

INTERNATIONAL JOURNAL OF LAW MANAGEMENT & HUMANITIES

[ISSN 2581-5369]

Volume 6 | Issue 1

2023

© 2023 *International Journal of Law Management & Humanities*

Follow this and additional works at: <https://www.ijlmh.com/>

Under the aegis of VidhiAagaz – Inking Your Brain (<https://www.vidhiaagaz.com/>)

This article is brought to you for “free” and “open access” by the International Journal of Law Management & Humanities at VidhiAagaz. It has been accepted for inclusion in the International Journal of Law Management & Humanities after due review.

In case of **any suggestions or complaints**, kindly contact Gyan@vidhiaagaz.com.

To submit your Manuscript for Publication in the **International Journal of Law Management & Humanities**, kindly email your Manuscript to submission@ijlmh.com.

Role of Forensic Science in Rape and Murder Cases: Measures for Viable Results

J. LAKSHMI CHARAN¹

ABSTRACT

In rape and murder cases, Forensic Science has a crucial role in identifying victim's body through advanced forensic techniques such as Forensic DNA Reports. It is also used for crime scene analysis and collection of evidence that provides clinching scientific evidence which corroborates or contradicts the accused's guilt. These pieces of evidence are useful for investigation purposes and the conclusion of the trial. However, Forensic Science has certain limitations and therefore, forensic experts must adopt the Standard Operating Procedure (SOPs) guidelines for accurate results while sample collection, preservation, and sample storage. If forensic experts failed to adopt these guidelines, it may lead to incorrect or erroneous results. Such erroneous results may be obtained due to inadequate quantity, improper collection methods, delay in testing, etc. Therefore, forensic experts and other frontline responders shall strictly follow Standard Operating Procedure (SOP) guidelines, otherwise, the courts may acquit the accused due to the inadmissibility of such evidence. This article focuses on the role of forensic science in rape and murder cases and the need to follow appropriate protocols to produce viable results.

Keywords: *Rape and Murder Cases, Forensic Science, Standard Operating Procedure (SOP), Viable results.*

I. INTRODUCTION

In India, crimes against women especially rapes and their brutality are constantly increasing inspite of stringent criminal laws. Further, the Central Government enacted rape law reforms aftermath Nirbhaya, Kathua incident for crime prevention and speedy justice. However, rape law reforms and modifications of the Indian Criminal Justice System are unlikely to have a notable impact on solving this problem because the Indian Courts pronounce judgments based on the evidence and arguments that needs to prove the accused's guilt beyond all reasonable doubts. Amongst several pieces of evidence, forensic science provides scientific evidence which corroborates or contradicts the accused's guilt. According to Locard's Principle of Exchange "Every contact leaves a trace" and perpetrator leaves his trace in the form of DNA at

¹ Author is a Ph.D. scholar at Dr. B R Ambedkar College of Law, Andhra University, India.

the crime scene.^[2] However, evidence traces may contaminate or degrade over passage of time. Hence, the Investigating Officer (IO) must take adequate steps for effective crime scene management and the Forensic team shall be informed to collect physical evidence from the crime scene. The collected physical evidence shall be forwarded by police to the Forensic Science Laboratory (FSL) for sample examination. After sample examination, the forensic experts forward the Forensic Report to the Investigating Officer (IO) for further investigation purposes. Besides, 12,000 DNA samples related to sexual assault cases are pending in the respective Forensic Science Laboratories (FSLs) due to lack of infrastructure and insufficient staff.^[3] Moreover, Indian Courts consider forensic evidence depending on sample purity and collection methods. Hence, the Criminal Justice System must address the limitations of forensic science and strict implementation of Standard Operating Procedures (SOP) is the need of the hour to yield viable results.

II. ROLE OF FORENSIC SCIENCE IN RAPE AND MURDER CASES

In rape and murder cases, forensic science is useful to process the collected samples such as blood stains, fingerprints, footprints, semen and others. Further, forensic experts apply different techniques such as Forensic DNA Profiling, Face Reconstruction, Magnetic Fingerprinting and Automated Fingerprint Identification (AFIS), Blood Splatter Analysis, Ballistics. If the victim is unknown or unidentified, then the forensic experts conduct facial reconstruction to determine gender, race and age. It is observed that men have a sharper lower jaw than women, whereas, men foreheads are slightly curved while women have straight forehead. Further, forensic experts determine age and race based on skull examination. In addition, forensic odontology is used to determine the age of the person. For instance, Nithari Killings, Nehru Nagar rape and murder cases, police used forensic facial reconstruction to capture the suspects.

Further, forensic experts perform forensic DNA profiling only upon the identification of victim and her parents or offspring DNA is available for comparison. This test is performed by adopting two methods 1) Restriction Fragment Length Polymorphisms (RFLP), 2) Polymerase Chain Reaction (PCR). Moreover, Forensic DNA profiling test must be conducted carefully and the samples must be stored and examined properly, any improper handling may contaminate the samples. Hence, the forensic experts must be very careful while handling the DNA samples, otherwise, experts' DNA may pass through touch and the defense counsel have the opportunity

² Edmond Locard, THE FORENSICS LIBRARY, <http://aboutforensics.co.uk/edmond-locard/>.

³ Moushumi Das Gupta, *Over 12,000 sexual assault cases pending due to backlog at forensic labs*, Hindustan Times, (Apr. 26, 2018), <https://www.hindustantimes.com/india-news/over-12-000-dna-samples-from-sexual-assault-cases-pending-examination-at-forensic-labs/story-AzD26fBHTEibaUu7OKinoN.html>.

to raise the doubts. Consequently, the courts acquit the accused since the prosecution failed to prove the accused's guilt beyond reasonable doubts.

(A) Case Studies

The case study analyzes the role of forensic evidence in rape and murder cases to determine the evidentiary value of forensic evidence and forensic inconsistencies/ mishandling that led to pronounce the judgment.

Case 1 – In *Dhananjay Chatterjee v. State of West Bengal*,^[4] Dhananjay (Accused) was employed as a security guard in an apartment. On March 2, 1990, the victim's father complained to his security agency that he occasionally teased his daughter on her way to and from the school. As a result, the security agency issued a transfer order with effect from March 5, 1990. However, the accused performed the morning shift duty on March 5, 1990 followed by victim's mother went to a temple on the evening of the same day. When the victim was all alone in her apartment, the accused informed the on-duty security guard and his supervisor that he was going to the victim's apartment to make a call to the security agency's office. Further, the lift-operator saw him take the elevator to the victim's apartment. When the victim's mother returned home, the girl did not open the door despite of knocking the door for several times. She consequently requested the workers to break the door where the victim was found lying on the ground bleeding heavily with a torn dress, injuries on her head. Immediately, victim was taken to a hospital for treatment, where doctors declared her dead. Meanwhile, the police were informed of the incident and also reported missing of "ricoh" wrist watch. Further, the forensic team found the victim's underwear, a broken neck chain, a cream-colored shirt button, and other items. The accused was absconding who got arrested in his hometown on May 12, 1990. During the interrogation, accused gave statements led to the recovery of articles i.e., a 'Ricoch' wrist-watch, the accused's shirt and pant wrapped in newspaper at his house.

According to the Forensic report, the cream-colored shirt button recovered from the crime scene and shirt recovered from the accused's home were matched, victim's torn panty indicates signs of physical force being used. The prosecution relied on the following circumstances (1) Motive of crime, (2) Absconding nature of Accused, (3) Evidence relating to accused's visit to the flat of the deceased, (4) recovery of a cream-color shirt button and chain from the deceased's flat, and (5) recovery of the stolen wrist-watch, shirt, and pant from the accused's house, while, Defense Counsel put forth his arguments that the prosecution failed to prove accused's motive for the murder because the complaint letter and written transfer order were subsequently

⁴. *Dhananjay Chatterjee v. State of West Bengal*, (1994) 2 SCC 220 (India).

produced to the accused on June 29, 1990; the statements of security guard and supervisor show that Dhananjay did not exhibit any signs of "perturbedness" and also no criminal would inform them in advance of his visit to the apartment; and, the absence of the cash memo regarding the "ricoh" wrist watch was a significant omission. The Sessions Court imposed capital punishment for both rape and murder heavily relied on forensic reports were corroborated with other circumstantial evidence. On appeal, the Supreme Court held that the prosecution proved all the circumstances were conclusively establishing accused's guilt and are totally inconsistent with his innocence. In addition, such evidence is specific and conclusive points the accused's guilt accused and he is the only person responsible for the deceased's rape and subsequent murder. Therefore, the accused conviction under Sections 376 and 302 IPC is upheld. On August 14, 2004, Dhananjay was judicially executed in a Kolkata prison. Subsequently, two professors of Indian Statistical Institute, Calcutta re-investigated the case and found significant concerns with evidence.^[5]

Case 2 - In Priya Darshini Mattoo rape and murder case,^[6] a 25-year-old Law student was harassed by Santosh Kumar Singh (son of the then Assistant Commissioner of Police), former LLB Student who belongs to the same college. The appellant/ accused harassed and intimidated her despite after clear indications of disinterest. She filed complaints in different police stations and the accused was advised to behave properly. On 23rd January, 1996, the accused went to victim's house which was witnessed by locality members and she was found dead in her house. The Doctors from Safdarjung Hospital, Delhi had collected the biological samples from the crime scene and also conducted autopsy of victim. In the autopsy report, they had confirmed that there are no signs of rape. Further, the Trial Court transferred the case to Central Bureau of Investigation (CBI) for proper investigation and fair trial of the case.

Subsequently, RML Hospital, Delhi had collected the accused blood samples for examination. Further, the CBI sent the samples to Centre for Cellular and Molecular Biology (CCMB), Hyderabad for DNA Profiling test that confirmed the rape and murder of victim. However, CCMB, Hyderabad had returned one of the samples (i.e., victim's underwear garments), as CCMB conducts DNA Profile test only. Further, these semen samples were forwarded to the Central Forensic Science Laboratory, Delhi submitted in its report stating that there was no evidence of rape. During the trial, the Defense Counsel raised serious objections stating that the findings of DNA test and victim's autopsy report were contradictory. Further, the trial court held that CBI while conducting DNA Profile test had not followed Judicial procedure. Therefore,

⁵. Dhananjay Chatterjee Lives On, INDIA HANGED INNOCENT, <https://www.india-hanged-innocent.org/>.

⁶. Santosh Kumar Singh v. State through CBI, (2010) 9 SCC 747 (India).

the result of DNA Profile test as inadmissible evidence and the court acquitted the accused. Further, the Government appealed to the High Court that imposed death penalty to the accused. The accused appealed to Supreme Court of India questioning the validity of DNA Profile test and resulted in reduction of death sentence to life imprisonment giving him benefit of doubt.

Case 3 – In Ankush Maruti Shinde and others case, on 5th July, 2003, the prosecution version states that accused entered the victims hut and they demanded money as well as ornaments. Further, six men were accused of committing five murders and rape against lady (who survived) and 15 years child (who died).^[7] The Trial Court convicted the accused and the accused approached the Bombay High Court commuted three of the accused's death penalty to life imprisonment and affirmed the death sentence of the remaining three accused. In 2009, the Division Bench of Supreme Court dismissed the appeals filed by the accused and also allowed State's appeal to sentence the other three accused to death sentence. Further, the Supreme Court confirmed the death penalty to all the accused. In October, 2018, the Apex Court considering the review petitions had restored the appeals. Finally, the Apex Court held that the prosecution failed to prove the rape using cogent forensic evidence.

According to National Crime Records Bureau (NCRB) – 2021 Report states that rape conviction rate is 28.6 Percent only.^[8] In *Shatrughna Baban Meshram v. State of Maharashtra*,^[9] the Supreme Court analysed 67 rape cases in last 40 years wherein Apex Court held that the Trial Court or High Court considered victim's low age as not only the mitigating factor for imposing death sentence for the offences under section 376 and 302 of IPC. In all these cases, the Courts have relied upon Forensic evidence to know the victim's cause of death and match of the accused but the admissibility of such evidence depends on facts and circumstances of each case.

III. EVIDENTIARY VALUE OF FORENSIC EVIDENCE

(A) Legal Provisions relating to Forensic Evidence

Section 164-A of Criminal Procedure Code, 1973 mandates the police officer to forward the rape victim for medical examination. Further, Registered Medical Practitioner (RMP) shall conduct medical examination of the victim with her consent or a person competent to give consent on her behalf for medical examination within twenty-four hours from the time of receiving such information and the medical report shall contain all the particulars such as

⁷ Mansi Thapliyal, *Five murders, six men and 16 years of stolen lives*, BBC News (Jun. 24, 2019), <https://www.bbc.com/news/world-asia-india-48578767>.

⁸ Government of India. Ministry of Home Affairs. National Crime Records Bureau. Crime in India – 2021, Disposal of IPC Cases by Police and Court. Vol I: xvi. Available from: https://ncrb.gov.in/sites/default/files/CII-2021/CII_2021Volume%201.pdf.

⁹ *Shatrughna Baban Meshram v. State of Maharashtra*, (2021) 1 SCC 596 (India).

material for DNA Profiling test, injury over victim's body etc. Similarly, section 53-A of CRPC empowers the police officer to request the Registered Medical Practitioner (RMP) to conduct medical examination of rape accused. According to Section 293 of Criminal Procedure Code, 1973, Any Government scientific expert's report without examination of such expert may be adduced as evidence in any inquiry, trial or other proceeding. Such Government scientific experts include the Director, Deputy Director or Assistant Director of Central Forensic Science Laboratory or State Forensic Science Laboratory.

Section 45 of Indian Evidence Act, 1872 deals with Experts Opinion. According to section 45 of Indian Evidence Act, 1872, when the Court has to form an opinion on foreign law, science, art, handwriting, finger impressions, then the skilled person's opinion are relevant facts. All the forensic methods are scientific evidence and such experts' opinions are relevant but the admissibility of such evidence depends upon various factors such as adopted techniques, accuracy of results after repetitive tests, careful sample handling throughout the process. Section 73 of the Indian Evidence Act, 1872 empowers the Court may compel any person to produce fingerprints, handwriting or signatures for comparison. On 8th July, 2019, the DNA Technology (Use and Application) Regulation Bill, 2019 has been introduced in the Lok Sabha.^[10] This proposed bill attempts to regulate the use of DNA technology through the establishment of DNA Regulatory Board that supervises the functioning of DNA Data Banks that create profiles of suspected offenders and crime scene indices based on fixed criteria at national and regional level. This DNA Bill acknowledges the use of DNA evidence that shall be used by the prosecution to convict offenders.

(B) Relevancy of Forensic Evidence

Forensic Evidence plays a vital role in the Indian Criminal Justice System by analyzing the physical evidence found from the crime scene. It is considered as reliable and admissible evidence only when the prosecution succeeds to establish the chain of custody, sample purity, non-tampering of samples. Article 20 (3) of Indian Constitution states that "No person accused of any offence shall be compelled to be a witness against himself." In *Solanki Chimanbhai Ukabhai v. State of Gujarat*,^[11] the Supreme Court held that the forensic evidence is corroborative in nature. In *Selvi and Others v. State of Karnataka*,^[12] the Supreme Court examined the constitutional validity of scientific tests like narco-analysis, polygraph tests, Brain

¹⁰. The DNA Technology (Use and Application) Regulation Bill, 2019, https://prsindia.org/files/bills_acts/bills_parliament/2019/Bill%20Summary%20-%20DNA%20Technology%20Bill,%202019.pdf.

¹¹. *Solanki Chimanbhai Ukabhai v. State of Gujarat*, 1983 (2) SCC 174 (India).

¹². *Selvi and Others v. State of Karnataka*, (2010) 7 SCC 263 (India).

Electrical Activation Profile (BEAP) tests. Moreover, the Supreme Court held that these tests can be conducted with voluntary consent of accused and any discovery of material objects are relevant under section 27 of Indian Evidence Act, 1872. If these tests are conducted without accused's consent amounts to testimonial compulsion. Moreover, the courts cannot consider such testimony since it violates Article 20 (3) and 21 of the Indian Constitution.

IV. CONCLUSION

Indian Courts consider forensic evidence in rape and murder cases but the prosecution shall prove that the forensic experts maintained the chain of custody. In some circumstances, though experts have established the chain of custody but the results were negative. Experts have repeatedly raised concerns about the low level of training to first responders, Investigation agencies, lack of infrastructure facilities as well as high risk of analyzing improper handling of samples. The Indian Government attempts to develop the infrastructure as well as the skilled experts but it is highly challenging to fulfill the needs due to rise in crime rate. Recently, the Tamilnadu state gets country's first-ever forensic DNA search tool that expected to be accurate even with degraded samples.^[13] In the first place, proper evaluation of existing deficiencies shall be addressed to overcome the challenges. Some of the challenges are few Forensic Science Laboratories (FSLs), lack of unified criminal data base, lack of strict implementation of Standard Operating Procedures. Although Ministry of Home Affairs (MHA), Government of India and National Human Rights Commission (NHRC) has issued Standard Operating Procedure (SOPs) on Collection and Processing of Scientific/ Forensic Evidence in case of Sexual Assault on Women to ensure speedy and proper investigation as well as strong cogent evidence for successful conviction.^[14] However, these guidelines have not been uniformly implemented especially rural areas, sub-urban areas due to lack of awareness, high cost of Sexual Assault Evidence Collection (SAEC) Kits, and expertise staff. These factors have resulted in rampant mishandling of scientific evidence and unreliable expert testimony.

V. SUGGESTIONS

With recent technological advancements, crime took new forms and the criminals were adopting new technologies. The Government shall take initiative steps by establishing new sub-units of

¹³. Express News Service, *TN gets country's first-ever forensic DNA search tool*, The New Indian Express, (Nov. 21, 2021), <https://www.newindianexpress.com/states/tamil-nadu/2021/nov/21/tn-gets-country-s-first-ever-forensic-dna-search-tool-2386218.html>.

¹⁴. National Human Rights Commission (NHRC) issued Standard Operating Procedure (SOP) on Collection & Processing of Scientific/Forensic Evidence in Case of Sexual Assault on Women, https://nhrc.nic.in/sites/default/files/SOP_Collection_Processing_Scientific_Forensic_Evidences_in_Case_of_Sexual_Assault_on%20_Women_15122020.pdf.

Forensic Science Laboratories (FSL) in each state for timely sample collection and examination. It shall also appoint forensic experts for sample examination and also provide required adequate skills during sample collections from crime scene. If required, they must supervise the local hospital staff during sample collection for accurate results in order to provide strong material evidence. In addition, the registered medical practitioners (RMP) shall be provided checklist while examining rape survivors for ensuring that they had obtained the evidence properly following due protocols. India shall develop advanced techniques in DNA tests such as Touch DNA and DNA Profiling resulting in low cost. The Government Hospitals shall provide Sexual Assault Care and Forensic Evidence (SAFE) Kit, EDTA Vacutainers, blood stain evidence kits, ballistic kits etc. The law enforcement agencies such as police, medical staff shall be proper training of crime scene is highly required.
