G38 The Art of Working in Reverse to Resolve a Dental Identification

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Learning Overview: The goal of this presentation is to demonstrate how in dental identification, when efforts in which traditional methods have not produced sufficient antemortem evidence, reconstructive analysis of postmortem dental findings may provide a path to the recovery of additional data.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by introducing attendees to recent advances in dental restorative materials so they can understand the importance of knowing differences in their radiographic appearances. This can prove to be a valuable skill when performing a dental identification. Attendees will leave with a better understanding of how to identify modern dental materials radiographically. Modern materials, such as zirconia, porcelain, and lithium disilicate, have a variety of brand names and differ in the way they appear radiographically. Additionally, dental coding in patient charting can be vague regarding dental materials for prosthetics. This can pose a problem when comparing antemortem records and postmortem records.

This presentation will discuss roadblocks that complicated a seemingly straightforward dental identification and will also outline specific triumphs that led to a breakthrough in the identification effort by working backward.

An ideal dental identification of human remains can be simple when complete postmortem specimens having characteristic dental findings can be compared with promptly located and accessioned objective antemortem records mirroring those characteristics.

A family in the suburbs of a Louisville, KY, community notified the police after they stumbled across some bones in their backyard in a washed-out stream bed. A series of twists and turns ensued. Investigators found a backpack upstream with the name of a putative victim. A slow accumulation of antemortem evidence from a variety of sources increasingly supported only a possible identification. Finally, a reversed approach to acquiring antemortem data led to the resolution of the case.

Several considerations impacted the work of the forensic team: (1) recovery of remains (multiple searches); (2) media misreporting (multiple missing persons from the same area); (3) a search for antemortem records, including the family of the putative victim, hospital records, social media sleuthing with a search for smiling photographs, prison records, and working backward (i.e., reconstructive analysis); (4) knowledge of dental materials, specifically, fixed crown and bridge work; (5) sensitive subject matter; and (6) dental laboratory involvement (laboratory prescriptions as part of the dental records).

In cases in which dental identification efforts using only traditional methods have not produced sufficient antemortem evidence, reconstructive analysis of postmortem dental findings may provide a path to the recovery of additional data.

Dental Identification, Ceramic Crown, Radiographic Analysis

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