



Physical Anthropology Section – 2008

H120 How Easily Can We Derive Cause and Manner of Death on the Basis of Dry Bones? Lessons Derived From Coimbra Identified Skeletal Collections

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After attending this presentation, participants will be able to: (1) evaluate the potential of a reference skeletal collection to forensic anthropology, (2) evaluate the difficulty to derive cause and manner of death from dry bones, and (3) evaluate the danger of inferring too much from dry bones.

This presentation will impact the forensic science community by increasing awareness of the importance of reference skeletal collections to forensic anthropology and of the need to be more accurate in cause and manner of death determination statements. The importance of a previous taphonomic interpretation is emphasized since postmortem changes can disguise perimortem trauma.

The Coimbra identified skeletal collection is a unique research resource available to forensic anthropology. The identification of each of the individuals permit the validation of a series of methods applied in forensic anthropology increasing thus their accuracy. The project presented here demonstrates attempts to increase the accuracy of cause and manner of death determinations on the basis of traumatic skeletal lesions. It is well known that those objectives of a forensic anthropology examination are particularly hard to be accomplished. Among the 505 identified individuals, death certificates indicate 31 died from violent causes between 1898 and 1932. All of these 31 skeletons were recently subjected to a thorough anthropological examination performed before reading individual records, i.e., without knowing, a priori, the exact cause of death. In a further stage, the conclusions of the anthropological exam were compared with the original cause of death stated on the individual record. Homicides, suicides, accidents, falls are some of the causes of death stated on the obituary records. Later, for those who had been autopsied, the autopsy report, completed in the 1920s, were analyzed and again, cause and manner of death were compared particularly in what traumatic injuries descriptions were concerned. Below we discuss the agreements and disagreements between the present day anthropological analysis and the autopsy reported for three interesting cases.

In one case, while the death was caused by a single gunshot to the thorax, the anthropologist, by means of the anthropological analysis, was unable to recognize cause of death because the injuries besides being subtle were hard to differentiate from postmortem changes.

In a second case, both the anthropological exam and the autopsy report produced a similar cause of death: blunt force trauma to the head. However, the fractures observed on the dry bone produced improved results than those reported by the pathologist. In dry bones it was possible to follow the fractures lines pattern in much accurate way.

Finally, in a third case, the anthropologist was not able to predict cause of death even though the death was a severe trauma on the vertebral column, solely on the basis of the skeleton due to taphonomic alterations disguising perimortem trauma. Indeed, taphonomic changes are a paramount factor in the interpretation of traumatic events on the basis of dry bones since they preclude more reliable interpretations.

These three cases exemplify the practicality, utility, and limitations of forensic anthropology contributions to cause and manner of death, where case one illustrates that bones do not represent the whole body. Case two demonstrates the advantages of examining the traumatized human skeleton in a dry state as opposed to fresh autopsy examinations. However, the dry bones in case three limited accurate analysis due to taphonomical influences and of the evidence. In all, this was a rare opportunity to enhance both the potentials and limits of dry bone to cause and manner of death assessments.

Trauma, Cause of Death, Bone