



MUTILATED AND SKELETONISED DEAD BODIES POSTMORTEM EXAMINATION: CHALLENGES AND NEED OF ADVANCED FORENSIC TECHNOLOGIES- A CASE SERIES

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ABSTRACT

Introduction- Determination of the identity is the determination of the individuality of a person. According to the Universal Declaration of Human Rights, everyone has the right of recognition everywhere as a person before the law either living or dead [1]. Identification in living and dead can be established by various data and examination but in rare cases of mutilated bodies, dismembered body parts or skeletonised body its get difficult to establish identity and cause of death. **Aim of study-** Main purpose of this study is to establish identity of person in relation to age and sex, to know the cause of death and to recover evidential material samples from the corpse which may help further in crime investigation and reconstruction of crime scene. **Method and Methodology-** We analysed postmortem examination done at Mortuary of S. N. Medical College, Agra of 2 different cases brought here for medicolegal autopsy to be conducted by a panel of doctors including one Forensic expert. **Result and Conclusion-** Postmortem examination of burned, mutilated, decomposed or skeletonised remains raises several questions. Complete autopsy examination including a dental examination is very beneficial in these cases. In few cases even a small postmortem finding alone proves beneficial to derive the cause of death but sometimes autopsy examination alone is insufficient in establishing identification particularly in skeletonised and mutilated corpses. In such cases, collaboration of recent advanced technologies like Forensic DNA analysis, Forensic imaging and Facial recognition techniques with Forensic medicine may open the doors of hope to extract best possible information helpful in crime investigation.

KEYWORDS : Mutilated Bodies. Skeletonised bodies, dismembered body parts, Autopsy examination, Postmortem examination.

INTRODUCTION

Determination of the Identity is the determination of the individuality of a person. According to the Universal Declaration of Human Rights, everyone has the right of recognition everywhere as a person before the law either living or dead[1]. However identification in living can be done by various data and in case of dead post mortem examination can be done. The main problem arise in case of mutilated and dead remains due to lack of information and identification. Traditional post mortem identification is based on fingerprint, dental or skeletal evidence. However deaths as a result of fires, explosions, airplane crashes, and other traumatic events as well as old remains are difficult to identify via traditional methods[2]. Victim remains at fatal fire scenes are typically difficult to detect recover and handle. The burned material at the scene, including biological tissue, is often modified to a similar dark black colour. Bones in particular, become discoloured, brittle, and highly fragmented[3]. Perpetrators often use fire in order to destroy the body, destroy features used in victim identification (e.g., facial features or fingerprints) or destroy evidence related to the circumstances surrounding the death[3]. The consumption of soft tissues by fire can significantly hamper analysis by experts like forensic pathologists, therefore, analysis of burned human remains is a common task ascribed to forensic anthropologists [3]. When minimal thermal changes are present on remains, normal procedures for identification can be followed[4]. The added post mortem fracturing, fragmentation and bone loss resulting from these recovery techniques hinder the already difficult task of autopsy and laboratory analysis of burned human remains[3]. When examining burned, mutilated, decomposed or skeletonised remains, identification by visual means, fingerprints or other identifying techniques is many

times not possible. In such cases following questions are asked

- 1) Whether the remains are of human origin or animal
- 2) To establish the identification of the individual
- 3) To establish the cause of death.

Main purpose of this study is to establish identity of person in relation to age and sex, to know the cause of death and to recover evidential material samples from the corpse which may help further in crime investigation and reconstruction of crime scene.

METHOD AND METHODOLOGY- We analysed postmortem examination done at Mortuary of S. N. Medical college, Agra of 2 different cases brought here for medicolegal autopsy to be conducted by a panel of doctors including one Forensic expert.

Case 1: An unidentified partially burnt bundle of bones with human skull, hair and burnt material were received at the mortuary which was found from a secluded place and the police suspected it to be a remnant from some unusual occult activity been performed by tantrik with the bones.

Postmortem findings- On post mortem examination, it was determined that it's a male skull, considering a features like square orbit, prominence frontal eminence and prominent glabella. The right coronal suture is not completely fused which indicates that the age of the person may be below 55 years. Bundle of bones had 9-10 broken bones of mixed origin (may be human or non human) of varying length, sizes and appeared to be of different time interval (Fig.1a-c). No other inferences can be derived. All bones were sealed packed and

sent for FSL for further investigations.



Fig. 1a, 1b

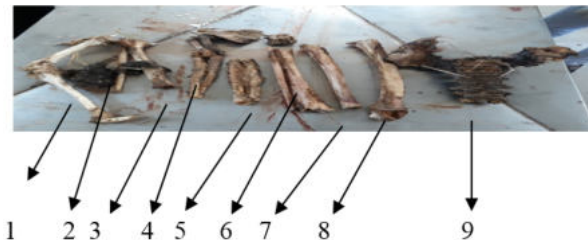


FIG 1c: 1. Lower limb bones 2. Upper limb bones 3. Unknown bone 4. Upper limb bones with shoulder girdle 5-8. Unknown limb bones 9. Part of pelvis.

Case 2: A headless body of a boy aged 12 yrs with no chest and abdomen portion, only four separate limbs with part of pelvis attached was found in an outskirts area near a small water pond and brought to the mortuary of SNMC, Agra suspected of animal attack.

Postmortem findings- On postmortem examination it was found that over the ulnar aspect of Rt. forearm there are two well defined, sharp margin incised wound 4cm*2cm highly suspected to be defence wound caused due to moderately heavy sharp weapon. All the bones showed tearing at the ends with gnawed edges and tissue tags suspected to be due to animal attack. Rigor mortis was present in upper limbs. Time since death was reported about 1 day. Later, after 10 days a skull was recovered from the same location and brought for postmortem. On examination, the skull was confirmed to be of the same age group of 11-13 yrs from dental examination. The skull had Rt. Temporo-parietal fracture of size 8*10cm, the portion of bone was missing. The base of skull showed clotted antemortem blood. The tooth was extracted sealed packed and sent for DNA analysis for confirmation of Identification.

Later the weapon was also recovered after the culprit was interrogated.



Fig. 2 a-c fractured skull and hemorrhage at the base of skull Fig. 2d: Incised wound over the ulnar aspect of forearm of size 4cm*2cm Fig.2e: disarticulated upper arm Fig. 2f: lower limb showing foot and multiple muscles and skin tags.

DISCUSSION-

Mutilation is an act of physical injury that degrades the appearance or function of any living body, sometimes causing death. Mutilation of a body could be intentional or

unintentional during life or after death for mainly destroying the identity.[5] Sometime due to animal activity or burn injury on corpses also body gets mutilated and identification is such cases gets difficult to be established.

1. If serious destructive changes occur especially on the face of the corpse and teeth, then identification of the corpse may be difficult.
2. Even if the individual dies because of natural consequences, when the internal organs are devoured by animals, then it might be impossible to identify the precise cause of death.
3. During postmortem period, lesions caused by animal attacks may be evaluated and misinterpreted as Antemortem lesions like ligature mark, firearm wound, or stab wound.
4. At the time of dying, clothes may be opened, and exposed genital organs may be depredated by animals during postmortem period, which may raise the suspicion of sexual mutilation.
5. In posttraumatic deaths, open wounds may be the first target of scavengers, and within a very short time, precise identification of antemortem wounds may become seriously complicated.
6. During postmortem period, existence of living beings such as ants, which feed on both the corpse, and adult and larvae of flies and insects, putrefaction of the corpse may be delayed because of devouring of eggs, and larvae. Faunal succession of insects and flies, which is especially used to determine the postmortem interval, may change leading to erroneous estimation of the postmortem interval.
7. Loss of skin may lead to disappearance of tattoos and old surgical scars, which may be used for identification of the victim.[7]

Distribution of animal bites, locations and severity of tissue losses was evaluated and lesions caused by mice, dog and marine animals are found on the head; particularly involving orbits, nose, mouth, ear, lower jaw and the scalp. In accordance with the literature, 22% of the cases were unidentifiable which reveals that there are serious problems related to identification of the cases attacked by animals. Although DNA typing is possible for identification, it is very much important to know a certain characteristics of the victim and have an identification photograph in order to inquire the identity of the person. [8]

In this case series, it is inferred that the identification in mutilated and defragmented body is a challenge to the forensic experts so there is a need of advanced techniques of identification which can be used like forensic imaging techniques, 3D Printing, DNA fingerprinting and DNA profiling

CONCLUSION

Detailed and Medicolegal Autopsy including examination of personal belongings, external examination, and internal examination and supported by necessary analytical investigations are helpful to determine identity and cause of death. History of the incident is equally important to the cause of death in highly decomposed or skeletonized bodies. Skeletal anatomical examination and DNA analysis are important establishing identity. Other useful methods used in identification are radiological assessment of age, injury, foreign body and dental data. Chemical analysis of the samples may prove to be helpful. A multi factorial approach is necessary to establish identity and cause of death.

An holistic approach to the study of burned bones should also be adopted and requires forensic anthropological approach and techniques to gap the interconnectivity and hierarchy of the burn induced alterations.[6]

It is clear that in mutilated body, there is the need to apply the

advance techniques of detection like DNA analysis for establishment of identification and skull 3D printing for the recognition and matching it with available database.

Also there is a urgent need to integrate forensic imaging techniques for not missing out any internal fracture or any other injury before the starting of the post mortem examination.

Most of the mortuary and institutional setting Forensic expert skills are based upon their experience and eagle eye but lack support of technologies which may be of utmost benefit in achieving crime justice.

Suggestions- These are the few suggestions for the efficient Medicolegal examination of the corpse

- There should be specific protocol for the management of unidentified dead bodies.
- Bodies that are either unknown or unclaimed should be presented for autopsy without any delay so that decomposition and other artefacts do not obscure the findings of the postmortem examination and should be well supported by recent advanced technologies so that radiographic evidences could be collected which can later on prove beneficial in identification.
- DNA analysis and fingerprinting should be done in each and every case so that proper records will be there for identification of the deceased years after the death.

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