



UNCOVERING THE BITE OF EVIDENCE: FORENSIC ODONTOLOGY THROUGH LEGAL LENS

Adithya Ajay

IInd Year, 3-year L.L.B.

SN Law College, MG University, Kerala

ABSTRACT:

This paper aims to analyse the pivotal role of Forensic Odontology in the legal realm. Forensic Dentistry is a wide branch of study within Forensic Science. It entails several procedures and methods to study the dental evidence collected from a scene of crime. Such evidence can be subjected to various analysis to determine the age, sex or race of a person, also in confirming the involvement of a person in a crime. Bite Mark Analysis is a well know and effective method of Forensic Dentistry which has been put to use in landmark criminal cases. There are other methods such as rugoscopy (study of palatal rugae), cheiloscopy (lip print analysis) which may be lesser known but could possibly have a wider scope in the coming years with convulsive criminal incidents happening each day.

Forensic Odontology is a specialised branch of Forensic Science which employs dental evidence for resolving legal conflicts in the interest of Criminal Justice. Professor Keiser Nielson defined Forensic Odontology as “The branch of forensic medicine which in the interest of justice deals with the proper handling and examination of dental evidence and with the proper evaluation and presentation of the dental findings.”¹ Similar to fingerprints, dental formation is also unique for each person. Thus, making it a distinct tool for identification of individuals, either victim or accused which will invariably aid and support trial proceedings in court and ultimately give a hand in imparting justice.

Forensic Odontology is still an emerging field of study in India. It was perceived as a forensic branch with greater scope and importance in the legal system, after the admission of bite marks as evidence in the infamous Nirbhaya Case. Dental anatomy, dental materials as well as dental alignment are distinct characteristics of an individual. These could serve as a valuable source of evidence. Forensic Odontologists can assist investigations with their expertise knowledge in identifying bodies, sex determination, race determination or bite mark analysis specifically in sexual harassment and assault cases to serve as evidence.

One of the most crucial factors in identifying an unknown individual is sex determination. The skull and mandible craniofacial morphology caters to identification of sex in almost 96% of cases. Also, dental casts and placement of each tooth suggests the chronological development of an individual which helps in age estimation of a person. There are multiple methods to find out age of a person and each one has unique examination techniques. While, human bite marks are often left on the body of victims in sexual offenses. They serve as forensic proof. The distinctive patterns and traits of bite marks can be used to identify the culprit and offer vital information during criminal investigations. Bite marks need to be closely examined by Forensic Odontologists to ascertain their cause in specific cases, as they may also appear under other circumstances, such as accidents or self-defense scenarios. Generally, it can cause an array of injuries, including cuts, bruises, scrapes, and wounds. A human bite would be an oval or circular wound that encompasses the distinctive features of the dentition of the person who caused it. Persons can be distinguished and identified based on the class characteristics of teeth and its varieties.²

The findings of a forensic odontologist are admissible as evidence under section 39 of the Bharatiya Sakshya Adhiniyam (BSA), 2023 and Section 329 of the Bharatiya Nagarik Suraksha Sanhita (BNSS), 2023. The former provision provides relevance to an expert's opinion. As a general rule, the opinion of a third person is not admissible within a Court of Law. But, if the opinion is from a person who has expertise in a field like foreign law, science, art, handwriting etc. Then, it holds evidentiary value beyond a common man. Section 40 of BSA provides that facts, which are not otherwise relevant, are relevant if they support or are inconsistent with expert opinion under Section 39(1) of BSA³. Section 45 BSA, provided that the ground on which such opinions of experts is based is also relevant.

Section 329 of BNSS provides that "Any document purporting to be a report under the hand of a q section applies, upon any matter or thing duly submitted to him for examination or analysis and report in the course of any proceeding under this Sanhita, may be used as evidence in any inquiry, trial or other proceeding under this Sanhita."⁴ Under this provision the Court is empowered to summon and examine such experts. Apart from Government scientific experts, government officials in the capacity of Chemical Examiner or Assistant Chemical Examiner, Chief Controller of Explosives, Director of the Finger Print Bureau, the Director, Deputy Director or Assistant Director of a Central Forensic Science Laboratory or a State Forensic Science Laboratory, Serologists or any other scientific expert specified or certified by the Central or State Government comes under the purview of this section. State v. Sapsford was one among the first cases in America where bite marks discovered from the body of a rape victim was produced as evidence against the suspect before a Court of Law. Forensic odontology made a breakthrough in Indian legal system with the Delhi gang rape case in 2012. A bite mark analysis was conducted by an expert by deducing and matching the dentition of the accused persons. The analysis was done using photographs of bite marks on the victim's body. There were six accused in the case including one juvenile. Among them, two named Ram Singh and Akshay's dentition were matched accurately with the bite marks⁵. A computer based 2D analysis was employed for this purpose. The distinctive dentition of the former served as a

concordant point for matching of bite marks from the photographs. While for the latter, it was the rotated left first incisor which lead to locking of evidence. A report was submitted enumerating such findings in detail before the Court which inevitably strengthened the prosecution's assertion of involvement of the accused in the crime. The Forensic Dentist who submitted the report was summoned before the Court as expert witness and was cross examined by the defence lawyer. The same evidence was admitted by the Supreme Court in conviction of the two accused, ultimately confirming their death penalties. Thus, paved the way for an impressive win of justice.

CONCLUSION

Bite mark analysis, a key aspect of forensic odontology, has been criticized for its dependability and subjectivity. Forensic dentistry and forensic medicine should work hand in hand. Extensive interactions with law enforcement officers, the judiciary, and the forensic fraternity in various forums, such as hands-on workshops, conferences, and educational programs, have increased the subject's understanding, awareness, and importance. Forensic odontology, a branch of forensic medicine, has established itself as a significant and indispensable service in medico-legal matters, contributing to the construction of a just and secure society for future generations.

REFERENCES

1. Keiser-Nielsen S. Person Identification by Means of the Teeth. *The American Journal of Forensic Medicine and Pathology*. 1981 Jun;2(2):189.
2. Sweet O.D. D. Forensic dental identification Author links open overlay panel. *Forensic Science International* [Internet]. [cited 2020 Feb 14];201(1-3):Pages 3-4. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S0379073810000861>
3. Taxmann. Taxmann's Bharatiya Sakshya Adhinyam 2023 [Bare Act with Section Notes] – Comprehensive Reference Consolidating—Updated Legislative Text | Comparative Tables | Cross-References | Section Notes. Taxmann Publications Private Limited; 2025.
4. Taxmann. Taxmann's Bhartiya Nagarik Suraksha Sanhita (BNSS) 2023 – Comprehensive Legal Resource ft. Bare Act | Comparative Study of BNSS & CrPC | Section-wise Tables | Section/Alphabetical Key | Subject Index. Taxmann Publications Private Limited; 2023.
5. Verma AK, Kumar S, Bhattacharya S. Identification of a person with the help of bite mark analysis. *Journal of Oral Biology and Craniofacial Research* [Internet]. 2013;3(2):88–91. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3941620/>