



Odontology Section – 2011

F32 Self-Inflicted Bitemarks in a Drowning Death

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After attending this presentation, attendees will be shown the techniques and materials used to analyze a postmortem bite mark. In addition, attendees will observe how comparisons of dental impressions are made between the family members in an effort to rule out persons not responsible for the bitemark.

This presentation will impact the forensic science community by giving an example of an uncommon characteristic of a postmortem bitemark and by establishing the method and procedures used to determine who made the bitemark on the victim.

Although most bitemarks found on homicide victims and abuse cases are left by the perpetrator of the crime, there are instances of self-inflicted bites. The reasons for these self-inflicted wounds are not always clear, but in an investigation of possible homicide when a self-inflicted bitemark can help explain the frame of mind of the deceased, it becomes necessary to try and prove who created the bite. In this particular case, the decedent's body was discovered by her husband in a nearby pond. The Tennessee Bureau of Investigation investigator reported that the husband and wife were high on crystal meth and had been in a fight earlier that day where he reportedly struck her in the head and neck area. He claims he did not kill her, and that she had made statements earlier that week that she wanted to kill herself.

On March 29, 2010, Dr. Tom Deering, Forensic Pathologist from Forensic Medical and the State of Tennessee Office of the Medical Examiner contacted Dr. Mike Tabor, Chief Forensic Odontologist to evaluate a patterned injury on the left forearm of the decedent. Dr. Tabor contacted Dr. Gina Pittenger and Dr. Michael Cisneros to assist in the analysis of the bite mark.

The primary objective in this case was to rule out other family members present on the day of the victim's death, and to determine if the decedent inflicted the bite on herself. Since there was a suspicion of suicide versus a homicide, the TBI agent was trying to establish a frame of mind of the decedent by saying that if she had inflicted the bitemark to herself, it would answer questions about whether or not she committed suicide. These family members included the decedent, her husband and her six year old son. The techniques used to analyze the bitemark were dental tracings taken from dental casts made from each individual involved. Intra-arch measurements were made on each of the three suspects, from cuspid to cuspid. Polyvinyl siloxane and alginate were used to make the dental impressions of each suspect. Stone casts were made from these impressions and used for study models. The materials and devices used for the dental tracings were celluloid overlays, and a digital copier machine. Each model was photocopied on a 1:1 magnification ratio and printed on a clear piece of acetate. This allowed the doctors to outline the incisal edge position of both arches of all three suspects. Due to some unilateral obscuring in both arches the life-size transparencies were of little value in determining which of the three committed the bite. Detailed and further study revealed and incisal edge bite in each arch that was composed of the distinct and

recognizable lobes instead of a smooth brick like central incisor shape. The decedent was the only one of the three who still had mamelons that would have made the three lobe shape on the bite mark.

The factors that played a role in determining the origin of the bite will be presented in this case, and it will be shown that the decedent was the individual responsible for the bitemark inflicted upon herself.

Self Inflicted Bitemark, Drowning Death, Mamelons in Bitemarks