Case Report

Postmortem Burns—An artefact due to transportation

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Abstract

An artefact is any change caused or feature introduced in a body after death (accidentally or physiologically unrelated finding to the natural state of the body) that is likely to lead to misinterpretation of medico legally significant ante mortem findings. Artefacts due to burns are usually attributed to prolonged exposure of flame (in cases of death due to burns), or else due to attempts made to burn a body after homicide with the object of concealing the crime. Post mortem artefact due to burns in the present case, its implication and proposed mechanism are discussed in detail due to rarity of its kind.

Key words: Post-mortem burns, Artefact, Second inquest panchnama

Introduction

An artefact is any change caused or feature introduced in a body after death (accidentally or physiologically unrelated finding to the natural state of the body) that is likely to lead to misinterpretation of medico legally significant ante mortem findings.

Determination of the cause of death following autopsy is an interpretative and intelligent procedure, and depends upon sound evaluation of all data, circumstances surrounding the death, morphological evidence of injury and additional laboratory investigations. Contribution of Forensic Pathologist in an investigation of death is proportionate to the knowledge about relevant aspects of such investigation. A scientifically interpreted and documented opinion of autopsy surgeon has helped many investigations to be accomplished with fruitful outcomes. However, at instances this has potential risk of non-deliberate misguiding the investigating agency at any stage, if there is inadequate scientific observation and interpretation. Much of the controversy surrounding the assassination President John F. Kennedy is based on misinterpretation of the wound in the front of his neck as an entrance bullet wound.

Post mortem burns involving face, scalp hair and collar part of shirt observed in a case of death of a male aged 55 years, was attributed to “Spontaneous Ignition” caused by release of inflammable gases (phosphine, diphosphine are released in case of Aluminum Phosphide) coupled with high temperature at the site of recovery of the body.

Case History

In December 2004, a dead body of an identified female aged about 21 years was referred from a rural hospital located about 50 Km to the Department of Forensic Medicine, PDU Medical College, Rajkot for the post-mortem examination. The police papers narrated that body was recovered from the well in an advanced state of decomposition. On external examination we found that the body and clothes were having the evidences of post-mortem burns, which were not mentioned in the inquest report. When we enquired the investigative officer about this gross discrepancy in inquest and burns present over the body, we came across an interesting but rare history of the circumstances of death. As per history given by the investigative officer and relatives of the victim, the burns were unfortunately produced during the transportation of the body. Relatives ignited a bunch of incense-sticks (Agarbatti) in the truck by the side of the body to avoid the foul smell of decomposition. This led to accidental burning of dry grass placed in the same truck (on which body was lying),

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consequently leading to pot-mortem burning of the body. To avoid any gross discrepancy between post-mortem findings and inquest panchnamas and with the intention of accurate documentation, investigating officer was asked to prepare a second inquest panchnama.

Post-Mortem Examination

The body was in a state of decomposition emitting foul smell. Whole body was distended with gases of decomposition consistent with time since death between 2-4 days. Burns of dermoeidermal degree were present over 35% of body surface involving elbows, forearms, palms and both lower limbs except buttocks. Clothes and ornaments in vicinity of burnt body parts also showed blackening due to burns. Conventional features of ante mortem burns were absent, indicating the nature of burns as post mortem. All the viscera were comparatively soft and in a state of advanced decomposition, but identifiable. The chemical analysis of viscera excluded any poisoning (including Aluminium Phosphide). Diatom test of sternum bone indicated presence of diatoms similar to that of water sample form the site of recovery of body. Absence of any ante mortem injury, negative chemical analysis and positive diatom test were considered to conclude the cause of death as drowning. The presence of burns of post mortem nature was very much consistent with the history of accidental burns due to burning incense sticks during the process of transportation.

Discussion

Since the 17th century it has been well recognized that the human body can be partially or almost completely burnt away and the surrounding environment shows little evidence of burning. Although this phenomenon usually seen indoors, it can rarely occur in a outdoor setting4. Lighting of “diya”, incense sticks, “dhup” (loban) near dead body awaiting final rituals are part and parcel of religious customs, mainly in Hindus. However, no case of accidental burns of such dead body following such custom has been reported yet. Probably, the present case is a different one, as the dead body exposed to flame of incense sticks, was in a state of decomposition.

Evolutions of gases during the process of decomposition mainly and broadly include Carbon Dioxide, Hydrogen Sulphide, Methane and Mercaptane. Out of the list, Hydrogen Sulphide is considered inflammable6. We can safely propose the mechanism of post mortem burns of the present case, that is due to release of inflammable gas in a decomposing dead body and catching of flame by burning incense stick lying in the close vicinity of the dead body.

Post mortem thermal artefacts often seen in fire victims include fracture of skull and epidural hemorrhage due to intracranially generated steam, fracture of the extremities due to thermal contractions of tendons, and wide splitting of skin and muscles, simulating lacerations, cuts and stab wounds5. Majority of the literature has reported thermal artefacts in case of prolonged exposure to flame even after death of victim due to fire. The uniqueness of the present case is, the dead was not a fire victim during life but died due to drowning and affected by the post mortem burns caused during transportation.

In the present case, the investigating officer was asked to prepare a second inquest panchnama, as the post mortem burns found at autopsy were not present on the body at the time of preparing panchnama. Thus, two inquest panchnamas (before and after transportation of dead body) and autopsy report clearly shows that post mortem burns were caused during transportation. Hence, we are of the opinion that autopsy surgeon must undertake careful examination of dead body brought from some distance especially with reference to artefacts caused by transportation. A scientific correlation of any such finding with mode and environment of transportation shall be thought of before incorporating such findings to the ingredients of the offence.

Conclusion:

• Adequate scientific examination and interpretation during autopsy enables autopsy surgeon to differentiate post mortem artefact from other entities. Its correlation with environmental factors i.e. mode of transportation, religious customs etc helps to minimize or exclude suspicion of foul play.
• Police personnel shall be educated and trained in context of safe transportation of dead body for post mortem examination. No artificial means shall be adopted to avoid foul smell etc, as they have potential chance of alteration in appearance of dead body before post mortem examination.

• Even after due care and precaution while handling the dead body, unfortunately some alteration on the dead body occurs, it is safe to suggest second inquest panchnama so as to address any future discrepancies.

References: