

## **9. Forensic Science and its Role in Rape Cases**

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**i. Abstract**

It is necessary to ensure the administration of justice, by following the principles of natural justice. The procedure and handling of the case should be undertaken fairly and properly, and every minute and important details and evidence should be examined properly. With the advancement in technology, the evidence is needed to be analysed carefully, and Forensic Science comes as a rescue with the more profound and advanced technologies and tests, and resolve the matter, by providing the accurate and reliable reasoning and reports. Forensic Science plays a major role, primarily act as a HERO in the heinous crime cases, which are vulnerable for our society, as such is the role and collaboration of the effectiveness and functioning of the Forensic Science Evidence and Medical evidence in Rape cases, bring out the guilt of the accused and providing justice to the victim.

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## 1. Introduction

**Evidence** is a very ‘important key’ and ‘aspect’ in solving the dispute in civil cases, and to determine whether the suspect is guilty or not and what circumstances and presence of reasoning which led the criminal act to be in effect in case of criminal proceedings. As mere facts in issue, would not lead the way to final judgement, the court requires a solid and evident proof, which includes *testimony, documents, photographs, videotapes* etc, which confirms the facts and situation prevailed.<sup>157</sup>

As the court of law deals with various types of cases, particularly the variety of cases, and it is obvious that court is not expertise in every field, they require the help of the experts of a particular field as in to reach final order. Therefore *section 45 of the Indian Evidence Act 1872*, enumerates on the ***Opinion of the experts or experts evidence***. An Expert is a person, who pose *skilful and special knowledge in a particular field and with practice and training has acquired ability to express an opinion*<sup>158</sup> and the opinion of these experts, who pose special skills in *foreign law, science, art, handwriting and finger impressions are relevant and considerable and they are not ordinary witnesses*. These experts are not to party to suits, as they are not connected to the case in any; situation, their main task is to assist the court.

## 2. Forensic Science and its Role in Rape Cases

When the person is giving his testimony, it is important to note and consider that testimony sole itself will not have an impact and will be subjectively admissible. Therefore, it is important that a solid, well proof and admissible evidence to be in support while providing testimony, as it will act as Assurance and reliable source to court. On one of the most important players in all the testimonies is ‘Forensic Evidence’.

In this era of scientific progress and developments, the commission of unlawful acts are becoming more *sophisticated, critical, advanced-digital and controlled*. Therefore, it is

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<sup>157</sup> Amoolya Narayan, ‘Indian Evidence Act: In Nutshell’ (Last Access : March 24,2020 21:12pm) <https://blog.ipleaders.in/indian-evidence-act-nutshell>.

<sup>158</sup> Bal Krishna Das Agrawal v. Radha Devi and Ors AIR 1989 All 133.

necessary to have a special type of science, ‘which applies the scientific principles in relation to answering the questions which are of large legal interest, and it is called Forensic Science’ and this application of science is applied to both civil as well as criminal law cases. Forensic Science deals with the application of ‘*Knowledge*’ and ‘*methodology*’ of various parts of sciences or disciplines such as *physics, chemistry, biology, computer science to the matter of legal interest, for the evidence analysis.*<sup>159</sup> The scope of forensic science is broad and significantly play a major role in solving the issues and mystery concerned. Forensic Science is an old concept, but the developments and techniques adopted by forensic science department is commendable, as they deal in-

1. **Forensic Odontology:** Helps in the identification of the victims when the body is not in a recognizable state, and the examination took place through the examination of the teeth, alignment and overall structure of the mouth.
2. **Forensic Anthropology:** Deals in examining the age, height, gender and ancestry of compromised human remains, and also to identify and establish the time of death.
3. **Forensic Pathology:** It helps to determine the cause of death by the examination of the corpse. Forensic Pathologists Experts also draws the inferences in matter as in whether the death is natural, criminal or accidental.
4. **Cyber Forensics:** This is used in the investigation of cybercrimes. It involves the analysis of evidence found in computers and digital storage media, eg- pen drives etc.
5. **Ballistics:** It is a specialised forensic science which deals with the motion, angular movement, etc of bullets, missiles. This is used mostly in criminal investigation.
6. **Forensic Biology:** It includes fingerprint analysis and also the major accepted development all over the world, which is DNA profiling, commonly used in criminal investigation. It helps in the identification of unidentified person or for the elimination of suspects from the list of accused.
7. **Trace Evidence:** This evidence plays a great role in establishing the link between suspect and victim. The evidence which can be traced is- hair, soil, fibre etc.

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<sup>159</sup> ‘Forensic Science plays pivotal role in the Legal System’ (Last Access : March 24,2020 22:13pm)  
<https://ifflab.org/the-importance-of-forensic-science-in-criminal-investigations-and-justice>.

### 3. Role of Forensic Science in Criminal Investigation

Forensic Science has and plays a major role and contribution in criminal cases. As criminal justice system comprises a set of bodies and institutions, whose aim is to protect the social interest. The administration of criminal justice system rest primarily on police, prosecution court and prisons. An organised society depends on good and effective criminal justice system. Although, the Magistrates and courts, are those functionaries, who play an essential role, for determining the accountability and culpability of the offenders, and determining the grave act committed by them and adequately determining the punishment. Court can position the truth, only and solely based on firm and sound foundation of evidence. Today, the time is of technology advancement, and this technology has caused a breakthrough in crime investigation as now criminals also have easy access to technology and this result as a drawback in the investigation purposes as the police utilize scientific tools and techniques to detect the crime. This can result in a problem in the efficiency and effectiveness of criminal justice functioning, as to the mere reason of technological advancements.<sup>160</sup> Forensic Science is considered as significant characteristics of criminal justice system Forensic science plays a vital role in the criminal justice system by providing scientifically based information through the *analysis of physical evidence, the identity of the culprit through personal clues like a fingerprint, footprints, blood drops or hair, mobile phones or any other gadgets, vehicles and weapons*, associating with the objects of the criminal thought left by him at the crime scene or with the victim. There are many stances, when sometimes false case is also made up against someone, who is innocent, thereby Forensic Science also saves the innocent and bring the main culprit. During the criminal investigation, evidence is gathered from the location of the crime or from the person (*who is eye witness*), then examined in the crime laboratory and then the final results are produced and reported in the court of law.<sup>161</sup>

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<sup>160</sup> Sakhawat Sajjan Sewat, 'The Importance of forensic Evidence in our Justice System' , (Last Access : March 25, 2020 10:00 am)  
<https://www.thedailystar.net/law-our-rights/law-analysis/news/the-importance-forensic-evidence-our-justice-system-1755037>.

<sup>161</sup> 'Applicability of Forensic Science in Criminal Justice System in India with special emphasis on Crime Scene Investigation' (Last Access : March25,2020 12:12 pm)  
<https://legaldesire.com/applicability-of-forensic-science-in-criminal-justice-system-in-india-with-special-emphasis-on-crime-scene-investigation>.

***Legal Provisions and Case Laws as to forensic science and Criminal Investigation***

Article 20(3) of the Indian Constitution, states that no accused should be compelled to be a witness against himself. The protection against self-incrimination is embodied in this article. This right has been taken to ensure that a person is not bound to answer any question or produce any document or thing if that material would tend to expose the person to the conviction for a crime. But the court has the power to direct any person including accused, as for the finger impressions to be taken, as per to section 73 of Indian Evidence Act.

As in *State of Bombay v. KathiKaluOghad & Others*<sup>162</sup>, Court held that providing thumb impression, specimen signature, blood, hair etc by accused, does not amount to witness and accused has no authority to refuse for DNA examination. In *Dinesh Dalmia v State*<sup>163</sup>, Court held that subjecting the accused to narco analysis does not result in testimony by compulsion. In *Anmolsingh Swarnsingh Jabbal v. The State of Maharashtra*<sup>164</sup>, because of forensic evidence, as in reliance place on DNA evidence and additional, the murder of young lady engineer was solved, and it was her colleague, and life term was upheld.

**4. Pivitol Role of Forensic Science in Rape Cases**

Rape is one of the most frequent and violent crime, and it has been observed that this violent crime is under-reported. Rape is a very heinous crime, and as a matter of fact and concern, crime investigation authorities have a very heavy responsibility to bring them justice and put the accused behind the bars. Investigation of rape cases is not a mere cup of tea, as in everything requires a careful and proper analysis, whether it is material available at the crime scene, the examination of rape victim body, witnesses testimonials, weapons used if any etc.

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<sup>162</sup> AIR 1961 SC 1808

<sup>163</sup> 2006 Cri. L. J 2401

<sup>164</sup> 2014 SCC Online Bom 397 : 2014 (2) Bom CR (Cri) 361 : MANU/MH/0352/2014

Therefore, forensic science is required in the examination of rape cases, so the adequate result could be present. As per to Indian Evidence Act, Forensic Report is considered as a ‘Belief’ and ‘reliable’ proof, given by the expert.

The offence of rape is grave in nature, and it also has a high impact on the victim as well as on the society at large. For proving the offence of rape, there is a crucial need for medical as well as forensic evidence, as their analysis and findings and interpretations, will bring a valuable insight in the court, and this evidence becomes more valuable, especially in those cases where there are no other witnesses to the incident.

Medical evidence also plays a vital role in the matter of rape cases. Medical examination of the victim, always plays the very important. As there are many instances, where there is no other witness of the act, and ultimately accused and the victim will provide information as per to their interest only. So Medical and forensic evidence is the best way to determine and figure the fact. According to *Section 53 of Criminal Procedure Code*, medical examination of the victim has been made mandatory, but after the amendment in the act, as per to *Section 53-A*, now the medical examination of the accused is also mandatory.

Though victim is the most important medical evidence, and it is required to conduct the medical examination on time, otherwise with the passage of time, it may lead to non-appearance of some minor or major injuries like redness or swelling. Most importantly, the medical examination of the victim should be done with her consent. Evidence and analysis attained through medical examination like- *Injuries caused with forcible rape, or because of resistance, torn clothes (they might carry semen, fibres, blood stains, saliva stain from culprit), stain on the body (especially on thighs and private parts), age, physical health, any venereal disease etc.*

Forensic Science and Medical Evidence have to identify, analyse and prepare a report on every possible evidence collected. They have to consider every possibility during the happening of the rape incident, as in if SMEGA is present or not, any venereal disease if the culprit is suffering, to trace the dust, dirt, flora or fauna from the scene, especially in outdoor cases etc. As there are various sources of evidence, and in crucial and serious type cases like of Rape, every aspect and source of evidence should be tested and analysed.



### 1. Semen or Spermatozoa

The spermatozoa are present in the vagina after intercourse mostly for 9 days in the vagina and 12 days in the cervix. In *State of Maharashtra v. Chandraprakash Kewalchand*<sup>165</sup>, the court stated that the presence of semen on the clothes of the prosecutrix, instead of vagina, will not be a doubt and it will be considered as evidence. In case of Married women, the presence of semen on her clothes or her genitals will not be sufficient evidence of rape.<sup>166</sup> It is a strong piece of circumstantial evidence, but not a conclusive one.<sup>167</sup>

### 2. Examination of Hymen

Rupture of the hymen is not necessary, and in such cases, medical evidence proves the charge of conviction.<sup>168</sup> Although, the statute only requires medical evidence of penetration, even if hymen remains intact

### 3. Capacity of Accused

A boy less than seven years of age is immune from any sort of criminal liability<sup>169</sup>, but who is above seven years of age but below 12 years of age, can be charged for criminal liability, if the judge is satisfied as to his maturity and understanding.<sup>170</sup> Impotency cannot be the reason as in to discharge from the commission of rape, as there is no requirement of penetration.

### 4. Signs of Struggles

The body should be examined carefully and properly for marks of violence, such as scratches, bruises etc , especially on the breast, wrist, chest, inner aspect of thigh and back etc. But absence of resistance marks is not a proof to disbelieve the case of rape.<sup>171</sup>

### 5. Examination of Clothes

Clothes which were worn by the victim during the happening of the incident should be carefully kept, and to be examined carefully, as there could be the presence of blood or seminal stains.

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<sup>165</sup> 1990 (1)SCC 550.

<sup>166</sup> Bhonriv. State, AIR 1955 NUC 473.

<sup>167</sup> Ali Khan v. State, AIR 1962 Cal641.

<sup>168</sup> Narayanamma v. State (1994) 5 SCC 728.

<sup>169</sup> Indian Penal Code, 1860, Sec. 82.

<sup>170</sup> Indian Penal Code, 1860, Sec 83.

<sup>171</sup> Gurdip v. State, 1975 Cut LR 20.

## 6. Injuries on Private Parts

In case there was no presence of injuries on the body of the victim, it is not evident or crystal clear every time, that the act or incident took place with her consent.<sup>172</sup>

## 7. Age of the Victim

As in the exact age cannot be determined through developed secondary characters of sex. In *Laxman Dan v. State of Rajasthan*<sup>173</sup>, radiology report was not considered as a conclusive proof for deciding and determining the age of the victim, in case the birth certificate was also not available.

### *Relationship of Forensic science and victim:*

The process of investigation and prosecution of criminals in judicial proceedings, determines and establish the relationship between Forensic Science and Victim. In Rape cases, there is no chance of the availability of direct evidence at any cost, and circumstantial evidence is required to establish the case and to prove the guilt of the accused, as in beyond any reasonable doubt. Medical evidence and forensic evidence can provide a better result of the incident, as they go hand in hand together. If the medical evidence gives adequate and more accurate and complete then the victim information will be more clear in the context of crime, as in during forensic science investigation. The forensic examiners' role is very vital, as they need to examine evidence and reports through the scientific method and render conclusions regarding victimology. As forensic science helps in determining time and place of occurrence of crime, and medical evidence determines as in how the crime took place and how heinous it is. Forensic Science findings also help in detecting criminals through *fingerprints, footprints, etc, and in sex-related offense cases, criminals could be traced out by examination of bloodstain, saliva, semen, etc.*

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<sup>172</sup> Mahesh Chand v. State of Rajasthan, 1998 Cri. LR 102 at p. 168 (Raj).

<sup>173</sup> AIR 2003 SC 698.

## 5. Case Studies

### 5.1. Delhi Gang Rape Case

Forensic Science played a very important role as in the Bus was detected from the recordings of the highway CCTV and also with the help of a description made by the victim about that vehicle. The Seized metal rods and victim's clothes were sent for examination, and as a result of the examination, it was found out that the victims were beaten with an iron rod, by examination of bloodstain found on the rod. The act of rape was committed, by examination of blood, semen, tissues of accused persons and vaginal secretions and also the clothes of the victim.<sup>174</sup>

### 5.2. Shimla Rape-Murder Case

It took good nine months for CBI to solve the rape case. It was founded that the sixteen-year-old girl was kidnapped, raped, and murdered brutally. Her body was found in the dense forest of Himachal Pradesh, as in the body could not be recognised only. But with the help of advanced forensic tests, the suspects of the crime and the identity of the body was able to figure out. The evidence which was available on the scene was collected carefully and properly, which include liquor bottle, semen- blood samples etc. To determine the identity of the body and also to know the suspects of the crime, blood samples of 250 people residing nearby area was collected, as in to match the semen and DNA When the CFSL, started matching the DNA of 250 people with the semen of accused, initial results were negative. Then, CFSL conducted '*Percentage Test*' and '*Lineage Test*' of all 250 samples and it matched with that of the sample. The sample matched with one of the family residing in Kangra. It was found out that one of

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<sup>174</sup> Reetesh Kumar Jeena, 'Forensic science and victims: Indian scenario', International Journal of Applied Research 2017  
<http://www.allresearchjournal.com/archives/2017/vol3issue2/PartE/3-2-6-648.pdf>.

the members of the family is missing since 2016. Then the samples matched with that particular family member. This gave an assured and clear way to CBI to find out the suspects.<sup>175</sup>

## **6. Conclusion**

Forensic Science is one of the crucial and vital aspects to ensure the administration of justice. Forensic Science is required in every sort of case, whether criminal or civil, irrespective the case is serious or not. In the case of Rape, the forensic science and medical evidence collaboration in determining the evidence and analysing the situation is of paramount importance. This science provides aid to those scientific methods of police in collecting the evidence, with the help of well-developed technologies and methodologies, and as a result, maintains high quality and accuracy in the results. The Medical and Forensic Science Evidence finds the utmost place in providing justice to the victim, and also to enable the court of law to reach the finding with the principles of natural justice. It is considered that forensic science evidence follows a positive approach towards the administration of justice and there is no chance that the innocent get punished, there will always be the fair ruling of FAIR JUSTICE DELIVERY.

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<sup>175</sup> Munish Chandra Pandey, ‘Advance forensic tests help CBI solve Shimla rape, murder case’ (Last Access: March25, 2020 19:56 pm)  
<https://www.indiatoday.in/india/story/advance-forensic-tests-help-cbi-solve-shimla-rape-murder-case-1219899-2018-04-25>.