eConference Proceedings

IASR
INTERNATIONAL ASSOCIATION
OF SCIENTISTS & RESEARCHERS

30th**-31**st
October
2021

10th INTERNATIONAL eCONFERENCE-2021

Crime Scene Investigation

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GREETINGS FROM THE ORGANIZING DESK

The new era post the global pandemic has affected academics, establishments, and individuals' preparedness worldwide. 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. With a vision to bring all the academicians, students, and professionals and share their valuable contemplations, the International eConferences are structured to lead the way through endeavors focused to take 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
Forensic Expert, CEO
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INTERNATIONAL ASSOCIATION OF SCIENTISTS AND RESEARCHERS (IASR)

IASR is a non-profit organization focused to deliver the updated literature and research work to not only the global scientific and research society, but also to everyone. Providing open access to critically reviewed high-quality research papers and literature, it works with a mission of providing a user- friendly global platforms for researchers, scientists for sharing information, and dissemination of recent ground breaking researches and advancements in various fields working together for the betterment of the world.

About the eConference

Forensic Science has proffered techniques that have leveled up the competence of humankind and are staying up with the trend. At the outset, the International Association of Scientists and Researchers (IASR) in association with the Sherlock Institute of Forensic Science (SIFS) India organizing the 8th International eConference on "Forensic Medicine & Toxicology", 2021. With utmost enthusiasm, the organizing committee invites the young minds and professionals of various disciplines of forensic science and become a part of the first-ever convention organized with the motto of bringing the unrecognized talents, present globally. The program would follow talks by eminent national and international experts accompanied by e-paper presentations, ePoster presentations, discussions, and scientific excellence awards.

Mission Statement

"Committing towards the fact of being a lead-follower of technology with a bold spirit of risk-taking, helping us make our presence noticeable worldwide".

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SPEAKER'S PROFILE

BARRY A. J. FISHER

Park Dietz and Associates, California, US

Barry A. J. Fisher is presently a Senior Forensic Science Advisor at Park Dietz and Associates, California. He has served as Crime Laboratory Director for the Los Angeles County Sheriff's Department from 1987 until his retirement in 2009. He began his career in criminalistics with the Sheriff's Crime Lab in 1969. His current interests concern the interrelationship between forensic science and the law and public policy issues concerning the timely delivery of quality forensic support services to the criminal justice system. He is a Distinguished Fellow and past president of the American Academy of Forensic Sciences, past president of the International Association of Forensic Sciences, past president of the American Society of Crime Laboratory Directors and a past chairman of the American Society of Crime Laboratory Directors – Laboratory Accreditation Board. His textbook, "Techniques of Crime Scene Investigation", is in its 8th edition. He speaks throughout the United States and has lectured in Canada, England, Australia, Singapore, France, Israel, Japan, China and Turkey on forensic science laboratory practices, quality assurance and related topics. He received his Bachelor of Science degree in chemistry from the City College of New York. He holds a Master of Science degree in organic chemistry from Purdue University and an M.B.A. degree from California State University, Northridge.

DR. WILLIAM R. BELCHER

University of Nebraska-Lincoln, US

Dr. William R. Belcher is currently working as an Assistant Professor at Nebraska-Lincoln University, United States. He is a forensic anthropologist and archaeologist and an environmental archaeologist specialising in animal bones from archaeological sites-zooarchaeology. He has a keen interest in understanding the application of forensic anthropological methods to identifying human remains. As the Coordinator for the Graduate Certificate in Forensic Anthropology, he welcomes students at the undergraduate and graduate level to learn the identification techniques and processes as a service-based discipline as UNL. He has worked in two disparate areas of research, one as an environmental archaeologist and the other as a forensic anthropologist/archaeologist. His environmental archaeology program focuses on analysing ancient (3rd and 4th millennium BCE) fish remains and their modern counterparts. This will allow them to examine significant changes in fishing, butchery, ancient trade, and climate change. After retiring from the Defense POW/MIA Accounting Agency, his primary focus at UNL is to provide opportunities to learn and conduct research related to the identification of missing US service members in conjunction with the Scientific Analysis Directorate Laboratory at Offutt Air Force Base in Omaha, NE.

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SPEAKER'S PROFILE

DR. DOMINGO MAGLIOCCA

Public Prosecutor's Office, ITALY

Dr. Domingo Magliocca is a Certified Geographic Profiling Analyst serving in Italy as a police officer assigned at the Judicial Police Section of the local Public Prosecutor's Office for criminal investigation activities. He has a Bachelor of Arts Degree in Security and Social Control Operator, a Master's Degree in Applied Criminology for Investigation and Security from the University of Bologna, and a Master's Degree in Law from the University Telematica Pegaso. He is author of books "Tracce geografiche criminali, Teoria e tecnica del Profilo Geografico" (Primiceri Edition, 2020) about geographic profiling technique, "Introduzione al crimine violento. Criminal profiling e classificazioni pratiche (Primiceri Edition, 2020), "Profilo Criminale. Analisi integrata del luogo del delitto" (Primiceri Edition, 2019) about criminal profiling, and "Il delitto di atti persecutori - stalking" (Primiceri Edition, 2017) about phenomena of stalking. He is the author of specialistic articles about stalking, crime scene, law, geographical offender profiling as "Geographic Profiling Report." The homicide of Cattolica and other women: hypothesis of a serial killer in Milan". He was a board member of the journal "Intelligence & Storia Top Secret", Peer Reviewer of the international scientific journal "Universal Journal of Psychology". He has collaborated with the technical-juridical journal "Sicurezza e Giustizia" and speaker in several international forensic science and criminology conferences. He is an honorary member of the Bolivian Forensic Sciences Society.

ANNA BARBARO

Worldwide Association of Women Forensic Experts, ITALY

Anna Barbaro is a Forensic Geneticist serving as the WAWFE President and Chief of the Forensic Genetics Department at SMEF. She is a Forensic Geneticist Senior certified ISO17024 Honor Dean of the Superior School of Criminalistics and Criminology (Spain) and Member of the Editorial Board of the Journal of Forensic Science and Legal Medicine (FSLM) and of the WAWFE Journal. She is also a Scientific Researcher at Alcalá University, Community of Madrid, Spain. She has taught Forensic Genetics at the University of Rome "La Sapienza", Italy and in several international forensic congresses. She is also the Honour Member of the Georgian Academy of Forensic Sciences (GAFS) and the Peruvian Association of Forensic Odontology (APOFOR). She has been regarded as a member of various associations, namely, President Worldwide Association of Women Forensic Experts (WAWFE), Honor Member of the Georgian Academy of Forensic Sciences (GAFS), Honor Member of the Peruvian Association of Forensic Odontology (APOFOR), Member of the Italian National Order of Biologists (ONB), Member of the Italian Group of Forensic Geneticists (GEFI), Member of the Spanish-Portuguese Group of Forensic Geneticists (GHEP), Member of the International Society of Forensic Genetics (ISFG), Member of the American Investigative Society of Cold Cases (AISOCC), and Past General Secretary of the Mediterranean Academy of Forensic Sciences (MAFS).

SPEAKER'S PROFILE

DR. JAYASANKAR P. PILLAI

Govt. Dental College and Hospital, Ahmedabad, INDIA

Dr. Jayasankar P. Pillai graduated BDS from Mahatma Gandhi Institute of Post Graduate Dental Science, Pondicherry in the September 1997. He is currently a faculty in the department of oral pathology at Govt. Dental college and hospital, Ahmedabad. He has more than 24 years of teaching experience in teaching dental anatomy, oral histology, oral pathology and forensic odontology. He completed his fellowship in Forensic odontology through Indian Board of Forensic odontology (IBFO). He also completed his two years full time Master's degree in Forensic odontology with Gold medal from Gujarat Forensic Sciences University, Gandhinagar on official study leave. He is an active member of Indian Society for Dental Research (ISDR). He is also the member of International Association of Dental Research, IADR (USA), Indian Association of Oral and Maxillofacial Pathologist, and Indian Association for Forensic Odontology. He is currently the Joint Secretary of Indian Association of Forensic Odontology (IAFO). He is the recipient of two prestigious awards from Indian society for dental research (ISDR) for his contribution to Research in Dentistry in 2007 and 2010 respectively. He is also the recipient of the Late Manoramaben Patel award for excellence in Dental Research by IDA, Gujarat in 2009. He rendered humanitarian forensic odontology service in dental identification of burnt victims in a fire disaster in Ahmedabad in February 2020. He appeared as expert witness in sessions court in Gujarat for POCSO cases on more than 50 occasions. He is an elected Board of Directors of Association of Forensic Odontology for Humanitarian Rights (AFOHR), an international association for the term 2021-23.

DR. MUKESH SHARMA

Regional Forensic Science Laboratory, Jaipur, INDIA

Dr. Mukesh Sharma (M.Sc. Ph.D., DCA, BAFS) is currently working as the Assistant Director in Physics Division at Regional Forensic Science Laboratory, Jaipur (Rajasthan). He completed his Ph.D. in 2005 in Material Science, joined as SSO in Forensic Science Laboratory through RPSC with rank first. He has published more than 128 research articles in International/National Journals/Conferences/Magazines and Journals in Forensic Sciences, and 07 textbooks in Engineering. Recently, he has been elected as Associate Member of the British Academy of Forensic Science, England (First Indian Forensic Scientist). He is a fellow member and life member of National/International renowned societies. He has received training in various forensic techniques of examination from the National Institute of Justice (Online) (USA), NICFS (Delhi), BARC (Bombay), and DO-IT, MHA (Delhi). He is a reviewer of numerous International Journal, as the International Journal of Forensic Engg. (IJFE), SPIE, Journal of Forensic Research, etc. He is familiar with the Computational Materials Science code for Band structure calculations like CRYSTAL06 (Torino, Italy) and WIEN2K (Vienna, Austria) gets training from the developers. He has delivered various Invited talks at National and International Conferences in India and has experience teaching a PG course in Forensics as a Guest speaker at NICFS, New Delhi.

SPEAKER'S PROFILE

DR. ASHISH BADIYE

Government Institute of Forensic Science, Nagpur, INDIA

Dr. Ashish Badiye is the Head of the Department and Assistant Professor at the Department of Forensic Science, Government Institute of Forensic Science, Nagpur, since 2011. He has completed his B.Sc. (Honors) Forensic Science (2009) and M.Sc. Forensic Science (2011) from Amity University, Noida, Uttar Pradesh, UGC-NET-JRF (2010) qualified. He has completed his Ph.D. in Forensic Science from Shri Vaishnav Vidyapeeth Vishvavidyalaya, Indore, in 2020. He has five book chapters and 40 International and National research paper publications in high-repute journals to his credit. He has presented more than 50 papers and posters in various International and National Conferences, Seminars, etc. He has won 15 Best Paper presentation and Poster Presentation Awards. He has recently won "the Young Scientist Award" at a National Conference. He was awarded the "Special Recognition Awards" for the last three years (2017, 2018, 2019) by the Police Commissioner, Nagpur City. He also serves as a reviewer for prestigious journals. Since 2012, he has delivered more than 100 Invited talks, Guest lectures, workshops, demonstrations, and training at various colleges, Institute, Universities as well as to the Police officers under the Nagpur Police Commissionerate, Special IGP Office Nagpur Range, SP Office Bhandara, SP Office Chandrapur, under In-Service training program, Tantra- Tech Expos, Mantra Tech-Expos, etc. and has played the prime role in organizing and conducting Nagpur City Police Duty Meet- 2017, 2018, 2019, as Subject Expert and examiner. He also routinely assists Maharashtra Police in the various aspects of Crime Scene Investigation.

DR. JURRIEN BIJHOLD

Leiden University, Forensic ICT, Netherlands, EUROPE

Presently, Dr. Jurrien Bijhold is working as a lecturer and researcher on situation assessment problems (like investigating a crime scene). With a background in physics and computer sciences, he has done many investigations for police and courts. He has developed and coordinated projects with universities and companies on innovative methods and techniques. He has always enjoyed the creative part of investigations and projects, i.e. multimedia and serious gaming. He completed his master's in Experimental Physics from Utrecht University, the Netherlands, in 1986 and his Ph.D. from the University of Amsterdam, the Netherlands, in 1992. He spent about 30 years in Netherlands Forensic Institute as Forensic Scientist (1992-2002), Forensic Expert, Expert Witness and Team leader (1998-2010) and Senior Forensic Scientist (2010-2018). Moreover, several papers have been published by him in different International Journals.

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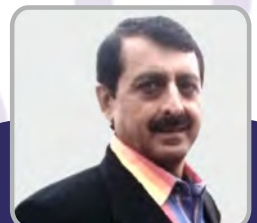ADGP Police Training & Research,
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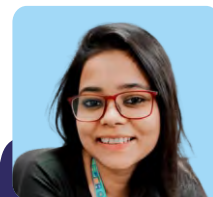**Mahesh Sharma**
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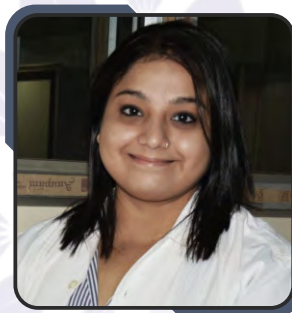
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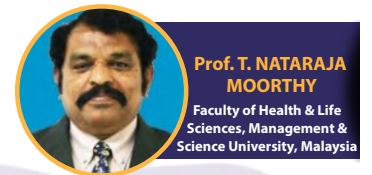Forensic Science, Nagpur

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THE STATE OF THE ART OF THE PROVINCE OF MARINDUQUE ON CRIME SCENE INVESTIGATION

Jayceron L. Monteagudo[1]

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Abstract

In every crime happened, weather omitted or committed it all start with a simple call for attention or immediate response specially if it is a crime scene which involves an initial response, management, process, custody of evidence, examination or scientific testing and presentation in the third pillar of the Philippine Criminal Justice System. That's why crime investigators plays a major role on that chain mentioned. The present study therefore generally aims to establish challenges encountered by the crime scene investigators in the course of their investigations. On the other hand, it specifically seeks to determine the methods used in retrieving and storing, mode of transport, storage of evidence and the relationship between the investigator's level of training and his/her level of success in criminal investigation. The study adopted descriptive qualitative research designs to meet the aim of the study to its participants and to analyze challenges encountered by them. The collection of data was done through administration of validated survey questionnaire to the selected respondents. A population of 60 investigating officers from the different Municipalities were targeted for the purpose of this study. The following are revealed based on the data gathered: crime scene investigators of the Province of Marinduque faced with a number of challenges which includes lack of modern equipment, facility for the travel of evidence, rescheduling/cancelled/prolonged court hearings resulting to contamination of evidences, unequipped storage facility, distance between the storage facility and the laboratory and the lack of regular refresher training or course/program in which may which will affect in their operation or performance in scene of crime investigation.

Keywords: Crime Scene, Challenges Encountered, Investigating Officers, Scene of Crime Investigation.

SALIVA IN FORENSICS- GENOMICS, MICROBIOMICS AND MACHINE LEARNING

Dr. Neetu Sinha[1]

[1]MDS, Sadar Hospital, Koderma, Jharkhand

Abstract

Body fluids is the term used in forensics for suspected stains recovered from a surface outside of the originating body. Saliva is being utilized as one of the sources for evidence in cases of sexual assault and violence. Short Tandem Repeat DNA profiling has emerged as the most accurate method for identification using salivary DNA. Biochemical markers and metabolic detailing also aid in characterization of an individual. Microbial phenotyping using serotyping and genotyping with PCR-RFLP analysis from the salivary microbiome can be used as a genetic signature. Studies have shown that ethnicity, age as well as personal habits can be elaborated using microbial populations. Amelogenin gene amplification has been long utilized for gender determination. Using artificial intelligence and machine learning with these biomarkers can not only speed up the path of justice but also bring more objectivity to the results. Salivary biomarkers can be a treasure house of evidence with further research and technological advancement.

Keywords: Saliva, Forensics, Machine Learning, Metabolomics, Microbiome signature

FORENSIC ARCHAEOLOGY MEETS SCULPTURE

Arch. Emel Akpolat[1], Prof. Dr. Mutluhan Taş[2]

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Abstract

The method starts by interpreting skeletal features; subject's sex, age and ancestry, anatomical features using biological samples to determine the snapshot phenotyping algorithms such as DNA extracted ancestry from bone, anthropometric board for height and DEXA used for weight of the subject, isotope analysis for find out subject's diet and where they grew up, autosomal SNP for determine hair color, average facial tissue thickness from cadavers of the related population and race. We measure and take photos of each side of it, and get the cranium into CAT scan (tomography). Data and images are transferred to digital platforms. The polygons of the bolstering platforms are cleared. After the degradation, the salt scans of the craniums and/or other types of bones get polygonised. The additional pieces that surfaced while importing are cleaned. Files are sent to ABS filament 3D printers Raw STL files are observed to see if they have the anatomical details using "Mesh Analyze." The FFF method develops the bolstering pieces and the anatomical patterns, making it easy to manufacture. After BT scanning and we are able to track the case depths retouch after the process of the modelling replica of the cranium related soft tissue depths markers are inserted on 10 lateral, 21 bilateral anatomical points on the skull (following Horizontal Plane on the skull applying 90 degree and 3mm drillings). Finally, the skull's sent to the sculpture. The info that has been given by archaeologist such as the DEXA analysis reports and anthropometric measurements get combined with the knowledge of anatomy. Clay and putty are applied to the stature for giving it a shape. The face is rebuilt and filled around the markers that have been drilled by archaeologist. The features around the artificial eyes are refined. Lips are in shape. Eye balls are placed accurately by a 25 mm diameter placed on the orbits. Inner canthus with 2mm lateral to the lacrimal crest and outer canthus with 4mm medial to the malar tubercle is placed. Maximum width of the nose, shape and size, size of the alae by the nasal aperture is determined. Maxillary canine and first premolar are placed near the corners of the mouth. The final six anterior teeth are put together. The length of the ear canal is determined by using external auditory meatus as the reference point. Clay layer is put one by one musculature shows the subject's skin and fine details. After the facial reconstruction that has been made with clay, the stature gets transformed into wax using shellshock system. Subject's hair and eye color determined by the SNP test is applied to the stature. The age/period-related traits determined by the archaeologist are also applied with make-up. Period clothing is put on the statue and the designation of the reconstructed individual is done.

Keywords: Facial Reconstruction, Cold Cases, Skeletal Remains, Identification, Positive Identification, Phenotyping, 3D Printing, Sculpting. Past Faces, SNP, DNA, Bioarchaeology, Osteology, Wax, Digital Archaeology, and Body Building.

INTEGRATED APPROACH FOR INVESTIGATIONS IN ACCIDENTAL BLAST DEATH– A CASE REPORT

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Abstract

Crime is product of social stress of life. When crime is conducted toward self, it leads to self-destruction, however towards other leads to homicide. Crime scene investigation along with autopsy plays an important role in solving cases. This paper describes a particular case brought for autopsy at mortuary of Guru Gobind medical college, faridkot with history of accidental bike blast. Dead body with multiple burn injuries of different degree was submitted for medico legal post-mortem examination. Investigating officer was in dilemma regarding manner of injury. Case mimics accidental burn injuries due to blast in bike .Meticulous autopsy along with investigation like Forensic photography, Forensic Radiography, Forensic analysis and sample collection at scene of crime helps in solution of such types of cases.

Keywords: Crime scene, autopsy, investigation, manner, blast.

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Crime Scene Investigation

IMPORTANCE OF THE CRIME SCENE IN THE INVESTIGATION OF RAPE CASES

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Abstract

A rape of female of all ages become has one of the most common crimes in India. As per the National Crime Reports Bureau (NCRB) Report 2019 there has been drastic increase in rape cases. One of the biggest reasons of never-ending crimes is that laws are not yet implemented strictly and justice to the victim is not still delivered and delayed for never-ending criminal proceedings and that is why the criminals even dare to kill the victims. This paper overall talks about the importance of the crime scene in the criminal investigations, particularly rape cases. Crime scene investigation plays a very important role in the criminal investigation. The proper identification, collection and storage of physical evidence may lead to reconstruct the sequence of events of the crime. The most distressing finding of this paper is that the investigating officers-who plays crucial role at the scene of crime-rarely secures the crime scene/ collects the physical evidence/store it properly. It is highly recommended that the investigating officers should be adequately sensitized as well as trained professionally about how to identify, collect, store and transport the physical evidence for forensic analysis.

Keywords: Criminal Investigation, Crime Scene, Rape, Physical Evidence, Reconstruction.

ACCURACY OF MANDIBULAR PARAMETERS AS A PREDICTOR OF SEX IN MAHARASHTRA POPULATION: A DIGITAL RETROSPECTIVE STUDY

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Abstract

In forensic investigations and in medicolegal cases, identification of sex is an important aspect followed by age determination. When soft tissue parts are not available the only way for prediction of sex can be based on the characters of skeleton. In the cases where entire skull is not available mandible can act as an indicator for sex determination. Various studies have proven the accuracy of panoramic radiographs in determining sex by analyzing anatomical measurements. The present study was conducted on mandibular parameters using digital orthopantomographs in Maharashtra population for the same. It aims to evaluate the significance of mandible in gender determination by analyzing various morphometric parameters on panoramic radiographs in Maharashtra population and to find out the best predictor for gender determination. A retrospective study was carried out using 200 digital orthopantomographs (100 male & 100 female). Total 8 mandibular measurements were analyzed using Adobe Photoshop 7.0 software. The data was subjected to analysis using linear discriminant function analysis of the statistical package SPSS 20.0 version. All the measurements were higher in male as compared to female except for the gonial angle. Among 8 parameters only 4 parameters i.e. condylar height, coronoid height, projective height of ramus and gonial angle were found to be highly significant. The overall prediction accuracy was 72.5%. The gonial method was found to be more accurate as compared to the ramus method with prediction accuracy 70.5% and 62.5% respectively. In this study sample, gonial angle and mandibular ramus showed high sexual dimorphism. The mandible can be used as an important tool for gender determination of an individual. Digital orthopantomographs were reliable for morphometric analysis.

Keywords: Forensic evidence, Identification, Gender Determination, Mandible, Panoramic Radiographs.

HERBICIDE POISONING IN DOMESTIC DOGS - A CASE REPORT

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Abstract

The case presented is death of three Labrador dogs in consecutive days in a bungalow. Detailed examination of crime scene was carried out and canine food samples were analyzed. Information regarding all past activities were collected from the house owner and care takers. The chance for snake bite was ruled out as no bleeding or bite marks were found on the inspected carcass. The visceral content of dogs included partially digested chicken body parts and grass pieces. The autopsy suggested toxic insult leading to pulmonary hemorrhage, asphyxia and death. Detailed investigation revealed application of lawn-care products in the premises. Pica is the technical term for the behavior of eating things that are not food. If dog is eating grass it is quite natural, and this form of pica does not cause any ill effects. In the present case use of excessive concentration of lawn-care herbicide lead to the poisoning and death of dogs. The active ingredient in the herbicide was metasulfuron-methyl and chlorimuron-ethyl. A plant wetting agent sodium dodecyl benzene sulfonate (SDBS) was also found mixed with the herbicide. SDBS cause micro-toxicity to animals.

Keywords: Herbicide toxicity, Pica disorder in canine, Chlorimuron-ethyl, Metasulfuron-methyl, Forensic toxicology.

BITE MARKS: AN INDISPENSABLE PHYSICAL EVIDENCE IN RAPE CASES

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Abstract

Recently there is a progressive changes in the social, economical, educational and developmental technologies in the world. Due to these newer advances man is getting more and more selfish in his desires and demands. This advent of new thinking of human being in all areas has lead to exception in the crime occurrence. In Criminal justice system where no two individuals can have identical teeth there forensic odontology has gained a wider acceptance. Bite marks are one of the indispensable physical evidence in rape cases, murder and violence like acts. Bite marks are defined as the marks occurred due to the result of either physical alteration in a medium caused by the contact of the teeth or a representative pattern left in an object or tissue by the dental structures of an animal or human being. These marks are expression of any anger, dominating nature or animalistic behavior. These are considered as one of the commest form of dental evidence presented in any court trial in rape cases. They are valuable source to predict the type of physical abuse and age bracket of the criminal. Dealing bite marks evidence there is a role of forensic dentist who helps in exclusion of a suspect in rape cases based on their tooth pattern and opening ranges. With increasing in the lapse of criminal cases like rape, bite marks are valuable forensic odontological evidence for nailing culprits. These Bite marks carry a high forensic value based on the characteristics of bite marks which are similar to the culprit. Physical evidence as bite marks are conclusive as DNA and fingerprint evidence in rape cases. Therefore it can be rightly concluded that "Criminals may lie through his teeth, his bite marks will revela all and do not lie

Keywords: Forensic odontology, Bite marks, Physical evidence, Identification, Crime.

PSYCHOLOGICAL AUTOPSY IN CRIME SCENE INVESTIGATION

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Abstract

Autopsy generally defines thorough examination of the deceased through surgical methods like dissection to determine the cause, manner, and mode of death. A physical autopsy is done to examine the physical health of the deceased, and a psychological autopsy, on the other hand, is done to analyze the mental health of the dead. Psychological autopsy is a process that helps assess certain factors like behavior, thoughts, and feelings of the deceased in equivocal death cases. Equivocal death means the manner of death is still doubtful. In such cases, physical evidence may not help in solving out crime; thus, the psychological autopsy is essential to study the intentions of the deceased by questioning the family, relatives, friends, and medical examiners of the dead to get a better idea regarding the facts that lead to the person's death. Psychological autopsy helps the investigator determine the victim's mental status at the time of death and will help to sort out whether the cause of death was suicide or not. The other benefit is to allow researchers and investigators to access the behaviors and patterns of suicide and then help to bring out specific risk factors of suicide and take certain measures to prevent suicide. The psychological autopsy method was a great success in many cases where a physical autopsy or any other evidence failed to be one. In unnatural death cases of celebrities, there rises massive conflict and confusion regarding the cause of death, and in many circumstances, the technique of psychological autopsy was proven to be worthy, for example, in cases of death of Sunanda Pushkar, Sushant Singh, and so on. Through this paper, I would like to expose the history of the development of psychological autopsy, the functions and purpose of this method, and the procedure to carry out this autopsy. Also, would explain the limitations and disadvantage of carrying out the psychological autopsy in some instances. Particular case studies involving the successful application of psychological autopsy will also be covered in this paper.

Keywords: Psychology, Autopsy, Death, Suicide, Victim.

THE PATTERN OF HOMICIDE IN HARYANA- A RETROSPECTIVE STUDY

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Abstract

Homicide is an utmost crime in human society. Land dispute, women and revenge are the usual causative agent behind every homicide. The present retrospective study is conducted on 100 cases brought for autopsy in the mortuary of the Department of Forensic Medicine, PGIMS, Rohtak from 1st January 2017 to 10th November 2019. The commonest age group of victims was 31-40 years and same in age group 41-50 years. Male were victimized 5 times more than the females. Most incidents 37 percent occurred in Monsoon season i.e., July to September in between 6 PM to 12 PM midnight. Hard and blunt weapon was most common type of weapon used in 26 % cases. Brain was the most common organ involved leading to death in 43 cases. Previous enmity followed by property dispute were the most common motive behind the homicide.

Keywords: Motive; Firearm; Axe; Knife; Danda; Homicide.

USING FORENSIC ANTHROPOLOGY TO IDENTIFY THE AGE, GENDER AND SIZE OF THE VICTIM

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Abstract

Forensic Anthropology is the application of anatomical Science. Anthropologists can identify individuals from teeth, bone marrow etc. Forensic Anthropologists identify the sex from the difference in pelvic bone, from teeth we can identify age because in each age there is a difference and from bone marrow we can collect DNA from a deceased person. In most cases like decomposed, burned, mutilated and unrecognizable cases anthropologists use skeleton for identification. Using physical markers present on a skeleton, a Forensic anthropologists can determine age,sex and race. This identification is actually used for that court needs true evidence that victim or a person is an adult or a minor. Generally Forensic Anthropology is the study of skeleton Bone in addition to medico legal aspects of human skeletal remains. If the body is completely skeletonized the forgoing holds as stated. If soft parts are still presented all such material should be preserved. If no soft parts are presented skeleton Bone should be carefully scanned to see. No preservatives issued except in case of extreme fragility. Bones that are in fair too. Good condition and can readily be lifted receive no treatment other than removal of excess dirt. Even a rather fragile bone may be lifted after being freed from surrounding dirt. It is, then carefully wrapped in soft tissue paper. Brushes and wooden parts and scrapping are used to remove most of the remaining dirt from bones in better condition. They are then washed, without being immersed by brushing with lukewarm water. The bond send to a local hospital or a physician's office, then it should be carefully X – rayed, skull, jaw, pelvis and long bones , At the same time age, sex race etc, evidence should be assessed and interpreted according to techniques and information available.

Keywords: Forensic Anthropology, age, skeleton Bone, remains, teeth.

CRIME MAPPING & FORENSIC GIS

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Abstract

Development in technologies has changed the method of crime commission which in turn had changed the investigation process. Almost in every forensic investigation digital evidence plays an important role and most of the digital evidence contains data related to location which is also called spatial data. The technology which stores and display geospatial data is GIS. GIS is an emerging field, and it has vast application from mapping, environmental management, urban planning and forensic. Though forensic GIS is still in its infancy, but it has potential to act as important tool in criminal investigation. This study was conducted with an objective of Integration of spatial data and non-spatial data and to create crime map of district Gopalganj, Bihar, India using QGIS tool and also include the collection and analysis of crime data. Crime data of district Gopalganj from 22 police stations for year 2020 was collected from the website of state crime record bureau, Bihar (http://scrb.bihar.gov.in/View_FIR.aspx). It was noted that Kuchaikote block have highest number of cases reported. The main reason for the surge in crime is the location of block. Kuchaikote shares its boundary with Uttar Pradesh, criminals take advantage of this and commit crime in one side and take shelter on the another side. The Crime Map presented in this paper will help law enforcement agencies to analyse the pattern and take appropriate action to prevent the occurrence of crime. Some of the areas which are needed to be explored in the field of crime mapping are geographic profiling and integration of GPS with GIS. More GIS tools should be created with forensic perspective in mind. A database can be developed at state level which would contain crime map of districts.

Keywords: Forensic GIS, Crime-mapping, Geographic-profiling, QGIS, Crime Statistics.

CRIME SCENE INVESTIGATION AT THE FOREFRONT- FROM BEGNING TILL END

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Abstract

The article deals with investigation of objectives of crime scene investigation. In forensic science we considered five reasons of crime scene investigation: development of direction of inquiry and investigative variants for investigators; search of specific information in the form of evidence or logic investigation ; search of convincing evidence justifying or evidence of guilt; search for important information in the form of evidence in order to successfully carry out accurate reconstruction of the crime scene, and find the connection between criminals with the help of the evidence. For crime scene investigation we follow various procedures and different search pattern and different scientific techniques to find a link between all the events that has happened and draw a conclusion.

Keywords: Crime Scene investigation, Evidence, Searching, Photography, Chain of custody, videotaping.

TO STUDY AND DETERMINE GENDER THROUGH TOOTH ANALYSIS USING OPG

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Abstract

Sex determination becomes the first priority in the process of identification of a person by forensic investigator in the cases of natural disaster, nuclear bomb explosion, earthquakes, Burnt. It includes a unique need of forensic odontologist in medicolegal or other services, so the analysis of tooth remains a forensic odontologist study that particular tooth through different methodology like Visual method, microscopic method/ histological and / or advanced/ radiological method. As the sex determination is the subdivision of the forensic odontology, and it is important especially when information relating to the deceased is unavailable. In the digital Era, orthopantomogram has becomes one of the routine procedures in dental hospitals as a part primary identification. Orthopantomogram (OPG) is a kind of radiograph, also called panoramic x-ray, is a two-dimensional (2-D) dental x-ray examination that captures the entire mouth in a single image, including the teeth, upper and lower jaws, surrounding structures and tissues. Teeth were used to estimate the sex of unknown individuals, based on the differences between sexes in the dimensions and the morphology of teeth, the dissimilar patterns of dental development and tooth eruption, and the expression of the amylogenic protein. Therefore, the aim of the study was to analyze tooth measurement digitally with the help of panoramic radiograph to verify measures related to gender differentiation, taking into consideration measuring parameter for mandibular teeth in both quadrant with the help of digital measuring software. The sample were (OPG) which were done for clinical purpose. All the parameter is measured of all the following teeth of mandibular arch for both quadrant, which are central incisor, canine, premolar and molar. All the sample were collected as a soft copy which is analyzed in image processing software IMAGE J. The measurements were done according to the consideration of our study that is all parameter for all considered tooth separately, and data were created and saved that measurement, for statical analysis.

Keywords: Orthopantomogram, Amylogenic protein, Odontologist, Sex Determination.

PROTECTION OF CHILDREN FROM SEXUAL OFFENCES ACT, 2012

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Abstract

Need for the Law:-Till 2012, there were no specific legislations governing child sexual abuse cases. Increasing incidents of sexual offences against children.The purpose of the law is to protect the children from sexual offences and to provide establishment of special courts for speedy trial and settlement of such cases.This Act gives procedure for reporting of such cases, recording the statement of the child victim, recording of the statement of the child victim by the magistrate, medical examination of the child victim. Establishment of special courts and appointment of special prosecutor for POCSO cases, procedure for recording evidence, in camera trials, and last but not the least relief and rehabilitation of the child victim.

Keywords: POCSO Act, IPC, special courts, recording evidence, in camera trials, rehabilitation.

EXAMINATION OF ANTE MORTEM AND POSTMORTEM DROWNING

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Abstract

In drowning, death occurs due to loss of respiration. Ante mortem and postmortem drowning cannot be distinguished after 24 hours. When a person falls in a water body, the body of the person drowns due to gravity. But the density of water i.e. 1.010 is almost equal to the density of human body i.e. 1.018.As water enters the mouth the density of the body increases. Due to buoyancy the body comes up 2, 3 times. After 12-14 hours, putrefactive changes begin. If the temperature of water and surrounding is different than these changes may occur in 7-8 hours. Gas is produced, which is max in stomach because of hollow space. As the body's area increases, density decreases. Abdominal weight increases and the weight of lower region decreases. So, the stomach is upwards and rest of the body parts are laid back. Gas comes out of mouth; hence, body moves and eventually comes up. Even a 40 kg weight tied to the body cannot resist the body from coming up. Rigor mortis passes out after 24 hours. Difference between Ante mortem and postmortem drowning. Ante mortem drowning- The body doesn't come up quickly because putrefactive changes are slow. Body is generally upside down. Head is laid back. But if the depth of the water body is less then body may be upright. *Postmortem drowning-* The body comes up quickly because of lack of struggle and stoppage of metabolic reactions. In dead body, water enters mouth and then the body drowns slightly, so, the body doesn't flip. The body comes up at an angle of 90 degree. By studying the position of the body as it comes out of the water body and studying the putrefactive changes it can be proved whether the death was ante mortem or postmortem.

Keywords: Postmortem drowning, anti-mortem drowning, drowning, examination, purification.

DETERMINE BLOOD GROUP FROM SALIVA

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Abstract

A unique blood group is a characteristic every individual possesses. Blood group antigens like A, B, D, H, etc., are found to be present on the cell surfaces of red blood cells (RBCs). Besides blood, these are also secreted in various body secretions like semen, sweat, amniotic fluid, and saliva. Blood grouping has several applications in forensic sciences and is also a major part of routine medical investigations. Presence of these antigens in saliva is dependent on the secretor status of an individual. Saliva samples at the crime scene are very crucial, as they help in deoxyribonucleic acid typing, sex determination, bite mark analysis, and blood grouping. Dried salivary samples are often obtained in more number of cases as compared with the wet form, due to the variable time lapse between the occurrence of the crime and the start of the investigation. Blood grouping from these samples proves to be very efficient. Thus, the present study aims at evaluating the accuracy of ABO blood group determination and Rh typing from dried salivary samples. Also, the study would establish the use of saliva as a noninvasive technique in routine blood examinations, especially in children who have needle phobia.

Keywords: Saliva, Blood Group, Antigen, Secretion, Dried Saliva.

ePoster Category

PROBLEMS ENCOUNTERED DURING DRUG ABUSE/MISUSE ASSOCIATED CRIME SCENE: A FORENSIC PERSPECTIVE

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Abstract

Modern society is witnessing a considerable ascend of drug abuse/misuse cases day by day. The differences observed between the cases reported earlier and at present times are that the former ones involved the abuse of conventional drug like Charas, Cocaine, Ganja, and Morphine etc nevertheless at current times the abuse pattern has shifted towards designer drugs like LSD, MDMA, Fentanyl analogues, Ketamine, GHB, and Methamphetamine. Moreover, the abusers/misusers have also evolved themselves to interdict law. They use different method of concealment, change the product color from the original product through clandestine methods that renders them unidentifiable by law enforcement agencies. This paper presents the modus operandi adopted by offenders to trouble the law enforcement agencies at crime scene, the problems encountered by police officers as they are the first to report at crime scene. Being a part of forensic community, through this paper the researchers aim to provide immediate possible solution to the problems and have intent to pinpoints the lacunae in front of scientific community so that action research can be conducted to counter the menace globally.

Keywords: Forensic Science, Designer drugs, Drug misuse, Drug abuse, Crime scene, Forensic analysis.

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CURRENT SITUATION OF CRIME SCENE INVESTIGATION IN MONGOLIA

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Abstract

The Mongolian National Institute of Forensic Science /NIFS/ examines evidence that includes but is not limited to all sorts of traces, items, questioned documents, Restoring deleted data from computers and PDA smart devices,identifying network access, facial comparison analysis, skull-photo superimposition, Evaluating injury severity, determination of age, gender and sexual maturity, Performing autopsies, Exhumantion examination, chemical, physics, biological, DNA, bacteriological and trace evidence examinations; providing technical assistance in crime scene investigations; collecting and preserving evidence from a crime scene; and maintaining a specialized DNA database, examine the evidence and detect the biological trace /blood, salvia, sweat, semenm hair, bone, muscle and soft tissues/ and determine blood type using ABO system, identifying drugs and psychotropic substances; alcohol and glue composition analysis; analyzing inks and paper produce reports. The forensic organization conducted 27,539 investigations in 2020 and 15,069 investigations in September 2021.During the investigations of the case in 2020, 66,701 copies were found, and as of September 2021, 38,986 units of traces and material evidence were found and strengthened.In addition, a total of 19 types of criminalistics, forensic medicine and specialized examinations were performed on the evidence found and verified at the crime scene.

Keywords: Forensic Science, Crime scene investigation, Evidence, Examination, type of analysis

BLOODSTAIN PATTERN ANALYSIS: DEFINING THE STORY BEHIND CRIME

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Abstract

Blood is considered as one of the frequent type of evidence which is significantly encountered at the crime scene by the forensic investigator. The blood is made up of different components including plasma, red blood cells (RBCs), white blood cells (WBCs) and platelets. The blood found at the scene of crime can be of various form and pattern. It basically depends on the type of crime i.e. the violent crime or the non-violent crime. The bloodstain pattern analysis is a scientific method in which the blood as an evidence used for the identification of the following characteristics of blood drops such as the size, shape and distribution. The nature of the violent crimes that produce the bloodstain pattern which is carefully studied and examined with respect to the distribution and geometry and might gave the information of considerable which is valuable so as to assist the forensic investigator to reconstruct the crime scene. The blood stain pattern analysis is considered as the specialized branch in forensic science with the help of which the investigator is helpful in deducing the evidence from the shape and distribution of the bloodstain. The present work focused on the different forms of bloodstain pattern encountered at the scene of crime and can be analyzed on the basis of their directionality examination with considering the point of convergence and angle of impact. The bloodstain pattern analysis plays a very important role and need to be signified and recognized more to understand the story behind the crime.

Keywords: Blood, Bloodstain, Angle of Impact, Convergence, Non-violent Crimes, Violent Crimes

EVENTS OF CHEMICAL, BIOLOGICAL, RADIATION, NUCLEAR AND EXPLOSION (CBRNE) - A REVIEW ON SAFETY, HEALTH AND EMERGENCY MANAGEMENT

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Abstract

Chemical, biological, radiation, nuclear and explosion (CBRNE) events are happening around the world in an increasing trend which results injury, illness or loss of life. The Emergency and Trauma Department (ETD) is a main department in Malaysia hospitals, forefront of the CBRNE response. The medical knowledge, attitude and appropriate practices provide safety, health and emergency management can make a critical difference with respect to the mortality, morbidity, social consequences as well as better utilization of the available medical resources to meet the needs for CBRNE event. A literature review was performed in order to have a complete understanding of CBRNE management at healthcare facility. The literature review was accomplished by computer search of Google scholar, PubMed, Science Direct and JAMA, based on articles published in national and international journals since 1990. CBRNE events are going on over the world. Prior to this, data were grouped into three themes: Competency in safety, health and emergency management. This study has highlighted the challenges met by healthcare providers on safety, health and emergency management associated to CBRNE response. The review suggest that preparedness to response should be considered at all level of competencies, procedures and individuals willingness to respond. All the health care providers thus should possess strong competencies on safety, health and emergency management to efficiently tackle the CBRNE events. The review identified knowledge, behaviour and skills that would handle CBRNE events more effectively.

Keywords: CBRNE, Healthcare provider, Competency, Safety, Health, Emergency Management, Emergency and Trauma Department.

CRIME SCENE OF JONBENÉT RAMSEY

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Abstract

JonBenét Patricia Ramsey was a six year old rising star in the beauty pageant world. The story begins when she was found heartlessly killed in the cellar of her home in Boulder, Colorado on December 26, 1996. Even today, this case remains an unsolved mystery and without any conviction. This could mainly be ascribed that the Boulder Police Division was very inexperienced at that time when it came to deal with homicide or murder cases, so they didn't follow with distinctive and very basic crime scene procedure. Also, they haven't taken any help from more experienced agencies and local athorities, available nearby. This e-Poster reviews and analyses the procedural slip-ups made by the Boulder Police Department in Boulder, Colorado during the sequence of the abduction and consequent assassination and murder investigation. These slip-ups are definite and interpreted as to how the branch should have controlled and handled the crime scene, evidence collection and the investigation in order to safeguard and reserve the most crucial crime scene evidence which was sooner or later damaged due to negligence. Next, the concept of the main suspects, John and Patsy Ramsey, as well as a probable intruder are also conferred while addressing the physical as well as circumstantial evidence collected during the case and how the slip-ups of the police search and investigation might have hindered a conviction.

Keywords: Crime Scene Investigation, Evidence, Conviction

CHEMICAL ENHANCEMENT FOR LATENT SHOEPRINTS AT CRIME SCENE

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Abstract

Shoeprints constitute important trace evidence found in major crime scenes. Latent shoeprints require efficient treatments for possible shoe sole pattern identification in crime analysis. This study focused on investigating variety of chemical enhancement methods on shoeprints that possibly found at crime scene. Chemical enhancements were carried out on shoe soles subjected to muddy and bloodstained areas. The shoeprints were formed on nine different matrices including porous and non-porous surfaces. Eighteen reagents were tested for the enhancements of muddy and bloodstained shoeprints. Reagents employed on muddy prints reacted with either metal ion, amino acid or other component while reagents employed on bloodstained prints were sensitive to protein, peroxidise and amino acid. Among the eighteen reagents, leucomalachite green and patent blue were chosen as the best reagents in enhancing bloodstained shoeprints while potassium ferrocyanide and sudan black were the best enhancement technique for muddy shoeprints. All four reagents were effective on both porous and non-porous surfaces. However, the reagents were not applicable on dark background surfaces. The outcome of the research could be used to develop test kit for crime scene work, which could be reliable for screening purposes, rapid to carry out and specific as well as reasonably cost.

Keywords: Latent shoeprints, Chemical enhancement, Crime Scene, Forensic chemistry.

THE ART OF CRIME SCENE PHOTOGRAPHY IN DENTAL EVIDENCE

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Abstract

Forensic photography is an essential technique that plays an important role in crime scene investigations. The major goals of crime scene photography is to document what is there and where it is in relation to the scene, whether it is evidently connected to the crime or not. Each photograph must capture the perspectives at the crime scene in order to reveal its story to reconstruct the same. The accurate forensic photography is a crucial part of forensic investigation because each photograph taken at a crime scene can be presented in the court as a physical evidence. When we talk about biological evidences found on crime scene dental evidences like tooth remains, jaw bones, prosthesis, bite-marks and many more comes under that. There are various equipment's needed to click a proper forensic photograph such as Camera body-35mm digital single lens reflex , Lenses (Macro lens, Zoom lens) , Electronic flash , Light sources , Tripod stand, Extra batteries, Filters , ABFO no. 2 scale, ID tags, marking pens, tapes, set of intraoral mirrors and cheek retractors, background material such as cardboard or plain cloth etc.

Keywords: Forensic Photography, Physical evidence, biological evidence, dental evidences, ABFO Scale.

DEADEN TALKS THROUGH BONES ABOUT THEIR FINAL FATE: A CASE REPORT

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Abstract:

Skeletonization of body is a complex process. Solving a suspected crime is multidisciplinary approach, which requires experts from the various specialties. Various methods are employed to commit crimes throughout the world. Many cases of homicide remain unsolved due to misleading, lack of suspicion, incomplete or inadequate investigations. In present case post mortem examination of a skeletonized body was conducted by the authors, identification and apparent cause of which after inquest was impossible for investigating agencies. Usually, it is difficult to opined cause, manner and time since death with certainty in the corpse when body devoid of soft tissue. In present case authors opined the cause, manner and time since death in a skeletonized and partially burnt body. Which will help the investigators to find out the perpetrator. A post mortem examination of a corpse by the experts is mandatory for the identification, collection and preservation of trace evidences to correlate the victim, accused, scene of incidence and suspected weapon of offence.

Keywords: Skeletal remains, Cause of death, Identification and Charring.

UTHARA MURDER CASE – A LIMELIGHT TO HOMICIDAL SNAKEBITE

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Abstract

According to WHO, snake bites are one of the most neglected topical diseases. In fact, India solely houses, more than 100,000 cases of reported envenomation occur per year, owning to its highest snake bite death rate in the world. Major venomous families of snake found in India are Elapidae, viperidae, pit viper and hydrophiidae. Although accidental snake poisoning are frequent, only 4 homicidal snake biting are reported. Although former two cases failed to prove conviction and the trial is going on for the 3rd one. Recent case of Uthara murder case 2020 became a milestone in history of homicidal snake bite in India. The expert opinion along with the Crime Scene Reconstruction using a mannequin and live cobra snake was successful in establishing induced bite using fangs. It brought light on to the heinous crime committed by her husband Sooraj for financial gain. Considering Uthara murder case as rarest-of-rare, Kollam Additional Session Court for the murder chargers solely based on circumstantial and scientific evidence alone awarded double life sentence besides 17 years of imprisonment to her husband Sooraj for murdering his wife using a cobra.

Keywords: Snake poisoning, snake bite, murder, crime scene reconstruction, circumstantial evidence, murder, expert witness, homicidal snakebite.

ROLE OF BIOLOGICAL EVIDENCE IN CRIME SCENE INVESTIGATION

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Abstract:

Biological Evidence are the most common type of evidence found on crime scene. It is a physical evidence classified founded on the essence of the evidence. The word biological derived from the word biology, referring to living organism where else indication is define as something honestly accepted to a skilled court as a means of verifying the truth of any likely course of fact under investigation before it or information that is used in a court of law to demonstrate something. The identification of several biological specimens at a scene can be crucial. The existence of a distinct liquid may be of importance in and of itself. Also, biological material can be a basis of DNA which can enable an individual to be correlated to a scene and a particular biological species. DNA can be attained from a mixture of references including blood, skin cells, semen, hair, saliva and tissue. Distinct types of DNA evidence are more probative than others. The type of item that the DNA sample is placed on may also be significant.

Keywords: Pluker, Biohazards evidence, Visual Inspection, Fecal Matter, Contamination.

FORENSIC BLOODSTAIN AGE DETERMINATION: A BIOANALYTICAL - CHEMOMETRICS APPROACH IN CRIME SCENE INVESTIGATION

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Abstract:

Bloodstains at a crime scene are one of the most valuable pieces of biological evidence in forensic investigations. They can be utilised for DNA testing to validate a perpetrator's identity or reconstruct an incident timeline. However, incorporating bloodstains to measure the time interval when a crime happened is yet impossible. From a forensic standpoint, a reliable age approximation of a crime that occurred allows for validating witnesses' testimony, reducing the suspects' pool, and evaluating alibis. Although countless initiatives and explorations of different techniques over the years, no suitable approach has manifested in forensic routine. This work attempts to investigate the feasibility of ATR-FTIR in-situ examination coupled with modern chemometrics of partial least squares regression (PLSR) and partial least squares-discriminant analysis (PLS-DA) to predict the ageing interval of human blood samples deposited on ten diverse substrates. The prepared bloodstains samples were mimicked as closely as possible to a crime scene underneath two separate storage setups—indoor and outdoor. Bloodstained-substrates were measured at given time-points ranging from 0 to 365 days. A total of twenty indoor and outdoor PLSR models were built, and the findings demonstrated that the outdoor models outperformed the indoor models with satisfactory RMSE values (~5.83-10.53) and high R^2 scores (~0.92-0.98). By adopting these models, the PLS-DA classification performance of the aged bloodstained-substrates was estimated with an excellent prediction rate of $\geq$ 99% for indoor and outdoor simulation models over 365 days. Consequently, this research proved ATR-FTIR spectroscopy's great potential in the age determination of bloodstains on heterogeneous substrates. For its rapid and reliable application in forensic work, ATR-FTIR spectroscopy, in collaboration with the chemometrics described, has a great possibility of being integrated into a routine forensic analysis of biofluids, notably blood.

Keywords: Age determination, ATR-FTIR, Bloodstains, Chemometrics, Crime scene.

ROLE OF X-RAYS IN DIFFERENTIATING GNAWING EFFECT FROM FIREARM WOUND IN DECOMPOSED BODY

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Abstract:

The role of radiology in forensic investigation classically has been to assist in the identification of human remains; but the informed radiologist can contribute much more, particularly in the forensic Investigation of fatal gunshot wounds. In cadavers with advanced post-mortem changes, it is extremely difficult to retrieve the whole bullet or its parts. An unknown decomposed body of 27 year old male was brought to BPSGMC(W) mortuary for post-mortem examination with alleged history of loot and murder. Whole body X rays were done before doing autopsy reveals multiple shotgun pellets in occipital region. Body was in stage of putrefaction with multiple gnawing effect present over both ears, nape of neck and bilateral gluteal regions. In decomposed body it is not easy to differentiate between the gnawing tissue and injured tissue. Retrieving of metallic pellets from decomposed body during autopsy is of great medico-legal value to establish exact cause of death and to know the nature of weapon.

Keywords: Radiology, Shotgun, Autopsy, pellets, Occipital.

REVEALING THE HIDDEN: DECIPHERING THE SECRET HANDWRITING

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Abstract

Secret writings are invisible writings that can be only seen after using any development technique which helps in revealing those hidden messages. The invisible inks are used for writing the secret message. These invisible inks can be any kind of colourless fluid or liquid which evaporates slowly. Earlier secret writing was used by the government mainly but nowadays the criminals also use various kinds of invisible inks for fraud purposes. Thus, the cases of fraud by secret writing are increasing day by day; but with the advancement of technology, various detecting and deciphering methods have been developed for forensic purposes which help to identify the source of those particular ink which is being used along with revealing also. These universal and common techniques for decipherment of invisible inks are development by heat and development by Iodine fuming methods. The major purpose of this term paper is to give a collective information about some of those techniques and their methodology for decipherment.

Keywords: Secret writing, Invisible inks, Decipherment, Hidden message, Handwriting

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IMPORTANCE OF MEDICOLEGAL AUTOPSY IN DEATH INVESTIGATION

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Abstract

The identification and individualization of biological evidences is crucial to actual criminal investigations. In spite of the differences at the national level, all the legal processes attribute particular importance to forensic DNA analysis. However, none of the qualified results from any professional laboratory can produce substantive, valuable evidence with insufficient quality of samples and/or problems with provision of a pristine and controlled environment. The methodology and efficiency of sampling are distinct in case of living persons and in medico-legal autopsy and crime scenes. This chapter is a short overview from the basic introductory information up to ongoing research, and in accordance with constraints on the chapter size, it briefly discusses the important topics of sample collection at medico-legal autopsy for DNA analysis. The content sorts the major types of samples, reviews the common methods of sampling and the potential risk of poor sampling or contamination transfer. The corpses can be more or less degraded, which in special cases (e.g., paraffin embedded tissues, drowned, burning and/or buried cadaver) allow only for analysis of highly degraded samples. The samples can be associated with tissues of a corpse (e.g., blood, soft tissues, bone, tooth, hair) or additional extraneous tissues and remains, which are often mixed (e.g., blood, saliva, semen, vaginal fluid, debris of fingernails) on the corpse.

Keywords: Medico-Legal Autopsy, Molecular Autopsy, Autopsy Sampling, Contamination Transfer, Forensic Genetics