



Anthropology Section - 2016

A23 Comparison Between Peri-Mortem Blunt Force Trauma Identified in Bone During an Autopsy and During an Anthropological Examination of 21 Skeletonized Remains Several Years After Death

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After attending this presentation, attendees will understand how an anthropological examination of skeletonized human remains can differ from an autopsy of a fresh cadaver in the identification of peri-mortem blunt force trauma to bone and what the specific circumstances of each examination are that can potentially explain any discrepancies.

This presentation will impact the forensic science community by increasing awareness about the limitations of both the autopsy and the anthropological examination, particularly in cases in which blunt force trauma is involved. Data generated from this comparison will emphasize the importance of a detailed investigation of skeletal trauma during an autopsy, as well as the influence of taphonomic factors that affect the preservation of skeletal material, as these have a negative impact on a thorough identification and subsequent interpretation of trauma mechanisms.

In this study, the number and location of peri-mortem fractures identified during the autopsy of 21 fresh cadavers were compared to the number and location of peri-mortem fractures identified during an anthropological examination of the same individuals several decades after death. These 21 individuals were selected from the identified skeletal reference collection housed at the National Museum of Natural History and Science (NMNHS, $n=20$), in Lisbon, Portugal, and the Collection of Identified Skeletons curated at the Life Sciences Department, University of Coimbra (CEI-UC, $n=1$), Portugal. These individuals are of known cause of death and were selected on the basis of a reported violent death associated with a blunt force mechanism. The autopsy reports generated for these individuals were examined at the archives at the National Institute of Legal Medicine and Forensic Sciences, in the Southern (Lisbon) and Centre (Coimbra) Delegations. Violent deaths due to other trauma mechanisms, such as gunshot wounds or sharp trauma, were not considered. Only 1 of the 21 cases analyzed had perfect correspondence between the number and location of peri-mortem fractures identified during the anthropological examination and the autopsy. A few cases had minor inconsistencies, while the majority of the individuals showed several more significant discrepancies.

This research explores the reasons that may explain these discrepancies and highlights the fact that fractures resulting from a blunt force mechanism are particularly susceptible to misidentification. If, on one hand, the identification of peri-mortem fractures during an anthropological examination is heavily influenced by taphonomic processes, rendering them undetectable at worst or their interpretation dubious at best, then, on the other hand, fractures that do not contribute to the cause of death can be missed during the autopsy or only vaguely reported. This study also draws attention to the value of identified skeletal collections where cause and manner of death are known, as they are invaluable sources of information for the study of skeletal trauma.

Peri-Mortem Fractures, Autopsy, Taphonomy