



Role Of Forensic in Victim Identification: An Indian Perspective

Dr. Christabell Joseph¹, Dr. Shilpa M. L²

¹Associate Professor, School of Law, Christ (Deemed to be University), Bangalore-29.

²Assistant Professor, School of Law, Christ (Deemed to be University), Bangalore-29

*Corresponding author's: Christabell Joseph

Article History	Abstract
Received: 06 June 2023 Revised: 05 Sept 2023 Accepted: 16 Dec 2023	<p><i>Forensic science has become an invaluable tool in criminal investigations, enabling investigators to identify suspects, victims, and even the cause of death in some cases. In India, the use of forensic science for the identification of victims is gaining importance due to the increasing number of human trafficking, child abductions and kidnappings. In such cases, it is often difficult to identify the victim due to the lack of personal belongings or other evidence. Through the use of sophisticated tools and techniques such as DNA analysis, fingerprinting and other forensic techniques, victims can be identified and perpetrators of crime brought to justice. The identification of victims through forensic evidence is a highly complex and labour-intensive process. It requires the proper collection, preservation, and analysis of evidence from the crime scene, as well as the use of sophisticated technological tools and techniques. In India, forensic science has been used to identify victims of mass disasters, like the recent floods in Kerala and the 2008 terror attacks in Mumbai. In these cases, forensic scientists used DNA analysis, fingerprinting, and other techniques to identify those who had been lost or killed. In addition to its use in mass disasters and terrorist attacks, forensic science has also been used in the identification of victims of homicide and other violent crimes in India. It has proved invaluable in cases where other means of identification have failed due to the nature of the crime, the bodies being unrecognizable, or the lack of any other evidence. In these cases, forensic science has provided vital clues that have helped law enforcement to identify the victims and bring the perpetrators to justice. There are several laws that have been put in place in India to ensure the proper use of forensic science in victim identification. The Evidence Act, 1872, lays down the legal provisions related to the examination of evidence and provides guidelines for evidence collection as well as its admissibility in a court of law. The Indian Penal Code, 1860, also provides specific provisions related to the use of forensic science in victim identification. This paper explores the role of forensic science in victim identification in India. It examines the legal provisions in place to ensure the proper use of forensic science, as well as the laws related to evidence collection and admissibility in court. Furthermore, it looks at the use of forensic science in identifying victims of mass disasters and violent crimes, as well as its potential to revolutionize the criminal justice system in the country. Additionally, it highlights the need for further recognition of forensic anthropology as a speciality of significance, as well as for the implementation of dedicated courses in the field. Lastly, it also provides a comparison between the status quo in India and developed nations. The paper concludes by emphasizing the importance of forensic science in helping to identify victims and bring perpetrators of crime to justice, and its potential to revolutionize the criminal justice system in India.</i></p>
CC License CC-BY-NC-SA 4.0	Keywords: <i>Forensic, Victim identification, Fingerprinting and Forensic anthropology</i>

1. Introduction

Chronic In a civilized society, the need for identity is recognised both during life and at death. This signifies that a civilized society recognises that the living has responsibilities towards the dead. The right to human identity is also provided in the UN Charter. Before beginning with how identification is

done, it is imperative to understand what identification of an individual implies. It is the determination of a unique personality based on an array of characteristics that distinguish an individual from other persons. Identification holds significance for legal and humanitarian issues, in solving criminal cases, resolving inheritance concerns, marital status, etc.¹

In certain cases, such as brutal murder and mass disasters, it can be challenging to identify the identity of the victim due to their physical appearance, decomposition of the body, or missing body parts especially the face etc. In such cases, forensic identification comes into the picture. The use of science and technology to detect and carry out investigations is not new and can be traced the use of science in investigations back to Kautilya's Arthashastra.²

Forensic science can be defined as the application of scientific principles and techniques to legal matters, especially criminal investigations and prosecutions. It is the use of scientific methods to analyze and interpret physical evidence found at a crime scene. It is a wide-ranging field that seeks to uncover the truth about criminal activity. Forensic science can be used to identify victims of crime, as well as to help solve crimes and identify suspects and includes a variety of disciplines, such as chemistry, biology, physics, digital forensics, and engineering, to name a few. Each of these disciplines can be used to identify and analyze evidence, such as DNA, fingerprints, and other physical evidence. Forensic science can also be used to analyze other types of evidence, such as documents, photographs, and recordings.

The identification of victims through forensic evidence is a highly complex and labour-intensive process. It requires the proper collection, preservation, and analysis of evidence from the crime scene, as well as the use of sophisticated technological tools and techniques. In India, forensic science has been used to identify victims of mass disasters, like the floods in Kerala and the 2008 terror attacks in Mumbai. In these cases, forensic scientists used DNA analysis, fingerprinting, and other techniques to identify those who had been lost or killed.

In addition to its use in mass disasters and terrorist attacks, forensic science has also been used in the identification of victims of homicide and other violent crimes in India. It has proved invaluable in cases where other means of identification have failed due to the nature of the crime, the bodies being unrecognizable, or the lack of any other evidence. In these cases, forensic science has provided vital clues that have helped law enforcement to identify the victims and bring the perpetrators to justice.

This paper explores the role of forensic science in victim identification in India. It examines the legal provisions in place for the admissibility of forensic evidence in court. Furthermore, it looks at the use of forensic science in identifying victims of mass disasters and violent crimes, as well as its potential to revolutionize the criminal justice system in the country. The paper concludes by emphasizing the importance of forensic science in helping to identify victims and bring perpetrators of crime to justice, and its potential to revolutionize the criminal justice system in India.

Forensic anthropology: Meaning and Uses

The American Board of Forensic Anthropology (ABFA) defines forensic anthropology as 'the application of the science of physical or biological anthropology to the legal process'.³ Charles Snow in 1971 had also given a similar definition of forensic anthropology stating that it is the application of physical anthropology, the specific knowledge of humans, race, age, sex, and person's unusual variation to the medico-legal prudence problem.⁴ In simpler terms, as defined by Thomas Stewart in 1979, it is the branch of physical anthropology that deals with the identification of skeletonised remains which are suspected to be that of a human.⁵

Forensic anthropology is generally defined as the application of physical anthropology to the legal process in the identification of skeletonised, badly decomposed or otherwise unidentified human remains. It is in such a situation that forensic anthropologists hold significance and aid in investigation with their expert observations and conclusions. The science is like any other expert evidence and the same can be found applicable to conclude the criminal investigation. The advancement of the discipline has increased the horizon of anthropology involving its varied applications to medicolegal problems and the identification and ageing of living individuals. The discipline has an interdisciplinary approach when it comes to dealing with issues like learning about aging juvenile perpetrators, identifying individuals taped on video surveillance systems, etc.

The term "forensic" is derived from the Latin word *forensis*, meaning "belonging to the forum," where the forum was the court of justice in ancient Rome. It was used to refer to the process of presenting information in court to establish facts, and it has since come to refer to any activity that involves the application of scientific knowledge to the law. Forensic science is the application of scientific methods

and techniques to the investigation of criminal activities. It is used to help identify, analyze and interpret physical evidence related to criminal activity.

The term Anthropology refers to a broad field which can be defined as the study of humankind. It derives from the Greek terms Anthropos meaning “man” and logia meaning “study”. Anthropology is sub-divided into four segments: cultural anthropology, linguistic anthropology, archaeology, and physical anthropology. Physical anthropology is further sub-divided into various fields such as Primatology, Human osteology, Human genetics, Paleoanthropology, and Forensic anthropology.

Forensic Anthropology is an interdisciplinary field which works in conjunction with the law by attempting to identify a person from their skeletal remains. This involves estimating the gender, age, height and ancestry of the individual, a process known as a 'biological profile', which is then compared to records of missing people to identify the skeleton. Forensic anthropologists also search for and recover human remains, investigate how trauma and other modifications may have impacted the individual's death, and help to identify them based on distinct characteristics. Therefore, Forensic Anthropology deals with the identification of human skeletal remains for legal purposes, typically in partnership with medical examiners and law enforcement agencies. In India, medico-legal cases are handled by the police, in conjunction with experts from the Forensic Medicine Department.

Importance of Forensic Anthropology

Forensic Anthropologist play an important role in criminal medico-legal cases, some of the tasks performed by them are:

Recent versus nonrecent: One of the first tasks for a Forensic Anthropologist is to determine whether the bones are recent or nonrecent and thereby determine the medicolegal significance of the bones.⁶

Species determination: Law enforcement contacted an archaeologist, pathologist, and veterinarian upon the discovery of a partially skeletonized leg along a river in northern California.⁷ While the first two identified the remains as a human left leg, the veterinarian suggested that they may be nonhuman in nature. A team including search and rescue personnel, detectives, and several sheriffs' office staff members conducted a three-day search which was unsuccessful in finding any additional remains. Because of the conflicting opinions, the agency then contacted forensic anthropologists who were able to correctly identify the remains as belonging to a black bear and not of medicolegal significance. This case showed how much time and expense could have been saved had the forensic anthropologist been contacted first.

Determination of age: The presence and union of centres of bone, the growth, and various other changes in the teeth and bones helps the forensic anthropologist in determining the individual's age at the death time.

Determination of sex: The skeleton of an adult has various morphological differences between the different sexes which are used to establish the individual's sex.

Race determination: Bones have some morphological features which are limited to the particular race in an individual.

Assessment of Height: The individual's height can be computed with accuracy by using formulae to the individual bone length, especially the limb's long bones.

Forensic anthropologists are frequently called upon to assist in criminal investigations and other legal cases. In criminal investigations, they are often used to identify victims of homicide, suspicious deaths, and missing persons. They may also be asked to testify in court proceedings as expert witnesses. In civil cases, they may be called upon to analyze evidence associated with wrongful death or personal injury cases.

Forensic anthropologists have a specialized set of skills that can be invaluable in a court of law. They are able to provide detailed information about a decedent's age, sex, ancestry, and other features that can be used to identify a person. They are also able to determine whether a decedent was subjected to trauma or health issues, such as diseases or illnesses. In cases where DNA evidence is unavailable or insufficient, a forensic anthropologist's expertise can be used to help build a case. They also play an important role in identifying remains of individuals who have been lost in disasters or other accidental deaths. They are able to use their expertise to help families and law enforcement officials to identify victims of disasters or those who were lost at sea.

Forensic anthropologists are valuable members of the legal community and play an important role in solving complex criminal cases. They possess a unique set of skills that can be used to help identify

victims of crimes and other suspicious deaths. The expertise of a forensic anthropologist can be invaluable in civil cases, too, providing information about a decedent's age, sex, ancestry, and other details that can be used to build a case.

Forensic odontologist

Forensic odontology is an essential branch of forensic anthropology that employs dental records to aid in the identification of human remains. Forensic odontology is responsible for dental identification of the dead, and involves using anthropological techniques to identify human remains based on the teeth and other orofacial structures. While the forensic odontologist must analyze and describe the unrecognized remains, the job of the attending dentist is to furnish precise and thorough dental records to verify or rule out potential matches.

Indeed, other parts of the human skeleton are typically more reliable when it comes to individual recognition, however, certain physical characteristics of the teeth, such as spacing, winging and dental treatments, can be used to positively identify an individual. Teeth play an essential role in forensic anthropology, just as they do in academic anthropology. Not only are they the most resilient portion of the human skeleton, the teeth are also profoundly impacted by genetics.⁸

In addition, forensic odontologists are able to estimate age, sex and race or ancestry from the teeth, even without access to dental records. This is possible due to the genetic influence on the teeth, as well as the distinct features that make human teeth unique from those of other animals. For instance, humans have small, relatively obtuse canines, unlike apes, and Premolars and molars of humans exhibit distinctly low, rounded cusps, unlike the high crests of herbivores and sharp, conical cusps of carnivores.⁹

Furthermore, forensic odontologists are also capable of distinguishing between human and non-human bones, eliminating the risk of misidentifying an individual. Such skills are invaluable in the realm of forensic anthropology, and help ensure the accurate and ethical identification of human remains.

Estimating age from the dentition

The process of age estimation from unknown skeletal remains is used to approximate the age of an individual at the time of their death. It is an essential part of forensic anthropology and is primarily based on changes in an individual's dentition throughout their life. This method was first proposed by Edwin Saunders in 1837¹⁰ and has since been refined and developed by subsequent scientists. Modern technology has made dental age estimation (DAE) a highly accurate and relatively quick process. The dental development of an individual is relatively stable and uninfluenced by malnutrition and hormonal disorders, making it the preferred method of age estimation. There are four primary ways of determining age using dentition: the Clinical method, Radiological method, Radioactive method, and Historical method. In certain countries, including Italy, Belgium, Norway, Spain, Germany, Denmark, Portugal, Hungary, Austria, and New Zealand, it is permissible to estimate age through dental radiographs. In India, however, the Atomic Energy Regulatory Board in 2015 issued a statement refuting the use of radiographs for age determination, claiming that exposure to radiographs can be justified only for medical purpose rather than legal ones.¹¹

Estimation of age in subadults is a reliable process since the regular development and eruption sequence of their primary and secondary teeth can be used. However, the development of an individual's adult dentition, the eruption of their third molars, renders the estimation of age unreliable and it is more suitable to classify age into broad intervals (such as being younger than 45 or greater than 50). The ADA Technical Report 1077,¹² Human Age Assessment by Dental Analysis, covers methods of dental age assessment as well as criteria for age estimation of adult teeth. The report details that root translucency, secondary dentin deposition, periodontal attachment, cementum apposition, attrition and root resorption can be utilized in the estimation of the age of adult teeth. The ADA Technical Report 1077 was then adopted by the American Board of Forensic Odontology as Standards and Guidelines for Dental Age Assessment and further accepted into the Registry of the Organization of Scientific Area Committees for Forensic Science, in November 2021. It is important to remember that age estimation from an individual's dentition, particularly in adult individuals, becomes increasingly unreliable as the individual ages.

Determining sex from the adult dentition

Sex determination is a very important part of forensic odontology, especially when information on the deceased isn't available. It is the first step in identifying a person in the case of certain accidents, crime

investigations, and ethnic studies. It can be done both morphologically and by molecular analysis. Morphological analysis uses hard tissue, like odontometric, orthometric, and miscellaneous structures, as well as soft tissue, like lip prints and palatal rugae patterns. Tooth size is used as the most reliable method of sexual dimorphism analysis, because it is less subject to external and internal stimuli during permanent dentition. Mesiodistal dimensions of teeth have been found to be larger in males than in females, with male teeth showing greater enamel thickness due to slower maturation. It has been suggested that mesiodistal dimension is better suited than buccolingual dimension. It is thought that males have larger jaws, which may account for the larger mesiodistal dimensions in their teeth compared to females.¹³

Assessing ancestry or race from the dentition

No single dental feature can be used to determine a person's ancestry or "race". Rather, it is a combination of metric and non-metric features that can help to assess geographic ancestry. Shovel-shaped incisors are more commonly seen in Asian and Native American populations and the expression of accessory cusps like Carabelli's cusp also vary between different populations. European-Americans tend to have more nonmetric dimorphism in the anterior dentition, while African-Americans have nonmetric variation in the posterior dentition.¹⁴ African populations usually have larger molars and European-American dentitions are smaller and more cramped.¹⁵ DNA from dental material can be used to find general indicators of ancestry, as well as physical features like eye, hair and skin color.¹⁶

Lastly, forensic odontology can also be used in the evolution of perimortem trauma and Bitemark analysis.¹⁷ The evaluation of perimortem trauma is typically done by a forensic pathologist, coroner, or medical examiner, all of whom may be a forensic anthropologist. Bitemark analysis, which can provide identifying information about a perpetrator, is a part of forensic odontology. Despite the fact that several studies have supported the use of shape of anterior dentition for positive identification, its scientific and legal validity has been called into question in recent years.

Forensic Anthropology in India

It all began in 1935 with the renowned Ruxton case¹⁸ which marked the first time superimposition of a skull on a photograph was used for identification of victims. Two women were dismembered and mutilated, leading to an array of new procedures being implemented - such as anatomical studies of fleshy parts, comparing feet and shoes, fingerprint identification, and examination of materials found with the remains like straw, paper, and clothing. Through this evidence the identities of the victims were eventually established by superimposing the skulls on the photographs. In India, however, the use of forensics in criminal justice system was made much later in the year 1995 in the Tandoor Murder Case Delhi.¹⁹ The petitioner, the father of the boy, challenged the results of the DNA profiling. The boy and the schoolgirl had a mutual infatuation and the school staff asked their parents to monitor them. Later, the boy disappeared, and a decomposed and unidentified body was found in a lake after a week. The petitioner could not identify the body or its clothing and consequently, he petitioned the high court to order an investigation by the Central Bureau of Investigation (CBI). The DNA test of the body was in line with the genetic profiles of the petitioner's parents, and the skull superimposition test showed a connection between the deceased and the found body. Despite this, the petitioner refused to accept the results of the scientific tests, asking that the DNA test be repeated. The Supreme Court accepted the scientific tests, such as DNA profiling, to identify the body, and the case was closed.

Victim identification is an important tool in prosecuting criminals in any court of law. Identification of victims helps to establish the identity of the accused and can be used as evidence to support the prosecution's case. In India, the Indian Evidence Act, 1872 ("**Evidence Act**") outlines the procedures for victim identification through forensic anthropology in Sections 45 and 46.

Section 45 of the Evidence Act deals with the evidence of identification of any person. It states that the evidence of identification of any person may be given in any proceeding if the court is satisfied that the witness has seen that person before. This section also states that any photograph or finger prints taken by the police may be admitted in evidence of identification of the person.

Section 46 of the Evidence Act deals with the evidence of identification of the deceased person. It states that the evidence of identification of a deceased person may be given in any proceeding if the court is satisfied that the witness has seen the person before the death or the remains of such person after the death. This section also states that any photograph or finger prints taken by the police may be admitted in evidence of identification of the deceased person.

Under the Evidence Act, facts that can be presented as evidence can be divided into two heads: Fact in Issue and Relevant Facts. A relevant fact is any fact that is material to the issues in dispute or to any

fact in issue. It is defined as a fact that has the capacity to prove or disprove the main fact in dispute (or fact in issue). It is a fact that may be used to support or contradict a party's case. Relevant facts can include admissions, statements, documents, objects, circumstantial evidence, and evidence of character. Evidence that is irrelevant or immaterial to the case is not considered relevant under Indian Evidence Law. When the court has to form an opinion upon a point of science or art or foreign law, or as to the identity of handwriting or finger impressions, the opinions upon that point of persons specially skilled in such foreign law, science or art, or in questions as to the identity of handwriting or finger impression are relevant facts. Such persons are called experts. Further, facts which do not fall under relevant facts can be relevant if they support or are inconsistent with the opinions of experts when such opinions are relevant facts. In the case of *Mohd. Aman v. State of Rajasthan*,²⁰ the court observed that the science of identification of footprints is not fully developed and therefore if in a given case, evidence relating to the same is found satisfactory it may be used only to reinforce the conclusions as to the identity of a culprit already arrived at based on other evidence. Further, in *Ramesh Chandra Agrawal v. Regency Hospital Ltd.*,²¹ the court stated that the "first and foremost requirement for expert evidence to be admissible is that it's necessary to listen to the expert evidence."

In a few cases in India, forensics results were not only acknowledged but also used as the only basis for justice. Such as in the case *Kishan Chand v. State of Himachal Pradesh*,²² the accused was prosecuted for the crime of raping a child between the ages of 10 and 12 and was found guilty thanks to professional forensic reports that were verified by the facts. The RFSL of Mandi used the Benzidine test, the Gel-diffusion technique, the Acid Phosphatase test, DNA profiling, and other tests. The defendants in *Mukesh v. State of Delhi*²³ were exonerated of dowry-related charges, saving them from the false accusations of the wife who claimed she had been poisoned and subjected to dowry cruelty. However, the forensic report clearly demonstrates that there was no poison in the stomach of the wife after toxicology and ballistics tests were conducted. In *Nitish Katara murder case*,²⁴ the detection of the deceased victim was difficult due to availability of only a small portion of one un-burnt palm with fingers. Here also, DNA profile helped in identifying the body remains by matching DNA profile with parents of the deceased which helped the High Court of Delhi to uphold the conviction of the accused.

However, in a few cases based on the facts in issue, the court has also noted that forensics cannot be the sole basis for deciding a case. In *Sheena Bora Murder case*,²⁵ Forensic evidence, such as DNA, fingerprints, and various items such as keys to the car allegedly used to transport the victim, was used to link the accused to the crime scene and to the victim. Phone records, surveillance footage, and medical records were also inspected to build the case against the accused. The forensic investigation in the Sheena Bora murder case was critical in proving the guilt of the accused and in determining the motive behind the crime. The court noted that it was crucial for the forensic evidence to be explained properly and to be considered in the context of other evidence presented. It was important to evaluate the forensic evidence carefully in order to reach an accurate conclusion.

Challenges in integrating forensic in criminal justice system

1. **Lack of personnel:** Another major concern with regards to forensic anthropology in India is the lack of qualified personnel. A major problem is that there are not enough qualified individuals to staff the few certified labs that exist in the country. Additionally, many of the existing forensic anthropologists do not have specialized training or expertise and may not be able to accurately analyze evidence or interpret results. This can lead to faulty or incomplete investigations, resulting in wrongful convictions or acquittals. Finally, the lack of personnel in the field means that India lags behind other countries in terms of the use of forensic anthropology in criminal investigations.
2. **Lack of certified and well-equipped labs:** In India, one of the biggest concerns surrounding forensic anthropology is the lack of certified and well-equipped labs. Currently, there are only a handful of labs in the country that are certified to conduct forensic anthropology and they are not always adequately equipped to do so.²⁶ This means that many cases in India are not investigated using the most up-to-date methods and technologies. Additionally, many of these labs are not located in rural or remote areas, meaning that investigations and evidence collection in these areas is often not possible. Finally, the lack of qualified personnel in these labs can lead to unreliable or incomplete results, which can ultimately lead to wrongful convictions or acquittals.
3. **Lack of adequate training and resources for police officers:** In India, one of the main challenges in integrating forensic evidence into the criminal justice system is the lack of adequate training and resources for police officers. Many forensic investigations are still conducted using

outdated techniques and equipment, leading to unreliable results. Additionally, the lack of a clear legal framework for handling forensic evidence can lead to inconsistencies in the way cases are prosecuted and investigated as due to lack of recommendatory guidelines, decision to call forensics is mostly based on ad hoc basis taking by the investigating officer.²⁷

Other few challenges in integrating forensic evidence into the criminal justice system are 1) ensuring that the evidence presented is reliable and accurate. This is especially true when it comes to DNA and other biological evidence, which can easily be contaminated or misinterpreted. 2) ensuring that the legal system keeps up with advances in forensic technology. New techniques and technologies must be adopted and understood in order for them to be used effectively. Additionally, ensuring that forensic evidence is properly maintained and stored is essential in order to ensure that it remains valid and reliable. 3) making sure that there is adequate funding and resources to support forensic investigations and technology is essential in order to ensure that justice is served.

4. Conclusion

Forensic identification of victims is an important part of the criminal justice system for bringing justice to victims of crimes, identifying perpetrators, and assisting in preventing future crimes from occurring. By providing accurate and reliable information to criminal investigators, forensic identification can help to ensure that victims of crimes receive justice and perpetrators are brought to justice. Additionally, forensic identification can also provide closure for victims and their families by helping to identify their loved ones. Furthermore, forensic identification can be used to help identify patterns in crime that can then be used to help prevent future crimes from occurring.

In India, the use of forensics even today seems to be at nascent stages and faces many challenges with the lack in number of labs and experts. Moreover, there is a need for adequate guidelines for the police, as when a crime is reported, as an investigating officer plays a huge role of deciding whether the case requires the assistance of forensic.

Forensic anthropology has the potential to revolutionize criminal justice systems in India by providing greater accuracy and stronger evidence in criminal investigations. This is achieved by gathering and examining human remains and other physical evidence that can reveal details about a crime or suspected criminal activity. By using forensic anthropology in criminal investigations, India's criminal justice system could be greatly improved and ensure that justice is served.

References:

1. Abaid S et. al., Mesiodistal dimensions and sexual dimorphism of teeth of contemporary Western Australian adolescents, 63(3) J Oral Sci. 247-251 (2021).
2. ADA Technical Report No. 1077, Human Age Assessment by Dental Analysis by American Dental Association, 2020.
3. Angi M. Christensen et. al., Medicolegal significance in Forensic Anthropology, Current Methods and Practice 115-144 (Elsevier Science, 2nd edition, 2019).
4. C Priyadharsini, *Evolution of forensic odontology: An overview*, 7 Journal of Pharmacy and Bioallied Sciences 178 (2015).
5. Dr J. R. Gaur, Anthropology in the Service of the Criminal Justice System and the Society, United Indian Anthropology Forum (October 20, 2020).
6. Forensics: New tool predicts eye, hair and skin color from a DNA sample of an unidentified individual, *ScienceDaily* (May 14, 2018).
7. Jayakrishnan JM et al. Role of forensic odontology and anthropology in the identification of human remains, 25(3) J Oral Maxillofac Pathol 543-547 (2021).
8. Kirthiga M et. al., Ethnic Association of Cusp of Carabelli Trait and Shoveling Trait in an Indian Population, 10(3) J Clin Diagn Res. ZC78-81 (2016).
9. Mulhern DM, Differentiating human from nonhuman skeletal remains. Handbook of forensic anthropology and archaeology 239-54 (Routledge, 2016).
10. R. K Tewari and K. V. Ravikumar, History and Development of Forensic Science in India, 46(4) Journal of Police Medicine 303–308 (2000).
11. Puranik, Manjunath et. al., Dental Age Estimation Methods: A Review, 1 International Journal of Advanced Health Sciences 19-25 (2015).
12. Sushilsharma Vs State of Delhi (2014) 4 SCC 317.
13. Vishal Yadav v. State of Uttar Pradesh, 2016 SCC OnLine SC 1088.
14. Ramesh Chandra Agrawal v. Regency Hospital Ltd., (2009) 9 SCC 709
15. Mohd. Aman v. State of Rajasthan, (1997) 10 SCC 44
16. Kishan Chand v. State of Himachal Pradesh, Criminal Appeal No. 620 of 2015
17. Mukesh v. State of Delhi, (2017) 6 SCC 1