of time, the time gap being in geometric progression. The preliminary examination was made to identify the bloodstains along with blood grouping and species origin test were made to study the degradation of the immunogenic properties. The results of the study indicated positive for the Tetra Methyl Benzidine test. The samples maintained in laboratory conditions differed from samples exposed to other parameters like direct sunlight, submerged water and buried samples.

Keywords: Serology, Degradation, Immunogenic Properties, Geometric Progression, Tetra Methyl Benzidine.

FILTER PAPER BASED COLORIMETRIC STRIP FOR DETERMINATION OF ASPIRIN AND SALICYLIC ACID EXPLOITING DIGITAL IMAGE COLORIMETRY (DIC) COUPLED WITH DISPERSIVE LIQUID LIQUID MICROEXTRACTION (DLLME)

Bharti Jain[1], Shweta Sharma[1], Rajeev Jain[2]

[1]Institute of Forensic Science & Criminology, Panjab University, Chandigarh

[2]Forensic Toxicology Division, Central Forensic Science Laboratory, Chandigarh

Abstract

Aspirin (ASA) is a globally used anti-inflammatory drug and salicylic acid (SA) is the biological metabolite of ASA. As an analytical chemist, it's always a challenge to accurately and precisely determine a drug along with its metabolites with a single method. Hence, we aim to develop a simple and low-cost assay based on combination of vortex assisted-dispersive liquid-liquid microextraction (VADLLME) with smartphone based digital image colorimetry (DIC) has been developed as a promising platform for simple low-cost analysis of ASA and SA. The method comprises of three simple steps viz. (i) extraction and pre- concentration of ASA/SA by VADLLME, (ii) reaction of ASA/SA with Trinder reagent on a filter paper strip to produce blue colour, and (iii) DIC of developed colour with imageJ software. Design of experiment approach comprising of Plackett-Burman design (PBD) and central composite design (CCD) were used for optimization of parameters affecting the efficiency of the proposed method. Under the optimized conditions, the limits of detection (LOD) and the limit of quantitation (LOQ) were found to be 8.88 and 29.0µg mL $^{-1}$, respectively. Calibration plot demonstrated good linearity in the range of 50–400µg mL $^{-1}$, with coefficients of determination (R^2) higher than 0.993 and standard deviation less than 10%. The proposed method has been successfully applied for the estimation of ASA/SA in pharmaceutical formulations (tablets), cosmetic product and human urine samples, with percent recoveries (%R) ranging from 92.14–99.6%. In addition, the green character of the proposed method from sample collection to final determination has been evaluated by using Complex GAPI index.

Keywords: Salicylic acid, ComplexGAPI, Smartphone Digital Image Colorimetry, Dispersive

Liquid-Liquid Micro Extraction, ImageJ

Conference Proceedings

IMPACT OF ARTIFICIAL INTELLIGENCE IN INVESTIGATIVE PSYCHOLOGY DOMAIN: AN APPROACH IN NEUROCOGNITIVE SETUP

Mr. Pravesh Charan Isai[1]

[1]Scientific Asst. in School of Forensic Psychology at National Forensic, Sciences University, Gandhinagar, Gujarat

Abstract

Advances in the use of neuroimaging in conjunction with A.I., specifically the use of machine learning techniques, have resulted in the development of brain-reading technologies that may have many applications in the near future, such as lie detection, neuromarketing, or brain-computer interfaces. AI is the development of smart machines capable of performing human tasks by mimicking human attributes, intelligence, and reasoning, but without direct human intervention. The use of these methods in forensic psychiatry, for example, could help to improve risk assessment accuracy and identify potential interventions. This technique, known as 'A.I. neuroprediction, involves identifying potential neurocognitive markers for predicting recidivism. Concerned about disparities between criminals and law enforcement, criminal justice needed to be equally equipped and prepared to use technologies such as artificial intelligence (AI) to improve crime prevention and control. More specifically, due to the absence of human input, AI is used in law enforcement and courts of justice to produce better, faster results with a much lower margin of error. According to the findings, more research on A.I. neuro prediction techniques is needed, as is a better understanding of how they can be used in risk assessment in the field of forensic psychiatry. Aside from the allure of A.I. neuro prediction, we argue that its application in criminal justice and forensic psychiatry should be subjected to extensive harms/benefits analyses not only when these technologies are fully available, but also while them are being researched and developed.

Keywords: Artificial Intelligence, Forensic Neurocognition, Risk Assessments, Criminal Justice, Forensic Psychiatry, Law Enforcement.

UNDERSTANDING THE PSYCHOLOGY OF TERRORISM THROUGH PROFILING OF TERRORISTS- CASE STUDIES

Meenakshi Bhardwaj[1], Dr. Asha Srivastava[2]

[1]Meenakshi Bhardwaj, Scientist-B, Documents, CFSL, Pune (DFFS)

[2]Dr. Asha Srivastava, Director, CFSL (CBI) New Delhi

Abstract

The understanding of terrorism and its psychological implications are essential in order to implement policies and counterterrorism prevention strategies. A deeper understanding of forensic issues, counterintelligence, and vulnerabilities of potential targets of these harmful terrorist activities and to anticipate them are important in psychological assessment. The present study reviews a set of terrorism cases in which various Psychological techniques were implemented like Forensic Psychological Assessment, Draw A Person (DAP) test and Forensic examination of handwriting of terrorists to understand their psychological character and to evaluate criminal dangerousness for predicting future extremist acts of violence.

Keywords: Terrorism, Forensic Psychological Assessment, DAP test, Forensic examination of Handwriting.

Child Abuse Cases: comparing before and during the Covid-19 Pandemic

Beta Ahlam Gizela[1]

[1]Universitas Gadjah Mada, Yogyakarta, Indonesia

Abstract

Background: Covid-19 pandemic brought a major change in people's lives. The demands of being able to adapt quickly do not always live up to expectations. This condition can have a bad impact on vulnerable groups, include children to have a higher risk of experiencing violence. On the other hand, health services and stakeholder attention are focused on handling pandemics. The purpose of this study is comparing the prevalence of cases of violence in children before and during the pandemic examined at Dr. Soeradji Tirtonegoro Hospital, comparing risk factors for child abuse before and during pandemics. Method: This is an observational study, analysed in descriptive data. Result: The results of research conducted at Dr. Soeradji Tirtonegoro Hospital period of 2017-2019 showed a relatively flat in cases of violence both physically and sexually against children every year. In 2017 there were 15 cases, 2018 increased to 17 cases, 2019 to 14 cases. In pandemic period researcher get the number of child abuse increase to 26 cases. Most victims are female, and the age around 15-17 year old. Conclusion: Prevalence of child abuse cases managed in Dr. Soeradji Tirtonegoro Hospital increased during pandemic.

Keyword: Vulnerable, Child Abuse, During Pandemic, Prevalence, Hospital Care.

EFFECT OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING CHILD SEXUAL ABUSE AND ITS PREVENTION AMOUNG MOTHERS OF SCHOOL CHILDREN

Sheba John[1], Dr.Priyanka Choudhary[2]

[1]Ph.D. Scholar Desh Bhagat University, India

[2]Associate Professor Desh Bhagat University, India

Abstract

Child sexual abuse is a major social problem in our country. The prevalence ofchild sexual abuse is alarming; hence stringent measures should be taken for its prevention and control. The objectives of the study were to assess the knowledge of mothers of school children regarding child sexual abuse and its prevention, to evaluate the effectiveness of the structured teaching programme and to find out the association between pre-test knowledge score of mothers of school children regarding child sexual abuse and its prevention, with selected demographic variables. Methods: Quantitative approach with one group pre-test post-test design was used among 100 mothers of school children studying in LKG to Class V at Government school, Faridabad who were willing to participate. A pre-experimental study was conducted to assess the effectiveness of structured teaching programme on knowledge regarding child sexual abuse and its prevention among mothers of school children in a selected school in Faridabad District, Haryana. Results: The samples were selected through consecutive sampling technique. Paired 't' test was used to assess the effectiveness of the structured teaching programme, which showed that obtained Paired 't' value was22.90 at $p=0.01$ level of significance. Associations of pre-test knowledge score with selected demographic variables were done by using chi square test at $p=0.01$ level of significance. There was significant association between the pre-test knowledge score and previous knowledge regarding child sexual abuse and its prevention. Conclusion: That the structured teaching programme was effective in improving the knowledge of mothers of schoolchildren regarding child sexual abuse and its prevention.

Keywords: Child Sexual Abuse; School Children.

INSIGHTS INTO APPLICATIONS OF AZO DYES IN FORENSICS SCIENCES

Namrata Dhadnekar[1], Kapil Kumar[1], Uma Harikrishnan[2]

[1]Department of Biochemistry and Forensic science, Gujarat University, Navrangpura, Ahmedabad

[2]Chemistry Department, St. Xavier's College, Navrangpura, Ahmedabad

Abstract

Forensic sciences employ various sensors and colouring agents for detection and quantisation of evidences such as narcotics, blood samples, fingerprints and toxins. These sensors play a significant role in directing the investigations and identifying suspects. In this context, azo dyes and their metal complexes have been extensively used as colorimetric and fluorometric sensors to detect amino acids, drugs and finger prints. These dyes are often used in conjugation with sophisticated techniques such as capillary electrophoresis, Raman spectrometry, Gas chromatography, for forensic analysis of fibres and textile dyes. These dyes have found extensive applications in forensic analysis due to their ease of synthesis, wide spread use in textiles, solvatochromic properties as well as electron transfer reactions giving colour reactions. The present review discusses the applications of azo dye compounds and their transition metal complexes as sensors to detect analytes of forensic interest. Additionally, we have also discussed the applications of these compounds in the detection of drugs, amino acids containing low levels of the target analytes and in the presence of a large quantity of interfering compounds. This review presents specific compounds that can be synthesized based on azo compounds and applied in the forensic area and toxicological studies as sensors or means of detection.

Keywords: Azo, Sensors, Drugs of Abuse, Fingerprints, Colorimetric, Fluorometric.

ANTIBODIES MODIFIED SCREEN PRINTED ELECTRODES FUNCTIONALISED WITH GOLD NANOPARTICLES FOR ELECTROCHEMICAL DETECTION OF MORPHINE

Manika[1], Astha Pandey[2]

[1]Research Scholar, School of Doctoral Studies and Research, National Forensic Sciences University, Gandhinagar

[2]Associate Professor, School of Forensic Science, National Forensic Sciences University, Gandhinagar

Abstract

Morphine is one of the most significant and potent opioid analgesics. The World Health Organization (WHO) recommends it for the treatment of moderate to severe pain in cancer or malignant illness patients. Morphine is a phenolic chemical and an alkaloid originating from the poppy plant that can induce central nervous system dysfunction and is poisonous in high doses, making it potentially lethal. As a result, to avoid morphine overdose or abuse-induced toxication, the morphine must be properly controlled and kept within safe ranges. For its detection, several analytical techniques such as thin layer chromatography, gas chromatography, liquid chromatography, and surface plasmon resonance have been employed, however these approaches are expensive and time consuming. Electrochemical sensors, in comparison, are efficient analytical devices because of minimal cost, portability, high sensitivity, and ease of operation for on-the-spot or mobile detection of morphine, which is electroactive in nature due to the oxidation of its phenolic group and tertiary amine group. Cyclic voltammetry and differential pulse voltammetry are being used to study the electrochemistry of morphine. A simple screen printed carbon electrode is employed in the present study to determine the trace amount of morphine that has been functionalised by gold nanoparticles and further, modified by antibodies. Gold nanoparticles are widely utilised in this domain because they have a huge surface area relative to their volume, which allows them to considerably enhance transduction signals of a sensing device. The adsorption of antibodies directly onto the AuNPs is utilised in the construction of sensors as these supernanostructures can provide a spectacular electrochemical response towards morphine concentration via precise antibody-antigen recognition thus increasing the selectivity of the sensing platform. The results demonstrate that the use of antibody modified screen printed electrodes functionalised with gold nanoparticles serves as a potential technique for the detection of morphine.

Keywords: Morphine, Electrochemical Sensors, Cyclic Voltammetry, Differential Pulse Voltammetry, Screen Printed Electrode, Gold Nanoparticles; Antibodies.

POSTER PRESENTATION PROFESSIONAL CATEGORY

SIGNS TO DETECT COUNTERFEITS: IN PRACTICE OF MONGOLIA

S.Selenge[1], B.Badamsaikhan[1]

[1]National Institute of Forensic Science/ Mongolia

Abstract

Counterfeit currency refers to counterfeit Mongolian currency, coins and foreign currencies found in the territory of Mongolia. The crime of forgery of currency is considered to be a crime of international nature, and it can also affect national security. The number of counterfeit money appearing in the territory of Mongolia is increasing and the methods of crime are becoming more sophisticated, as can be seen from the currency submitted for analysis. Also, it has been observed that counterfeiting and selling of currency has become a cross-border /international/ crime in recent years. It is of practical importance to cooperate with international organizations in the fight against counterfeit currency, to receive information about prevention elements, methodology and methods of analyzing them, and to exchange mutual experience.

Keywords: Counterfeit, Visible Signs, Procedure of Counterfeit, Analysis Of Counterfeit Money/Currency

EFFECT OF TEMPERATURE AND DIET ON DIFFERENT SPECIES OF BLOWFLIES: REVIEW

Usha Sisodia[1], Sally Lukose[2]

[1]Research Scholar, School of Allied Health Sciences, Sharda University, Greater Noida, U.P.

[2]Prof. (Dean), School of Allied Health Sciences, Sharda University, Greater Noida, U.P.

Abstract

The distribution, biology, and behavior of arthropods collected at a crime scene can help investigators determine when, where, and how the crime was committed. The type and species of fauna found on a body indicate the stage of decomposition. Blowfly larvae play an important role in the decomposition of animal remains, which is an important ecological function. To illustrate, forensic entomologists use the bodily dimensions and developmental stages of blowflies found in or on a dead body to calculate the time elapsed between death and discovery of a corpse, also known as the Post mortem interval (PMI). The biological Clock is measured here by the changes in growth parameters and larval length over time. Temperature is a well-known abiotic factor that influences blowfly growth. The interaction of time and temperature has been identified as a determinant of insect survival. The temperature has an inverse relationship with the shortest time from oviposition to adult emergence in insects, and the developmental time from oviposition to adult fly eclosion may vary by region. Warmer temperatures promote development in most cases, while cooler temperatures inhibit development. Previous studies on blowfly growth at various temperatures have confirmed this link. The growth rate of these arthropods, particularly fly larvae, is influenced by a number of factors, so it must be thoroughly studied. In the past, many investigators have used a variety of food substrates to test various aspects of forensic entomology. In published studies, a variety of rearing media, including different animal species and tissue types, are used (e.g., muscle and liver). Larvae nutritional requirements are likely to differ depending on which part of a corpse they are feeding on. The role of temperature and diet on various developmental stages of blowflies is discussed in this review paper. Limitations to the field expansion have been identified, as well as future research directions.

Keywords: Temperature, Diet, Blowfly, Forensic Entomology, PMI

THE EVOLUTION OF MEDICAL TERMINATION OF PREGNANCY ACT: THEN & NOW

Dr. Pankaj Chhikara[1]

[1]Associate Professor, Dept. of Forensic Medicine, PGIMS, Rohtak.

Abstract

The progress of medical science in the field of foetology in India brought new ray of hope to many women but with it came vices like female foeticide. Even the courts have recognised the constitutional right of women to make reproductive choices, as a part of personal liberty under Article 21 of the Indian Constitution. Hence, in order to preserve the reproductive freedom of women and to curb its misuse for gender selection, the Medical Termination of Pregnancy Act was enacted in 1972. But, despite laying a robust jurisprudence on reproductive rights and the privacy of a woman, it did not translate into a fundamental shift in power from the doctor to the woman seeking an abortion and again Medical Termination of Pregnancy Amendment Act, 2002 was promulgated. However with further development of technology & time, problems arose due to rules and regulations laid down in the MTP Act of 1972 especially in case of delayed detection of pregnancy due to rape or in cases of minors, where redtapism was associated with permissions to conduct MTP. To remove the existing lacunae Medical Termination of Pregnancy (Amendment) Act 2021 was enacted expands the access to safe and legal abortion services on therapeutic, eugenic, humanitarian and social grounds to ensure universal access to comprehensive care to further empower women by providing comprehensive abortion care to all.

Keywords: MTP Act, Women rights.

Conference Proceedings

FORENSIC EXAMINATION OF HAND-PRINTED WRITING- A REVIEW

Tinky Saini[1], Prof Komal Saini[2]

[1]Department of Forensic Science, Punjabi University, Patiala

[2]Professor, Department of Forensic Science, Punjabi University, Patiala

Abstract

The trend in primary education was hand-printing or mixed writing rather than cursive writing. Individuals engaged in various businesses and professions such as engineers, draftsmen, architects, etc., make use of hand-printing for their regular work. Hand-printing was often a preferred script for writers of disguised writings, homicidal notes and anonymous letters, etc. because they believe to hide their identity by doing so. This paper described the research work that had been published and presented regarding individual and class characteristics of hand- printing. Review of literature has shown the related research studies conducted by various researchers. The classification system of pen-printing and handwriting for identification of law violators was developed (Livingston, 1959). A classification scheme of handwritten letters to describe variations of letter form was developed (Eldridge, et al., 1983; Conway, 1955). The frequency of using class characteristics of cursive words was determined (Savoie, 2011). The frequency of hand-printing characteristics within a national population was examined (Kam and Lin, 2003; Bishop, 2012, Hilton, 1984). The blind study was conducted to check the reliability of hand-printing identification (Mitchell and Merlino, 2016). The frequency of occurrence of hand- printing and handwriting features in the US population was measured (Johnson, et al., 2017). The significance of hand-printing and cursive class characteristics in limited collected samples was evaluated (Ridolfi, 2020). It was concluded that Forensic document examiners must conduct an examination to determine the general features including height of letter, width proportions, and shape of letter, size and slant of handwriting along with recording data on frequency of occurrence of individual letter formations. It would determine individuality of printing and allow identification of writers. The challenge for a forensic document examiner should reside in the up- gradation of assessment of results obtained from the methods that were already developed. There has been a need to acquire statistical methods in handwriting comparisons. Statistical analysis is needed to be considered because in recent years there is an increase in the number of cases in which hand-printing is encountered.

Keywords: Hand-printing, Cursive Writing, Forensic Document Examiner, Frequency of Occurrence, Statistical Analysis.

PAPER PRESENTATION STUDENT CATEGORY

ORGANOPHOSPHATE POISONING – MEDICO-LEGAL OVERVIEW

Divyashree N R[1]

[1]B.A., LL.B, University Law College and Dept of Studies in Law, Bangalore University,

Bangalore

Abstract

Toxicology is a branch of science that deals with the toxicity of substances and the term connote unwanted bad effects created by various substances, where the extent of the effect varies, which may be trivial or grave. At this point, it becomes important to know about poison and its medico-legal aspects of it. Accidental or suicidal deaths involving poisons are always a probable cause. Poison is any substance that through a chemical reaction could kill, harm, impair or injure any organism. Forensic Science is involved with the identification and deduction of various Poisons. It is difficult to investigate cases in which poisons are involved and used in killing victims. Most poisons are easily accessible and available, amongst which, Organophosphate is the inorganic poison used for suicidal poisoning in most developing and underdeveloped nations. Organophosphates are extensively used as insecticides and pesticides in agriculture and horticulture, which are easily available, hence being used intensively for suicidal purposes and are also involved in accidental poisoning. Organo-phosphorus compounds are steam-volatile. World Health Organization has classified OP compounds based on their toxicity. Organophosphates can be administered through food or drinks, and their inhalation proves fatal, some of which are easily absorbed by the human skin. This compound has been imported to India since 1951, and the Kerala Food Poisoning Tragedy in 1958 is one of the most known Tragedies that has occurred in India due to OP poisoning. This paper focuses on the legal aspects of OP poisoning, and the treatment for OP poisoning.

Keywords: Toxicology, Organophosphorus Poisoning, Medico-Legal Aspects, Treatment.

ENTOMOLOGY

Tisha R.Ramteke[1]

[1]B.Sc 2nd year, Institute of forensic science Nagpur Government College.

Abstract

Forensic Entomology is the scientific study of the invasion of the succession pattern of arthropods with their development stages of different species found the decomposition cadavers during legal investigations. It is the application and study of insect and other arthropod biology to criminal matter. In forensic entomology we mainly study about the hexapod flies also called as forensic entomological evidence. This flies are having well develop sensory organ. Insects perceive their environment in similar way to human, but different emphasis. In forensic entomology we mainly study about Calliphoridae family, Sarcophagidae family, Bettles with the help of this evidence we can estimate the time of death, place of crime and many other legal issue. The present work is an attempt to prepare the pioneer data and entomological evidence visiting on carrion because this dipterans flies are most possible crime detectors.

Keywords: Forensic Entomology, Arthropods, Dipterans.

CHEILOSCOPY - A TOOL FOR IDENTIFICATION

Dr. Attam Prakash[1], Dr. S. K. Dhattarwal[2]

[1]Resident, Dept. of Forensic Medicine, Pt. B. D. Sharma, PGIMS, Rohtak, Haryana

[2]Sr. Professor and Head, Dept. of Forensic Medicine, Pt. B. D. Sharma, PGIMS, Rohtak, Haryana

Abstract

Identification is a crucial and important role in forensic medicine from the ancient times till date as there are many tools for personal identification which includes Anthropometry, Dactylography, sex determination, differentiation by blood groups, DNA profiling, Odontology etc. Among the various tools the most commonly used is the fingerprints because of its uniqueness in each individual. Yet another tool which can be used based on its uniqueness is the Lip prints, but its contribution in identification is still in trials and not yet confirmed about its feasibility and reliability because of its never-ending debate. Moreover, it is used as an adjuvant technique. The patterns of wrinkles on the lips have discrete characteristics as that of finger prints. The wrinkles and the grooves on the labial mucosa form a characteristic pattern called lip prints. In this poster, we are discussing the importance of lip prints in forensic medicine.

Keyword: Identification, Lip, DNA.

FORENSIC PSYCHOLOGICAL INVESTIGATIVE TECHNIQUE'S IN INDIA: THEIR STATUS AS AID IN INVESTIGATION AND AS CORROBORATIVE EVIDENCE – AS SEEN FROM JUDGEMENTS

K. Hemanth Sai Reddy[1]

Abstract

The crime has always seen a significant growth over successive years in India. The increase in number of crimes is always directly proportional the pendency of cases. The crimes and criminals in the modern era differ those from conventional times and therefore the physical evidence left on the crime scene is nil or negligible thus Investigating agencies always face difficulties to gather evidences, which connects them to the perpetrator. Further, the investigating agencies may list down possible suspects in a case; however, their involvement in the case has to be proved in the court by the prosecution. Newer FPIT's (Forensic Psychological Investigative Technique's) such as Polygraph, BEOS (Brain Electrical Oscillation Signature Profiling), SDS (Suspect Detention System) and LVA (Layered Voice analysis) which are byproducts of amalgamation of psychophysiological principles and technology have seen significant dependency upon them as a scientific aid in investigation and corroboration. These instruments individually and collectively have been used in various cases for varying purposes such as screening of suspects, determining the deception within the suspects and perpetrators as well as showing suspects experiential knowledge of participation in a crime. However, credibility of these FPIT's have been questioned several times, when, there have been media reports claiming that individuals have been convicted based on these tests. As established in the of Selvi & Ors vs State of Karnataka & Anr on 5 May, 2010 the evidentiary value of these tests is only corroborative. The question therefore arises weather individuals have really been convicted based on these tests and if they have been convicted what was the basis for the same. Hence, this study aims to examine the interpretation of results these FPIT's by the honorable courts in India and their evidentiary value. This study therefore will be qualitative in nature that involves analysis of Various Judgements until saturation point.

Keywords: Evidence, Corroboration, BEOS, Polygraph, SDS, LVA.

A COMPARATIVE STUDY OF NATURAL VARIATION SEEN IN SIGNATURES DONE ON THE PAPER AND ON THE ELECTRICAL PAD/APPLICATION

Manshi Dash[1], Dr Surbhi Mathur[2], Krittika Sood[3]

[1]Student of National Forensic Sciences University, Gandhinagar, Gujarat

[2]Senior Assistant Professor, National Forensic Sciences University, Gandhinagar, Gujarat

[3]Research Assistant, NFSU- Bureau of Police Research and Development, Gandhinagar, Gujarat

Abstract

With the advancement of technology and digitization, the traditional paper-based documents are being replaced by digital documents. As the technology progresses, the signatures on hard documents are being replaced on digital devices. This advancement has contributed in the use of signatures done on the electrical pads/applications rather than signatures done on paper in various fields. For such signatures to become common, forgery will take place eventually. An examination should be carried out to examine such signatures made on the electric pad. This study focuses on the differences and similarities caused when an individual signs physically onto a paper and when he/she signs on an electrical pad or any other digital device. Analysis was done on 50 subjects, each one them were asked to sign 10 signatures on paper and 10 signatures on electrical pad. It was found that the variations, such as size of the signature, spacing, proportion, line quality, simplifications, tremors, shape of i/j dot, formation of letters, and angularity, are the characteristics that show significant variations. The variations, such as dimensions, slant, speed, alignment, connecting strokes, position of i/j dot, vertical staff, formation of loops, terminal endings, caps of letters, are the characteristics that did not show significant variations. In future more research can be conducted in order to deduce the parameters with which the document examiner can significantly observe in signatures made on paper and the signatures made on the electrical pad/application.

Keywords: Document examination, Digitization, Electronic signatures, Electrical pad signature, Forgery, Paper signature, Natural variations.

THE PROFILING OF RNA DEGRADATION FOR ESTIMATION OF POST MORTEM INTERVAL IN ANIMAL MODEL

Adarsh Tiwari[1], Rinkal Choudhary[2], Deepak Bharti[3]

[1]Student, SAGE University, Bhopal

[2]Assistant Professor, School of Sciences, SAGE University, Bhopal

[3]Director, CMBR Pvt. Ltd., Awadhpuri, Bhopal

Abstract

Estimation of the post mortem interval (PMI) is one of the most important issues of forensic investigations. During the initial period after death, PMI estimation is done by classical assessment methods dependent on the rate of physical observable modifications, which are still largely inaccurate. But recent advances in molecular biology techniques have paved a way to assess PMI details with accuracy and reliability, as a useful alternative RNA has been brought forward due to its time dependent degradation after death. The motive of this study was to observe the time dependent RNA degradation in different post mortem tissues in order to obtain a pattern that can be developed as potential method for a more accurate PMI determination. For this study, Samples were collected at a fixed time interval after death of fish specimen and then we carried out analysis of total extracted RNA from post mortem muscle tissues by quantitative real-time PCR. The results of this study allowed us to develop a pattern in RNA degradation with predictive values for estimation of the PMI that can potentially become an important technique in forensic pathology.

Keywords: Post-Mortem Interval, Forensic Genetics, Ribonucleic Acid (RNA), Molecular Biology.

HOW TO HANDLE ACCIDENTAL DEFROSTING IN FORENSIC LABORATORIES?

Shriya Mehta[1]

[1]MSc Forensic Science, University of Strathclyde

Abstract

Temperature fluctuations during DNA sample storage is a common issue seen in forensic laboratories due to high costs incurred by freezers. The samples from the client goes waste once DNA has been degraded due to exposure to high or ambient temperature to an extent that PCR quality decreases. Hence the amplification could not detect STRs, especially long kb STRs. This leads to loss of genotype information and give the suspect more advantage over the victim in the courtroom. Hence to avoid damage occurring to DNA due to defrosting, my research aims to observe how much degradation happens in accidentally defrosted swabs. The project then aims to find out the difference in degradation between defrosted and refreeze DNA swabs to see whether refreezing is the best way employed by scientists to treat defrosted swabs. This is an ongoing study which has originated from the lack of protocols in laboratories for handling defrosted swabs. This research will help DNA analysts answer the question whether refreezing should be done or not. And how treatment of defrosted swabs can be improved to gain most genetic information out of an accidently defrosted sample.

Keywords: Defrosting, DNA, Swabs, Degradation.

A NOVEL PAPER-BASED MICROFLUIDIC DEVICE AND UV-VISIBLE SPECTROSCOPY COUPLED METHOD FOR THE FIELD DETECTION AND ANALYSIS OF SEIZED MARIJUANA SAMPLES

Rohith Krishna[1], Ketan Patil[2], Anirudha Dixit[2], Jilja Joseph[3], Astha Pandey[4]

[1]Postgraduate student, National Forensic Sciences University, Gandhinagar

[2]PhD Scholar, COE-NDPS, National Forensic Sciences University, Gandhinagar

[3]Researcher, COE-NDPS, National Forensic Sciences University, Gandhinagar

[4]Head, COE-NDPS, National Forensic Sciences University, Gandhinagar

Abstract

The most commonly used drug in the world is reportedly cannabis. This makes it very difficult for underdeveloped nations to stop the growing, selling, and consumption of cannabis. D9-Tetrahydrocannabinol is the primary psychoactive substance found in the cannabis plant (THC). The introduction of mobile forensic labs has greatly increased the testing efficiency of psychotropic substances, but the traditional methods of analysis might seem to be cumbersome for the individual experimenting with the scene of seizure. The incorporation of portable analytical devices in forensic field analysis is the approach in the right direction for the testing of drugs. In this paper, we introduce a paper-based microfluidic device for the onsite detection of marijuana. The device comprises the fast blue reagent (FBB) as the main reagent. The µPAD- based detection was hyphenated with a UV-Vis spectroscopic confirmation. The computational modeling of the absorbance spectra gave further insights into the product formation during the reaction of THC and FBB. This novel method helps in a faster analysis of marijuana, at a considerably lower cost; which is a great boost to the forensic community and the law enforcement authority.

Keywords: µPAD; Fast blue B; Cannabis; Tetrahydrocannabinol; Field testing; Forensic chemistry; UV-Vis spectroscopy.

Conference Proceedings

THE EMISSION RATE AND EFFECTS OF VOC IN PAINTS: A SYSTEMATIC REVIEW

Mauli S. Khurd[1], Miss. Payal B. Dahotre[1]

[1]Department of Forensic Science, Yashavantrao Chavan Institute of Science (Autonomous), Satara

Abstract

The main aim of this review is to analyze the emission of VOC (volatile organic compound) from paints and study its effects on the human body. For testing the emission rate of voc in paints, different techniques are used. The gas chromatography, Environment chamber method and FTIR spectroscopy are used for analyze them. The result and analysis show the emission rates and compounds present in that. As a result, the major goal is to examine these substances physiologically and see how they affect human health. The effect of VOC emitted from paint on the human body is in the form of short-term effects and long-term effects. Toluene and Ethylbenzene are harmful pollutants emitted from paints in earlier paints. The VOCs were more toxic. The analyzing techniques play an important role. The FTIR technique is easier and affordable than the Environment chamber test and Gas Chromatography.

Keywords: Paint, Volatile Organic Compound (VOC), Effect on Human health, Gas Chromatography, Environment Chamber, FTIR.

PINK TEETH, A PHENOMENON IN HOMICIDAL ASPHYXIAL DEATH: A CASE REPORT

Dr Sangram Singh Yadav[1], Dr Prateek Karagwal[1], Dr Pawan Mittal[2], Dr Gaurav Sharma[3]

[1]PG Resident, Department of Forensic Medicine, Bhagat Phool Singh Govt. Medical College, Khanpur, Kalan, Sonipat, Haryana.

[2]Demonstrator, Department of Forensic Medicine, Bhagat Phool Singh Govt. Medical College, Khanpur, Kalan, Sonipat, Haryana.

[3]Professor & Head, Department of Forensic Medicine, Bhagat Phool Singh Govt. Medical College, Khanpur, Kalan, Sonipat, Haryana.

Abstract

An autopsy case of homicidal asphyxia death is described where pink teeth phenomenon was found during the autopsy in a corpse which was in advanced stage of putrefaction belonging to a young male individual found in a barren land near highway. All the permanent teeth were showing pink discoloration. The final opinion regarding cause of death was given asphyxia death which may be due to ligature strangulation based on circumstantial evidence, police papers, autopsy finding and pink teeth phenomenon. Pink teeth phenomenon was described by Thomas Bell in 1829 in the victims of hanging and drowning. Pink teeth phenomenon is an infrequent and dubious finding in forensic literature. Many authors have stressed that postmortem pink teeth phenomenon should not be considered as a reliable parameter for determining the cause of death, but a number of publications were made on this topic which related this phenomenon with asphyxial deaths such as strangulation and drowning. The discovery of pink teeth phenomenon again and again on autopsy has been creating a dilemma in the minds of forensic pathologists. The pink tissue phenomenon mandates a good and goal- oriented evaluation in order to clarify the role of this phenomenon on ascertaining the cause of death.

Keywords: Pink Teeth, Congestion, Asphyxial deaths, Strangulation, Homicide, Hemolysis.

ROLE OF FORENSIC PSYCHOLOGY IN THE CRIMINAL JUSTICE SYSTEM

Payal Dhanwani[1]

Abstract

Our world today is rapidly progressing. It has massively evolved over the years, and so has its needs and requirements. Consequently, a myriad of newer fields has now come into existence. Some of these innovative disciplines include artificial intelligence, genetic engineering, data analytics, forensic psychology, etc. These fields offer a greater variety of skills and knowledge base, which are necessary for future advancements. But for our discussion at present, we will explore what forensic psychology is, how you can become a forensic psychologist, and how it is crucial in the criminal justice system. Forensic psychologists are trained to apply the principles of psychology to the justice system. Predominantly, the forensic psychologist's play a role in criminal trials to ascertain whether the defendant mental state meets requisite legal standards. Forensic psychology is a highly specialized field that requires a thorough understanding of the philosophy and standards of the judicial system.

Keywords: Forensic Psychology, Criminal justice system, Mental State of Criminal and Judicial System.

FORENSIC ODONTOLOGY AND ITS MEDICO LEGAL SIGNIFICANCE

Dr. Rahul Kaushik[1], Dr. Luv Sharma[2]

[1]Resident, Deptt. of Forensic Medicine, Pt. B. D. Sharma, PGIMS, Rohtak, Haryana

[2]Professor, Deptt. of Forensic Medicine, Pt. B. D. Sharma, PGIMS, Rohtak, Haryana

Abstract

Forensic odontology or forensic dentistry deals with the science of dentistry to aid in the administration of justice. It involves the analysis, interpretation and comparison of bitemarks, personal injuries and malpractices. No two persons have identical dentition in all respects. These are highly suited for identification as they are protected from fire and trauma etc. by external oral structures. Teeth are highly resistant to putrefaction. In this paper we are discussing the importance of teeth and bite marks in forensic medicine.

Keywords: Odontology, Putrefaction, Identification.

TRANSPLANTATION OF HUMAN ORGANS ACT

Dr. Ashish Tyagi[1], Dr. Jitender kumar Jakhar[2]

[1]Resident, Department of Forensic Medicine, Pt. B. D. Sharma, PGIMS Rohtak, Haryana

[2]Professor, Department of Forensic Medicine, Pt. B. D. Sharma, PGIMS Rohtak, Haryana

Abstract

Human organ trade has become a lucrative business in the black market as some medical professionals, nurses and middlemen are involved in this malpractice putting the lives of vulnerable poor people at risk. Even some poverty-ridden communities sell their organs to feed their children and cover their domestic costs. The Middlemen sell the organs in millions of dollars while offering peanuts to the organ sellers. To stop the human trade Transplantation of human organs came into force in India in 1994 and amended in 2011 and 2014. Transplantation of human organ act is an act to provide for the regulation of removal, storage and transplantation of human organs and tissues for therapeutic purposes and for the prevention of commercial dealings in human organs and tissues and for matters connected therewith or incidental thereto. In this paper we are discussing the need, salient features of the act and its medicolegal importance.

Keywords: Trafficking, Organs, Brain Stem Death.

THE CRIMINAL PROCEDURE (IDENTIFICATION) BILL, 2022

Dr. Vikas Verma[1], Dr. S. K. Dhattarwal[2]

[1]Resident, Department of Forensic Medicine, Pt. B. D. Sharma PGIMS, Rohtak.

[2]Sr. Professor and Head, Department of Forensic Medicine, Pt. B. D. Sharma PGIMS, Rohtak.

Abstract

The Identification of Prisoners Act, 1920 allows police officers to collect certain identifiable information (fingerprints and footprints) of persons including convicts and arrested persons. Also, a Magistrate may order measurements or photographs of a person to be taken to aid the investigation of an offence. In case of acquittal or discharge of the person, all material must be destroyed. There have been advances in technology that allow other measurements to be used for criminal investigations. The DNA Technology (Use and Application) Regulation Bill, 2019 (pending in Lok Sabha) provides a framework for using DNA technology for this purpose. In 1980, the Law Commission of India, while examining the 1920 Act, had noted the need to revise it to bring it in line with modern trends in criminal investigation. In March 2003, the Expert Committee on Reforms of the Criminal Justice System (Chair: Dr. Justice V. S. Malimath) recommended amending the 1920 Act to empower the Magistrate to authorise the collection of data such as blood samples for DNA, hair, saliva, and semen. The Criminal Procedure (Identification) Bill, 2022 was introduced in Lok Sabha on March 28, 2022 and became an ACT on 18 th April 2022. The ACT has replaced the Identification of Prisoners Act, 1920. Through this paper, We are going to discuss few points regarding the Criminal Procedure (Identification) ACT, 2022 and its implications with regards to privacy.

Keywords: Identification, Privacy, Data Collection, DNA Technology, Magistrate.

A STUDY ON FINGERPRINT PORES FOR DETERMINATION OF GENDER

Amala Jose Chirayath Alukkal[1], Dr. Surbhi Mathur[2], Krittika Sood[3]

[1]Postgraduate Student, National Forensic Sciences University, Gujarat, India

[2]Senior Assistant Professor, National Forensic Sciences University, Gujarat, India

[3]Research Assistant, NFSU-Bureau of Police Research and Development, Gujarat, India

Abstract

Among the numerous evidences found on crime scene, gathering information on the gender of an individual from fingerprints plays very crucial role in personal identification of an individual. Poroscopy which is specifically the study of fingerprint pores plays a very significant role for gaining a potential match of an individual. This study on topic fingerprint Pores for determining gender explains the significant importance of pores in accordance with the crime scene, the challenges with respect to fingerprints at a crime scene. This research aims to bring insights into how one can determine the gender of an individual from fingerprint pore size by using the traditional methods of the fingerprint collection of samples in effort to bring result for the study. In this work, the pore size and shape of pores are used as the parameters for helping in determination of the gender. A total of 24 participants, 12 male and 12 female were considered for this study which makes it to total of 504 fingerprints collected on fingerprint slips from all the fingers from male and female population, and latent fingerprints mainly from right thumb, right index or right middle as these fingers are generally used for holding or touching surfaces. For matching the pore size of each individual, latent fingerprints are also collected after developing them by powder methods. Comparing fingerprints with ten-digit cards and latent prints, the key findings of the observation of samples with data, images, and graphs which support the scrutiny and examination done on the current study were that the quality of latent imprints depends on various factors like surface, pressure applied, etc. The pore shape observed indicated that there is no significant relation in respect to gender for conclusive identification. The results that were inferred from the analysis showed only 3% similarity in male and female which supports the study that pore size varies in male and female gender from fingerprint slips as well as from developed latent prints.

Keywords: Fingerprints, Pores, Fingerprint Patterns, Poroscopy, Instruments, Collection Methods.

MOLECULAR GENETIC ANALYSIS TO DIFFERENTIATE MONOZYGOTIC TWINS FOR FORENSIC CASEWORKS

Nanditha Nandakumar[1], Tanya Gupta[1]

[1]Post graduate Students, National Forensic Science University, Gujarat, India

Abstract

In World 4 out of 100 twins can be the same twin, but there are two places in the world where this ratio is slightly different. That is, in the village of Kodinhi in Southern India and Igbo-Ora in Nigeria, a twin ratio of 30:100 per delivery. In India the chances of having twins is rapidly rising in pregnancies that are conceived through IVF (In Vitro Fertilisation) Technology. This can be challenging in the case of Forensic scenario when one of the twin is involved in crime and differentiating them on the basis of using conventional DNA Profiling techniques will be difficult as both of them will be having the same STR (Short Tandem Repeats) profiles. In such cases, Monozygotic twins can be differentiated by identifying SNPs (Single Nucleotide Polymorphisms) which occur through Epigenetic differences that arises at the time of Blastocyst splitting. In this study, 40 Blood samples were collected from Kodinhi village of Kerala which is having only Monozygotic twins. Molecular analysis is being done by performing genotyping to confirm that STR profiles being same and sequencing is performed to identify the SNPs that could be a probable marker to confirm the real Perpetrator.

Keywords: Monozygotic twins, SNP variations, STR profile, Genotyping, Sequencing.

POSTER PRESENTATION STUDENT CATEGORY

ACCESSORY HYOID BONE WITH COMPLETELY CALCIFIED STYLOHYOID LIGAMENT – A RARE CASE REPORT

Dr. Priti Singh[1], Dr. Rahul Kaushik[1], Dr. Luv Sharma[2], Dr. Aarti[3]

[1]Resident, Dept. of Forensic Medicine, Pt. B. D. Sharma, PGIMS, Rohtak, Haryana

[2]Professor, Dept. of Forensic Medicine, Pt. B. D. Sharma, PGIMS, Rohtak, Haryana

[3]Professor, Dept. of Anatomy, Pt. B. D. Sharma, PGIMS, Rohtak, Haryana

Abstract

Hyoid bone is a U-shaped bone in the neck originating from the 2nd and 3rd pharyngeal arches. It is situated at the root of the tongue in the front of the neck and between the lower jaw and the largest cartilage of the larynx, or voice box. Stylohyoid complex originates from 2nd pharyngeal arch and consists of styloid process, stylohyoid ligament and lesser cornu of the hyoid bone. In this case report, we present a rare case of completely calcified stylohyoid ligament attached to the lesser cornu of an accessory hyoid bone. The case is a good example of extreme development of the stylohyoid complex, which could cause severe pain and significantly restricted head and neck movement.

Keyword: congenital malformation, accessory, pharyngeal arches.

RECENT ADVANCES IN FORENSIC ODONTOLOGY AND ITS IMPLICATIONS IN MASS FATALITIES

Neha Kannan[1], Dr. Abirami Arthanari[2]

[1]MDS, Department of Forensic Odontology, Saveetha Dental College, Chennai, Tamil Nadu

[2]Saveetha Dental College, Chennai, Tamil Nadu

Abstract

The branch of Forensic odontology has time and again proved its efficacy in medico-legal matters and in identification of the dead person. At the scene of crime or disasters, the forensic odontologists play a vital role in investigating and interpreting the dental evidence. The accuracy in detection could be attributed to the unique anatomy and morphology of each tooth of every individual. Multiple methods have been developed to determine age, sex, and ethnicity of the person, using dental tissues. Various incidents resulting in mass fatalities have occurred over different time periods impacting families and communities. Different countries have different jurisdictions, beliefs and cultures and each situation must be handled with sensitivity. In a major disaster, it is important to have a rapid and effective response with the organisation of an appropriately skilled, multidisciplinary and trained DVI (Disaster Victim Identification) team, ready to deploy wherever and whenever necessary, following an initial assessment of the situation. Despite the best made plans, each incident is always a huge challenge requiring coordination, flexibility and dedication. Data collection methods and supplementary technologies used in forensic dental identification have undergone significant transformation. This poster provides an overview of the evolving trends in conventional methods, and the recent concepts used in forensic odontology and its significance in mass disasters.

Keywords: Disaster Victim Identification, Forensic odontology.

RIGHT ANALYSIS OF WRONG ABUSE IN FORENSIC ODONTOLOGY

N.Fazulunnisa Begum[1], Dr. Abhirami Arthanari[2]

[1]MDS, Department of Forensic Odontology, Saveetha Dental College, Chennai.

[2]Saveetha Dental College, Chennai

Abstract

Abuse can be made to children, women, men, and elderly. Forensic odontologist can help in early detection of abuse. Teeth are the best evidence and source of information for any person both alive and dead. Teeth are two sided sword both used for harm and a weapon against harm. Dental practitioner can encounter clues that a person is abused by bruises, lacerations, puncrpture wounds or injuries in head and neck region. Child Abuse and death related to it are increasing even after increased awareness even in 22nd century. Physicians and dentists can assist in detection of the child abuse. Physical injuries in the head and face are more common in Child Abuse cases. Forensic Odontologist has major role in elder abuse cases. Older people are upto more trauma when they are disabled to protect themselves. The main reason for their abuse is the dependence on the abuser economically or emotionally. Bite mark analysis has a primary role in identification. This paper is to enhance the understanding of uses of forensic odontology in child abuse issues and elderly abuse cases.

Keywords: Forensic odontologist, Child Abuse, Bite mark analysis.

FORENSIC FACIAL RECONSTRUCTION

M.S. Ramya Suresh[1], Dr.Abirami[2]

[1]MS, Saveetha Dental College, Chennai

[2]Department of Forensic Odontology, Saveetha Dental College, Chennai

Abstract

Forensic facial reconstruction is a technique used to reconstruct human face from unidentified skull remains. It is a method of recognition that enables direct investigations for primary methods of human identification. When traditional methods such as examination of dental records, radiographs, and DNA analysis are ineffective or not feasible, this is considered the last resort in forensic identification. Forensic facial reconstruction is regarded as a blend of scientific method and artistic ability. The traditional method of forensic reconstruction has been criticized for being highly subjective and reliant on individual skill. As a result, efforts are made to automate the reconstruction process. The techniques of facial reconstruction can be divided into two types, two dimensional (2D) reconstruction, and 3D reconstruction. The techniques can either be done manually or using specialized software. For the acquisition of three-dimensional (3D) surface data of the human face, a computerized facial reconstruction system was developed. A laser video camera is used to capture the skull. The skull data is then rendered as a fully shaded 3D surface. Computer software can be used to draw the face (for e.g., Vitrea 2.3 version volumetric visualization software). It has been discovered that 3D computed tomography (CT) imaging is more accurate than imaging performed directly on CT slices and two-dimensional (2D) CT image reconstruction.

Keywords: Facial Reconstruction (FFR), Identification, Forensic Facial Approximation (FFA), Forensics

RECENT ADVANCES IN DIGITAL FORENSICS

P. Deeksheetha[1]. Dr. Abirami Arthanari[2]

[1]Ist year MDS, Dept of. Forensic Odontology, Saveetha Dental College and Hospitals, Chennai.

[2]Dept of. Forensic Odontology, Saveetha Dental College and Hospitals, Chennai

Abstract

Increased global digitalization has resulted in threats faced on a daily basis to move from the physical arena to cyberspace. India has become a hotspot of cybercrimes and cyber-attacks, due to the lack of digital knowledge among the citizens and lack of a country wide cyber protection. There is a new wave of crimes from Industrial espionage to threats that endanger an individual's physical and digital security. Lately, cyber threats have been equipped with anti-forensic techniques. Hence, Cyber security, data privacy and digital forensics is not critical only for private corporations but also law enforcement and government agencies. Modern digital forensics is a multidisciplinary effort that embraces several fields, including law, computer science, finance, networking, data mining, and criminal justice. Digital Forensics and Incident Response (DFIR) is a set of practices and tools that enable rapid investigation and response to cyber-attacks. Tools like GitOps is an open source version control system that is used to store the necessary configuration files in the Git repository and it improves software reliability, reduces the danger of configuration drift. Recently, Exterro in conjunction with Microsoft has developed a cloud based digital forensics platform for digital forensics and DFIR solutions which enables collection, processing and review of large volumes of data at speed, while also centralizing access thereby allowing officers and investigators to work in collaboration. Due to increased generation of digital media and the fast development of powerful and low-cost editing tools that facilitate the manipulation of digital media leaving little or no sign of manipulation, which is then spread quickly on both a national and an international scale. Hence, assessing its authenticity has become paramount especially in the fields of medicine and law enforcement. This poster aims to focus on the recent advances in the field of digital forensics.

Keywords: Digital Forensics and Incident Response, Global Digitalization, Cyber Attacks.

ADVANCEMENTS IN CRIME SCENE INVESTIGATION TECHNIQUES

Dharini. S[1], Dr. Abirami Arthanari[2]

[1]Ist year MDS, Dept of. Forensic Odontology, Saveetha Dental College and Hospitals, Saveetha Dental College and Hospitals, Chennai

[2]Saveetha Dental College and Hospitals, Saveetha Dental College and Hospitals, Chennai

Abstract

New scientific, technological and legal developments, particularly the introduction of national databases for DNA and fingerprints, have led to increased use of forensic science in the investigation of crime. The value of science added enables society to fully benefit from some new discoveries through technology. The benefits of the real-time, on-site of the forensic investigation are manifold and such technology has the potential to strongly increase the speed and the efficacy of the criminal justice system. Technology is quickly taking over every aspect of our lives, including solving crimes. There are new advances in forensic science technologies such as DNA Phenotyping where Forensic scientists can sequence a DNA sample and provide investigators with identifying traits of the suspect, including hair, eye, and skin color. Another such advancement is biosensors for fingerprint analysis where Forensic scientists use biosensors to analyze the minute traces of bodily fluids found in fingerprints to identify the suspect. Many other advancements such as Touch DNA, Google glass, forensic palynology, Immunochromatography etc., are emerging. There are many different technologies used in the forensic sciences that most people don't know exist. This poster provides an awareness and understanding of recent technologies that could help in finding the suspect.

Keywords: Touch DNA, Google glass, Forensic Palynology, Immunochromatography.

SYSTEMATIC REVIEW ON THE APPLICATION OF FORENSIC PROTEOMICS

Dr. G.B. Aravind[1], Athira Raj T[2]

[1]Associate Professor and Co-ordinator of Forensic Science, Dept. Forensic Medicine and Toxicology, JSS Medical College, Mysuru

[2]Ph.D. Scholar, Dept. Forensic Medicine and Toxicology, JSS Medical College, Mysuru

Abstract

The proteome is defined as the total complement of proteins of an organism or tissue under a given set of environmental or physiological conditions. Proteomics has unique characteristics that make it a natural fit for biological forensic science. The proteome is not constant; it differs from cell to cell and changes over time. Inculcating proteomics in forensic science can be useful in many instances such as to understand the degradation patterns of proteins in animals / humans. Muscle cells are among the most highly organized in any tissue, as they perform a diverse array of mechanical functions. Two main components of the muscle proteins are the actin and myosin. The complex formed by the interaction of myosin and actin is often referred to as acto-myosin. In postmortem muscle the bonds created by acto-myosin become irreversible and are also known as rigor bonds as they are the genesis of the stiffness that develops in postmortem muscle. The poster aims at analyzing different studies that showcase the effect of the muscle proteins under depletion of ATP availability. Researches have been conducted in the area to understand the post-mortem changes in muscles. It is applied in the meat industry, to examine the development of meat quality. Although this review article emphasized on the comparative study, it was complicated by the heterogeneity of study designs, tissue types, methods, proteins and outcome measurement; yet there is clear evidence for a high explanatory power of protein degradation analysis in forensic PMI analysis. Although only few approaches have yet exceeded a basic research level, the current research status provides strong evidence in favor of the applicability of proteomics in various areas of forensic practice.

Keywords: Forensic Biology, Proteomics, Degradation, Muscle Tissue, Post-Mortem Interval.

IDENTIFICATION OF TOXICOLOGICAL PROPERTIES AND LD 50 OF SRI LANKAN GREEN PIT VIPER (TRIMERESURUS TRIGONOCEPHALUS) VENOM INOCULATED TO MICE

S.P.Keerthani[1]

[1]Nilai University, Malaysia (Horizon Campus, Sri Lanka)

Abstract

In the field of toxicology studies were related to synthetic toxins and natural toxins like animal and plant toxins. The studies related to of animal poisons (scorpions, bees, snakes) and venomous, popular types of snakes. Among the all snake types in the world this study is focused about the Green pit Vipers (GPV). Out of 3600 species of snakes in the world Sri Lanka has 96 species of both land and sea snakes categorized in to 10 different families. Among them, only 10 species are highly venoms and gives harmful effects on human. The interested species of study is Green Pit Viper Trimeresurus trigonocephalus endemic to Sri Lanka which is moderately venomous. The objective of the study is to identify toxicological properties and the lethal dosage of GPV venom components contribute to any of victim body changes. 60 healthy, adult male mice of 18-22g weight were selected, reared in same environment conditions and fed with same feeding materials and equally divided in to 06 groups each containing 10 mice. 9 GPVs were milked to obtain pooled venom sample according to the guidelines of world health organization (WHO) and good manufacturing practices (GMP).The venom is prepared as dilution series with normal saline in grams of venom per 20g of mice, injected intra peritoneal to mice and controlled group was not injected. After injecting the mice were observed for any change in behavior for 24-48h and 50% of mice death was noticed. Dead mice were examined for post mortem changes. Since the GPV is a moderately venomous snake, the lethal dosage of GPV is expected to be high as 7×10^{-5} g of venom for 20g average mice. GPV venom shows neurotoxin, myotoxin, heamotoxin, nephrotoxin and hepatotoxin toxicological properties in the victim's body in post mortem when administered in high amounts.

Keywords: Toxicology, Green Pit Viper, Trimeresurustrigonocephalus, Venom, Lethal Dosage, Neurotoxin, Myotoxin, Heamotoxin, Nephrotoxin, Hepatotoxin.

EFFECTIVENESS OF TESTING ETHANOL LEVELS IN CORPSE USING VITREOUS HUMOR VERSUS BLOOD SAMPLES

Shella Morina[1,4], Ahmad Yudianto[2,3]

[1]Resident of Forensic Medicine and Medicolegal, Universitas Airlangga, Surabaya, East Java, Indonesia

[2]Department of Forensic Medicine and Medicolegal, Universitas Airlangga, Surabaya, East Java, Indonesia

[3]Master in Forensic Science, Postgraduate School, Universitas Airlangga, Surabaya, East Java, Indonesia

[4]Faculty of Medicine, Widya Mandala Catholic University, Surabaya, East Java, Indonesia

Abstract

Introduction: The abuse of ethanol has a negative impact on human life, especially in increasing crime rates and accidents that often cause death. In this case, it is necessary to prove the presence of ethanol in the body by taking samples of body fluids of the corpse. Methods: A literature review by collecting works of literature that focus on the examination of ethanol using blood samples and vitreous humor. Discussion: In general, the examination of ethanol levels in corpses is carried out by taking blood samples. On the other hand, blood ethanol levels can be affected by the activity of bacteria that also produce ethanol, especially if the trauma is severe enough or if the body has undergone decomposition. Therefore, an alternative is needed through other body fluids, such as vitreous humor. This is based on the fact that bacterial contamination of putrefaction in the vitreous humor tends to be minimal. Conclusion: Examination of ethanol through vitreous humor can be an alternative to blood samples.

Keywords: Ethanol, Blood, Vitreous Humor, Corpse.

SUSPECTED POISONING: A CASE SERIES REPORT

Dr Monika[1], Dr Pankaj Chhikara[2], Dr S.K Dhatarwal[3]

[1]Resident, Department Of Forensic Medicine, Pt. B.D. Sharma Pgims, Rohtak.

[2]Assosciate Professor, Department Of Forensic Medicine, Pt. B.D. Sharma Pgims, Rohtak.

[3]Sr. Professor and Head, Department Of Forensic Medicine, Pt. B.D. Sharma Pgims, Rohtak.

Abstract

Aluminum phosphide (AlP) is a cheap solid fumigant and a highly toxic pesticide which is commonly used for grain preservation. Aluminum phosphide has currently aroused interest with increasing number of cases in the past four decades due to increased use in agricultural and non-agricultural purposes and also its easy availability in the markets has increased its misuse to commit suicide. Upon contact with moisture in the environment, Aluminum phosphide undergoes a chemical reaction yielding phosphine gas, which is the active pesticidal component. Phosphine inhibits cellular oxygen utilization and can induce lipid peroxidation. It was reported that Aluminum phosphide has a mortality rate more than 50% of intoxication cases. Poisoning with Aluminum phosphide has usually occurred in attempts to suicide. It is a more common case in adults rather than teen agers. In some eastern countries it is a very common agent with rapid action for suicide. Up to date, there is no effective antidote or treatment for its intoxication the oxidative outcomes of phosphine. This article reviews the experimental and clinical features of Aluminum phosphide intoxication and tries to suggest a way to encounter its poisoning.

Keywords: Aluminum phosphide, Phosphine, Management, Poisoning, Suicide.

ADVANCES IN FORENSIC PSYCHOLOGY

G.Priyadharshini[1], Dr. Abirami Arthanari[2]

[1]MDS, Department of Forensic Odontology, Saveetha Dental College and hospitals, Chennai, Tamil Nadu

[2]Department of Forensic Odontology, Saveetha Dental College and hospitals, Chennai, Tamil Nadu

Abstract

Forensic Psychology, is a subfield of psychology, which involves the application of psychological knowledge and methods to both civil and criminal legal questions. Forensic psychological assessment is emerging as the most reliable investigation option for undetected crimes and criminal identification. Recent research in the field of forensic psychology has evolved and expanded the domains of forensic evaluation, such as risk assessment and personality assessment, and treatment and care of offending populations and those involved with the criminal justice system. These include empirical advances in the context of violence risk assessment, sex offender risk assessment, and personality assessment, and treatment of offenders. In case of child sexual abuse, in most cases, there are no physical indications of the abuse. Sometimes there are significant behavioral or emotional changes that might provide an indication that something has happened. At other times, abuse may be discovered as a result of an ongoing investigation of other victims, as perpetrators commonly have multiple victims. The forensic interviews are important for protecting children and successfully prosecuting perpetrators, and it is also important that falsely accused individuals are exonerated. This poster reviews the new approaches to forensic interviews and their advantages. This poster also emphasises the need of forensic psychiatrist and any general practitioner to remain upto date with recent sexual harassment legislation, the use of neuropsychological testing and the assessment of child abuse. Thus, forensic psychology is a developing field with more scope for research to find different methods and assessment techniques that can help the law enforcement agencies to catch hold of the offender as well as to ensure public safety.

Keywords: Forensic Psychology, Psychology, Risk Assessment, Personality Assessment.

STAB WOUND WITH BROKEN BOTTLE ON NECK ON A MURDER CASE

Syahroni[1], Ahmad Yudianto[2]

[1]Resident of Forensic Medicine & Medicolegal Studies, Department of Forensic Medicine & Medicolegal

[2]Faculty of Medicine Universitas Airlangga – RSUD Dr. Soetomo Surabaya, Indonesia

Abstract

Murder with a sharp weapon is still a high incidence of violent crime in many places. Sharp weapons which are evidence of various violent crimes, even broken bottles have been found as evidence of murder in several cases. Forensic pathologists play a role in helping to light up cases like this with forensic autopsies on victims. Case reported: a man with the initials "MN" aged 20 years, died on his way to a hospital in East Java, Indonesia on November 10, 2021, accompanied by colleagues, a history of being involved in a fight that resulted in stab wounds using broken bottles on the neck left. At the request of the police, an external examination was carried out, it was found; stab wound on the left neck, signs of asphyxia and signs of anemia. From the autopsy obtained; truncation of the left external jugular vein and bleeding spots on the cerebrum and cerebellum slices. The results of histopathological examination of the sternocleidomastoid muscle tissue and the left external jugular vein were without abnormalities. Stab wound by a broken bottle on the left neck that cut left external jugular vein so that bleeding and eventually suffocation are the mechanism of death in the above case. Glass shards as evidence of a murder case can be proven, one of which is matched by its refractive index with the glass shards on the body of the victim being examined using a machine with a Glass Refractive Index Measurement (GRIM) system.

Keywords: Bottle shards, forensic autopsy, GRIM, stab wounds.

DEATH DUE TO MASSIVE BLEEDING PRECEDED BY CHOP WOUND ASSAULT

Farhad Moegis[1], Satria Perwira[1], Edwin Tambunan[1], Ahmad Yudianto[1]

[1]Department of Forensic and Medicolegal Medicine, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia

Abstract

A chop wound is a wound caused by a heavy object or tool that can be slightly blunt when swung with great force. Because of the weight of the tool, fractures can occur, resulting in bone fragments. The tools that cause chop wounds can be: sickles, machetes, axes, butcher knives, swords or even the propellers of ships or planes. (Yudianto, 2020) (DiMaio and DiMaio, 2001), so it can be concluded that stab wounds are a combination of injuries caused by violence. Sharp and blunt force. This is a scientific work, a case report about a man who became a victim of chop assault causing massive bleeding that caused the victim death.

Keywords: Chop Wound, Fractures, Injuries.

AUTOPSY FINDINGS OF ATHEROSCLEROSIS IN THE LEFT CORONARY ARTERY FROM A HOMELESS CORPSE: ENVIROMENTAL EXSPOSURE?

Muhammad Kholil Ikhsan[1], Tia Maya Affrita[1], Ahmad Yudianto[2], Edwin Tambunan[2]

[1]Resident of Forensic Medicine and Medicolegal Specialist Program, Faculty of Medicine, Universitas Airlangga, Jl. Mayjen. Prof. Dr. Moestopo 47, Surabaya 60132, Indonesia.

[2]Department of Forensic Medicine and Medicolegal, Faculty of Medicine, Universitas, Airlangga, Jl. Mayjen. Prof. Dr. Moestopo 47, Surabaya 60132 Indonesia.

Abstract

BACKGROUND: Coronary atherosclerosis is the most common cause of sudden death, in addition to internal factors and an excessive lifestyle in consuming food, environmental pollution factors affect increasing atherosclerosis, and homeless people are often exposed to environmental pollution. CASE PRESENTATION: The social service from Surabaya, delivered the body with the identity of Mr. N, a 66-year-old man who was found lying on the sidewalk of the highway, the body according to the database was homeless person in the Surabaya area. An autopsy was carried out at the request of the regional police to determine the cause of death. RESULTS AND DISCUSSION: On internal examination, 80% of left coronary artery blockage was found and histopathological examination showed areas of calcification in the tunica media. Environmental exposure is an important but underappreciated risk factor that contributes to the development and severity of cardiovascular disease (CVD). The cardiac and vascular system is highly susceptible to several environmental agents of ambient air pollution and the metals arsenic, cadmium, and lead are widely distributed and most studied. Like traditional risk factors, such as smoking and diabetes mellitus, these exposures promote disease and death through augmentation or initiation of pathophysiological processes associated with CVD. CONCLUSION: The cause of death in this homeless corpse was Coronary atherosclerosis. Suggestions for social services are to hold a program of health promotion activities including routine blood pressure checks for homeless people in their area. Environmental exposure in low- and middle-income countries lies at the crossroads between increasing economic development and the increasing public health burden of cardiovascular disease.

Keywords: Autopsy, Coronary Atherosclerosis, Environmental Exposure, Homeless, Social Service.

MANAGEMENT OF HISTOPATHOLOGICAL EXAMINATION ON AUTOPSY FINDINGS OF UNWITNESS DEATH: A CASE STUDY

Vernando Parlindungan[1], William Daniel Napitupulu[1], Ahmad Yudianto[2]

[1]Resident of Forensic Medicine and Medicolegal Specialist Program, Faculty of Medicine, Universitas Airlangga, Jl. Mayjen. Prof. Dr. Moestopo 47, Surabaya, 60132, Indonesia

[2]Head of Forensic Medicine and Medicolegal Department, Faculty of Medicine, Universitas Airlangga, Jl. Mayjen. Prof. Dr. Moestopo 47, Surabaya, 60132, Indonesia

Abstract

Introduction: The sixth most common cancer globally with a wide geographical distribution is primary liver cancer. In the United States, in 2005, there were an estimated 17,550 new cases and 15,420 deaths from primary liver cancer. Liver cancer has the second-highest annual percentage change (APC) between 1992 and 2002 after thyroid cancer and the highest APC. Most of these cancers are diagnosed in elderly patients, with a higher incidence (26.4%) in the 65-74 age group. The average five-year survival rate, even in the United States, is less than 10%, with an average of 16.4 years of life lost per person who has died from liver cancer. 1 Purpose: Improve the understanding of forensic pathologists on how to collect and send specimens to determine the cause of death. Case: Found the body of a man in a rented house without eyewitnesses. An autopsy was performed to determine the exact cause of death. Lung and spleen tissue samples were taken for laboratory examination. Discussion: the results of histopathological examination of liver tissue, there is a malignant tumor growth, polygonal cell shape, in accordance with the description of hepatocellular carcinoma. Magnification 200x. The results of histopathological examination of the spleen tissue, the tissue section consists of a germinal center, with a stroma of non-specific chronic inflammation. Magnification 40x

Keyword: Case-Report, Laboratory-Examination, Cause of Death, Autopsy-Finding, Histopathological-Examination.

ALLEGED ADULTERY: A CASE STUDY

Satria Perwira[1,2], Ahmad Yudianto[1,2]

[1]Forensic Science Study Program, Graduate School of Airlangga University, Surabaya, Indonesia.

[2]Department of Forensic and Legal Medicine, Doctor Soetomo Hospital, Surabaya, Indonesia

Abstract

Background: Sexual intercourse is the penetration of the vagina by the penis, regardless of the presence or absence of sperm or semen. Under Indonesian law, one form of sexual intercourse outside of marriage includes adultery, rape, intercourse with a person unconscious or helpless, and intercourse with a woman who has not reached the age of 15. Case Presentation: On June 6, 2022, a letter requesting a medical examination of alleged adultery from the investigator was received; three days after the husband found his wife at the inn with another man. External, internal, and laboratory examinations were conducted. On external examination, there were no abnormalities or signs of violence. In an internal examination, we found tiny abrasions irregularly in labium minus. An old tear was found on examination of the hymen with no abnormalities or signs of violence on the rectal. A pregnancy test was carried out with a negative result. Vaginal swabs and vaginal irrigation were carried out for later examination at the East Java Police Forensic Laboratory. Conclusions: Signs of sexual intercourse include signs of penetration and signs of ejaculation. These forms can be in a hymen tear, the discovery of ejaculate fluid, either sperm or semen, pregnancy, and the presence of venereal disease. The discovery of sperm fluid is a definite sign of intercourse. If there are no spermatozoa cells, then the proof of the existence of intercourse can be identified by seminal examination.

Keywords: Ejaculation sign, Penetration sign, Sexual intercourse, Vaginal swab.

FINDING AUTOPSY THE MIDDLE-EAR HAEMORRHAGE (OTIC BAROTRAUMA) IN DROWNING: CASE REPORT

William Daniel Napitupulu[1], Muhammad Kholil Ikhsan[1], Ahmad Yudianto[2]

[1]Resident of Forensic Medicine and Medicolegal Specialist Program, Faculty of Medicine, Universitas Airlangga, Jl. Major General. Prof. Dr. Moestopo 47, Surabaya 60132, Indonesia

[2]Department of Forensic Medicine and Medicolegal, Faculty of Medicine, Universitas Airlangga, Jl. Major General. Prof. Dr. Moestopo 47, Surabaya 60132, Indonesia

Abstract

Introduction: Otic Barotrauma (OBT) or ear barotrauma is a tissue injury to the ear secondary to inadequate pressure equalisation between gas-filled body spaces and the external environment. Otic Barotrauma in forensics is known as a haemorrhage in the middle ear and mastoid, which is commonly found at drowning. Case Presentation: A decomposed man's body without identity has been found drowned in the river and evacuated. The body was then identified at Forensic Installation Bhayangkara Hospital Porong, East Java, Indonesia. External and internal examination (autopsy) was carried out. Result and Discussion: On the internal examination, the organs were further decomposing. Sands were found in the throat, main airways, and bronchial branches; oedema aquosum and Paltauf's spots in the lungs; bilateral haemorrhage in the middle ear and temporal bone was found; dilatation of brain vessels. DR. Sneeden carried out the first study on middle ear haemorrhage in 1951; in 1963, Nelson and Niles conducted a study on 51 cases of suspected drowning, 24 cases of drowning found 22 bilateral middle-ear haemorrhages and one unilateral, 25 possible drownings found, 13 bilateral middle-ear haemorrhages and 5 unilateral, not drowning 2 without findings middle ear haemorrhage. The mechanism of middle ear trauma as the pressure continues to increase without equalising the middle ear space, the blood vessels will eventually rupture, causing bleeding into or behind the tympanic membrane (TM); the exact pressure required to rupture the TM is unclear but is estimated to be around 100 kPA. Conclusion: Based on the autopsy findings, the cause of death was drowning in this case. When a drowning corpse has undergone decomposition, the findings in the form of middle-ear haemorrhages can be considered a definite sign of drowning.

Keywords: Autopsy, Decomposition, Drowning, Middle Ear Haemorrhage, Otic Barotrauma.

'VERTICAL' AORTIC RUPTURE DUE TO BLUNT THORACIC TRAUMA – AN UNCOMMON FINDING IN A TRAFFIC-RELATED FATALITY

Dr. Rishi Rajindran[1], Dr. Pawan Mittal[2], Dr. Gaurav Sharma[3], Dr. Anil Garg[4], Dr. Yogesh Kumar[5]

[1]PG Resident, Department of Forensic Medicine, Bhagat Phool Singh Govt. Medical College, Sonipat, Haryana

[2]Demonstrator, Department of Forensic Medicine, Bhagat Phool Singh Govt. Medical College, Sonipat, Haryana

[3]Professor Head, Department of Forensic Medicine, Bhagat Phool Singh Govt. Medical College, Sonipat, Haryana

[4]Professor, Department of Forensic Medicine, Bhagat Phool Singh Govt. Medical College, Sonipat, Haryana

[5]Associate Professor, Department of Forensic Medicine, Bhagat Phool Singh Govt. Medical College, Sonipat, Haryana

Abstract

Blunt thoracic aortic injury, a life-threatening concern, remains the second most common cause of mortality among all non-penetrating traumatic injuries, second only to intracranial haemorrhage. Motor vehicle accidents, particularly head on collisions, account for majority of the cases; where high energy blunt trauma with a rapid deceleration is present. As mentioned, the most common mechanism is the force generated by rapid deceleration of the body in either the horizontal or vertical plane. Horizontal forces result in the tearing of the aorta at its fixed position and vertical forces result in the bursting of the aorta at its weaker portions, mainly at the isthmus. From the forensic and biomechanical point of view, such ruptures have been almost exclusively found to be transverse in nature, irrespective of their location. We performed an autopsy on a case of vehicle collision related fatality that showed a partial thickness vertical rupture at the midportion of descending thoracic aorta, in addition to the classical transverse intimal tear of the aortic isthmus. The significance of such ruptures in the reconstruction of chain of events from a forensic perspective doesn't need to be overemphasized. Rather uncommon and interesting findings like these, call for better explanations in terms of mechanisms of injury that may additionally contribute to the clinical research and management of casualties.

Keywords: Traffic Related Fatality, Blunt Trauma, Thoracic Aorta, Aortic Rupture, Vertical Te

Afterword

*The International Association of Scientists and Researchers, IASR, has been the torchbearer for planning a forum for avid learners to present, learn and appreciate the ongoing research and developments in forensic science. The IASR has continuously collaborated with the Sherlock Institute of Forensic Science, SIFS India, to bring about stalwarts and personalities to a single forum and make learners familiar with recent advancements and significant case studies to gather knowledge. This International Conference on Forensic Science 2022 has been a remarkable journey of listening to **38 esteemed speakers** addressing more than a thousand participants from **59+ countries** for **32+ hours**. The conference was one of its kind, which included **9+ themes** of forensics. It also gave hands-on knowledge from skilled forensics professionals through **6 Pre-Conference Workshops** on Lie Detection, Open Source Intelligence, Medical Certificate by doctors, Dental Age Estimation, Acid Attack Survivors and their social acceptability and Silent Witnesses at the scene of the crime. The forum was an open platform for enthusiastic learners to present their work and construct knowledge from **102 venerable dignitaries** giving their inputs from their pool of knowledge.*

59+ Countries

32+ Hours

38 Speakers

102 Esteemed Dignatries

INTERNATIONAL CONFERENCE 2022

06 Pre Conference Workshops

IASR

09+ Themes

Conference Proceedings