

# SKULL-PHOTO SUPERIMPOSITION TECHNIQUE IDENTIFIED THE PARTIAL HANGING OF UNKNOWN DEAD: REAL CRIME RECONSTRUCTION REPORT

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## Abstract

**Background:** In the unknown death investigation scenarios, forensic crime scene investigators are facing many challenges in establishing the identity of the unknown, in particular found in outdoor remote areas. Visual means of identification failed whenever the dead body is in a highly decomposed state or mutilated state. Before the discovery of DNA fingerprinting by Dr Alec J. Jeffreys in 1986, the choice of identification was based on bloodstain evidence and the skull-photo superimposition technique. Later on in India, DNA fingerprinting evidence was presented in the Kerala High Court in a paternity dispute case, for the first time in the history of the Indian Judiciary it was accepted as infallible evidence in the court of law. In the present case report, Tamil Nadu Police registered a suspicious death in a partially hanged unknown dead body in a forest area and requested forensic service. The corresponding author (former CSI, hereafter as TN) had visited and investigated a partially hanged decomposed dead body found in a low-lying thorny bushy tree. The manner of death was identified as homicidal in the crime scene itself by TN through the examination of knot, ligature and other evidence. The deceased was then identified through the skull-photo superimposition technique in the forensic science laboratory, in Chennai. **The gist of the case:** An unidentified decomposed male aged about 27 years old, was found hanging in a bushy tree in an isolated area. The place was recognized by the onlookers through the emanation of disagreeable odour from the dead body and then they complained to the police. The Inspector of Police arrived at the scene and registered a case under suspicious death and requested the forensic service to visit the crime scene and assist the investigation forensically. **Crime Scene Observation:** The forensic team immediately arrived at the scene at midnight and examined the scene and hanged the dead body. The feet and hand areas were bitten by animals and the body was under a decomposed condition which ruled out the possibility of suicidal hanging. **Conclusion:** The author (TN) finally concluded that the death was due to a homicidal act and then the dead body was brought to a bushy tree in a forest area and made hang to conceal the criminal act.

**Keywords:** Partial Hanging, Unknown, Skull Photo Super Imposition, Identification, Crime Concealment Act

## INTRODUCTION

Because of the development of science and technology, crime operators are currently adopting various techniques either to conceal their criminal acts or to confuse investigators. Forensics can be used not only to investigate crime scenes like homicide, burglary, sexual assault, fires and bomb blasts but also non-crime doing civil wrongs such as willful pollution of air or water or causing industrial injuries [1]. In death investigation, the body posture may cause complications and confusion for the crime scene investigators to explain and this may occur in the context of the partial hanging of dead bodies [2]. Person identification of either dead or alive is a key factor in any forensic crime scene investigation [3]. Before the discovery of DNA fingerprinting by Dr. Alec J. Jeffreys in 1986, the choice of identification was based on bloodstain evidence and the skull-photo superimposition technique. Later on in India, DNA fingerprinting evidence was presented in the Kerala High Court in a paternity dispute case, for the first time in the history of the Indian Judiciary it was accepted as infallible evidence in the court of law. It is an undeniable fact that the starting point of forensics is not a sophisticated forensic science laboratory or equipment, but the crime scene. Forensic crime scene investigators are working on physical evidence only. Physical evidence is real evidence or material evidence which can tie the defendant or the witness and help the investigator to infer the sequence of events that might have taken place [4]. An intelligent forensic investigator only can utilize the physical evidence, interpret it appropriately and solve the mystery. Careful analysis of physical evidence can be used to establish the guilt or innocence of somebody in court trials. Studies have been conducted on physical evidence by researchers and come up with a positive results

for crime scene application. For example, researchers have established that stature [5-7], body weight [8-10] and gender [11-13] may be estimated scientifically from unknown impression evidence like footprints and fingerprints left by the offenders at the crime scenes. Hanging or self-suspension is a form of ligature strangulation where the pressure is produced by the weight of the body itself [14]. In the present case report, as requested by police, TN had visited an unknown partial hanging death (registered as suspicious death) crime scene and solved the mystery based on the evidence found at the crime scene and also reconstructed the events.

### GIST OF THE CASE

An unidentified decomposed male aged about 27 years old, was found hanging in a low-lying thorny tree in a forest area. The place was recognized by the way-goers through the emanation of disagreeable odour from the dead body and they complained with the police. The Inspector of Police who arrived at the scene registered a case under suspicious death and requested the forensic service (District Mobile Forensic Science Laboratory) to visit the crime scene and assist the investigation forensically.

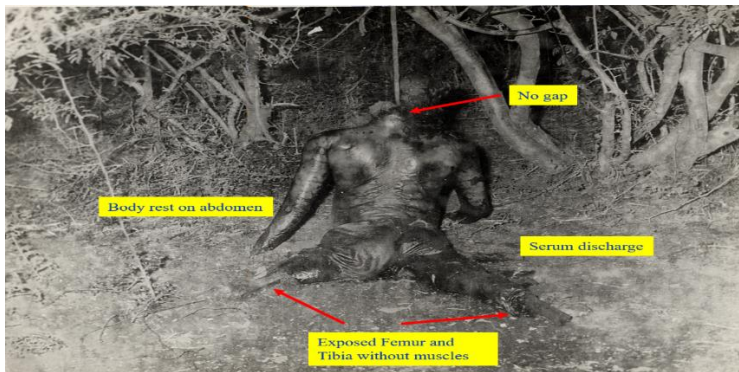


Figure 1: Rear view of the partial hanging body with abdomen resting on the ground

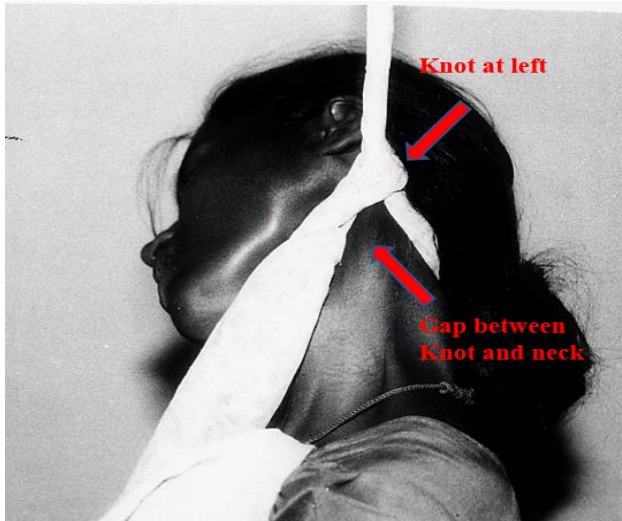


Figure 2: Front view of the partial hanging body, as visited at midnight

### FORENSIC CRIME SCENE EXAMINATION

As a former Forensic crime scene investigator, TN immediately arrived at the scene along with a fingerprint expert at midnight and noticed a partially hanged male body in a low-lying bushy tree as shown in the Figure 1&2. The crime scene was photographed and recorded the crime scene. The body rest on his abdomen with the head tilted to the right and tongue protruding with a foul odour because of decomposition. Also noticed the formation of maggots. The feet and palm portions were found missing with the exposure of the femur, tibia, radius and ulna. The keen observation showed that the feet and hand area might have been eaten by animals in the forest, showing the presence of bite marks on the body. The ligature material was a twisted lungi that was tied into a noose and went around the neck tightly and the other end of the ligature was found tied at a branch with multiple knots at a height of about three and a half feet. The knot was at the back of the neck, with a continuous ligature mark without a gap found between the neck and ligature, a characteristic feature in a

homicidal hanging death. In suicidal hanging, the knot may be mostly present at the side of the neck, showing a gap between the neck and ligature as shown in figure 3, a case report published in a journal by the author TN [15]. The examination of the ligature showed that it was encircled tightly around the neck with twisted lungi that were stained with blood hence the lungi might have been used to strangulate and subsequently made to hang on the tree branch with multiple knots.



**Figure 3: Characteristic knot in a suicidal hanging showing the gap between knot and neck** [Source: Nataraja Moorthy et al. Revenue Divisional officer's inquiry on a newly-wed woman's disputed death. GAP Indian J Forensic Behavi Sci. 2022; III(I);14-17]

The autopsy was conducted at the spot itself and the skull was preserved for skull-photo superimposition analysis. The forensic autopsy officer confirmed the crime scene finding of the author that it was a homicidal hanging. The blood stains were also collected along with the control sample for biological analysis at the forensic science laboratory. During the police investigation, a group photo with the suspected deceased in a standing position as shown in figure 4 was secured from his sister's house.



**Group photo. Arrow shows the deceased**



**Photo**

**Skull-Photo superimposed**

**Figure 4: Group photo seized in the house**

**Deceased photo and skull-photo superimposed**

Then the group photo and preserved skull were sent to Forensic Sciences Department (FSD), Chennai through court for skull-photo superimposition examination. The FSD result showed that the skull and the photos are the same and thus the identity was established.

## DISCUSSION

The Inspector of police enquired the villagers and then recovered the group photo as shown in figure 4. But no missing complaint was made by the family members in the police station. The family members in the village were nobody but the own sister and brother-in-law of the deceased. Further police investigation revealed that the deceased was murdered by his sister and brother-in-law, to acquire his property. On the day of the incident, he was casually taken to the nearby village by his sister and her husband as if to attend a function in the nearby village. While crossing the forest area, as planned earlier, he was strangulated by his sister, brother-in-law and others in the middle of the forest area. The body was dragged to the nearby busy area and made to hang in a low-



lying tree as shown in Figures 1 and 2.

Skull- photo superimposition technique was adopted for person identification in this case, since the DNA fingerprinting technique was not introduced during that period. In criminal cases, the identification of skeletal remains or decomposed bodies, is frequently carried out by the skull-photo superimposition technique because a facial photograph can be easily obtained from the victim's family. The skull-photo superimposition technique was considered to be a reconstruction, in that it attempts to supply a facial photograph for a discovered unknown skull [16]. When performing photographic superimposition, the examiner must always enlarge the comparison photographs to the size of the unknown skull and then position the skull in the same orientation as the facial photographs [17]. The coincidence of dentition between the skull and facial photograph could lead to identification [18]. Initially, the case was registered as suspicious death since the body was found hanging partially and later altered to murder, 302 IPC based on evidence in the crime scene and autopsy report. Suspicious death is more than traditional foul play is suspected in which the circumstances of death strongly suggested murder [19]. Hanging or self-suspension is a form of ligature strangulation where the pressure is produced by the weight of the body itself [20]. The author had visited many partial hanging death cases in India, registered as suspicious death by police. In one such partial hanging case registered as a suspicious death, based on crime scene examination and physical evidence, by the author (TN), the suspicious death was altered to suicidal hanging (174 Cr PC), initially suspected of homicide [1,15]. On the contrary, the incidence of the partial hanging of alleged suicide was then altered to murder (302 IPC) based on the evidence located and interpreted by TN [21]. Hence forensic crime scene investigators need to be knowledgeable in locating and interpreting the physical evidence at the crime scenes and to arrive positive information [22]. As an expert witness, the author was summoned to present his testimony in court and TN also presented his testimony before the Honorable Judge, who accepted the forensic findings. This case report is an example of typical crime concealment [23,24] act by the own sister's family of the victim and finally, this case ended with a conviction.

## CONCLUSION

The present case report is a typical example of a crime concealment act where the homicide act was hidden and simulated a suicidal hanging scene to confuse the investigating officer. Anyhow, keen crime scene observation made by a knowledgeable investigator can solve such complicated issues. The field forensic scientist must combine the findings, intuition and common sense to find the truth that played a critical role in the successful prosecution of the case.

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