F1 Where Oh Where Did the Maxilla Go?

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After attending this presentation, the audience will consider the limited number of forensic identification cases in which a mandible is present and the maxilla is absent. The difficulty of identifying a victim that has a mandible, but no maxilla and several missing teeth is greatly augmented.

Attendees will extrapolate possible events that may have led to the disappearance of the victims' maxilla by studying the skull fragments for markings, trauma, abrasions, perforations, and fractures. A forensic odontologists' primary goal is to identify a victim by studying their remains and evaluating all accrued scientific data and observations. This presentation will impact the forensic science community by aiding law enforcement and forensic scientists in assessing trauma and resultant markings on the skull bones and fragments.

A skull and mandible were found in the woods, under thick bushes and vegetation. The skull had no soft tissue present. The Maxilla was totally detached from the skull and absent from the death scene. All of the facial bones, inferior orbital bones, and temporal bones were absent as well. The sutures of the skull were slightly enlarged, if not fractured. There were abrasion markings along the outer perimeter of the skull, which appeared to be animal gnaw marks. There were no shot gun pellets or weapons found at the site of the remains. There are two hypotheses' that can be suggested from this unusual situation. One thought is that there was blunt trauma to the front of the victims face, resulting in severe fracturing of the facial bones. As decomposition engulfed and broke down the soft tissues, the fractured facial bones separated. It was noted that abrasions consistent with animal gnaw marks were present around the frontal, occipital, and orbital bones of the skull. One possibility is that an animal gnawed and removed the damaged maxilla, and deposited it at an unknown location. Another hypothesis is that the victim was mutilated and the assailant removed the maxilla. A third possibility is that an animal was able to remove the victims' intact maxilla with constant gnawing and tearing of the skull.

The skull and mandible were photographed, x-rayed, and studied. The teeth of the mandible were charted on a postmortem dental chart. There was postmortem tooth loss of teeth #21, 24, 25, 26, and 31. Tooth #17 was a partial boney impaction. There were no dental restorations. Police provided a list of possible victims. The list was from a missing persons list. Antemortem records and x-rays were studied and charted on an antemortem dental chart. Comparisons of the antemortem and postmortem dental records were analyzed. Bone trabeculation and socket structure were studied. A word search was conducted using the AAFS library, searching for similar cases where maxillas' were missing from death scenes.

The victim was identified after antemortem records, x-rays, and postmortem records were compared and contrasted with postmortem records. The abrasion marks on the skull fragment were conjectured to be animal gnaw marks. There were no cases found in the word search that matched this case exactly. There was considerable literature regarding the loss of the mandible as a result of animal activity.

The reason for the loss of the maxilla and maxillary teeth remain a mystery. The most logical conclusion is that the victim had forceful trauma to the face, which led to the maxilla being easily separated from the skull. The marks on the skull were consistent with animal gnaw marks.

Forensic Odontologists, Maxilla, Animal Activity

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