F11 The Case of the Missing Molar

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After attending this presentation, attendees will understand how identification of an unidentified decedent by using dental records is not always straightforward, and that it is imperative to carefully review the antemortem and postmortem dental records. Dental identifications are generally thought of as being a somewhat routine forensic odontology procedure, but presented here is a case with a very interesting "twist." This case has interesting ramifications for both dental identification and dental age estimation procedures.

This presentation will impact the forensic science community by demonstrating that the accepted axioms in a field may not always hold true in every case. For example, this study contends one of the well-accepted foundation beliefs in the theory of dental identification is that, in the permanent dentition, if a particular tooth is *missing* in the antemortem records, but is *present* in the postmortem records, there is an unexplainable inconsistency that indicates an exclusion. But this case will demonstrate that this idea may not always be true.

In 1995, the skeletal remains of a young woman were found near Houston, Texas. Virtually the entire skeleton was recovered, including the cranium and the mandible, both with intact dental arches. The skeleton was sent to an anthropology laboratory for examination and analysis. The anthropologist charted the condition of the teeth and the dental restorations present. The anthropologist compared these postmortem dental records to the antemortem dental records of a young female (JC) who was missing in the Houston area. The anthropologist concluded that, while there were many "similarities between the dental records of JC and the dentition of the unidentified skeletal remains," there were two dental inconsistencies that indicated the remains were probably not those of JC. He concluded "although this exclusionary trait casts doubt on the remains being JC, I suggest that it be evaluated by a forensic odontologist for confirmation." Regrettably, this suggestion was not followed until 2012 when the written dental records were submitted for review in July of 2012. It was noted the exclusionary factors which had been documented by the anthropologist, but urged the investigating agency to obtain the skeletal remains and original dental records for examination. The records were sent for review and a second opinion, and it was agreed that the original dental records and the remains should be obtained for examination before a definite conclusion could be reached.

In 2008, the skeletonized remains had been submitted to a DNA lab for examination and analysis. In early August of 2012, a DNA profile was extracted and the analysis indicated it was 4.4 trillion times more likely that the remains were those of 20-year-old JC rather than a random female from the Caucasian population. The decedent's remains and the dental records of JC were hand-delivered by the investigating agency in late August of 2012.

One of the potential exclusionary factors, a tooth noted in the antemortem dental radiographs to have a restoration while the corresponding tooth in the remains had been charted as unrestored, was immediately resolved upon examination of the actual remains. Now the "twist:" tooth #32 (Universal) was clearly missing in several antemortem dental panoramic films (the other third molars were present and unerupted), and, on visual inspection, tooth #32 also appeared to be missing from the remain's mandible. However, postmortem radiographs of the mandible showed #32 was clearly present but unerupted. The DNA analysis said "match," the dental records said "exclusion." The attendees viewing this presentation will learn how the case was resolved.

Dental ID, Age Estimation, Exclusion

 ** Presenting Author*