



### F32 Bitemark Analysis — The First Step Utilizing Bitemarks as Evidence

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After attending this presentation, the attendees should be able to implement a systematic and logical approach to analyzing a human bitemark with the objective of providing useful information to the authorities.

The presentation will impact the forensic science community by providing a comprehensive and useful description of a human bitemark. The proper analysis of a bitemark will impact the use of this evidence for later comparisons.

The terminology used in describing bitemark evidence is confusing at best and misleading in many cases. The confusion has to do with the term analysis which means "separation into component parts, qualitative, and quantitative." The term comparison means to examine for similarities or differences.

In real time, the odontologist is often presented with a photograph of a pattern injury. He may or may not have scene photos, the photos may or may not have a ruler or scale present. He may have no information as to the circumstances of the event. If it is a Class I bite, the odontologist may give an opinion such as "diffuse bitemark with no evidentiary value in bitemark analysis." However, there is valuable evidence and analysis should be conducted of a Class I bite. The analysis consists of breaking the bitemark down into logical parts. The most important factor to decide is whether it is a human Bitemark; and if so, is this a child or adult dentition? Further analysis may be able to determine when it was made in relation to time and the circumstances of the event, i.e., an old healing bite, peri-mortem bite, postmortem bite or a fresh bite. If possible to locate and differentiate upper and lower arches so one may be able to determine the position of the biter in relation to the victim. Analyzing the bite may also determine whether the bite was made through clothing. Evaluation of the bite should help to determine whether or not pain was inflicted on the victim. In Class II and Class III bites more definitive opinions can be given. These opinions may or could include a profile of the biter, positions of the biter to the victim, arch form identification, adult versus child bite, or more. Transillumination of the bite may give more details of the individual and class characteristics of the teeth.

All of this analysis does not take place in a vacuum but with knowledge of the circumstances of the event, scene photographs, orientation photographs, scaled photographs, etc. The analysis phase of a bitemark has nothing to do with a comparison to anyone or to the ID of a biter.

The comparison phase may rule in or rule out (exclude) a potential biter and is separate and apart from the analysis of the injury pattern. In the case of a good bitemark (a class III) with both arches and distinct individual tooth characteristics present and with a closed population, an odontologist can state "within reasonable medical/scientific certainty of a match." However, "scientist may have a high level of confidence if there is abundance evidence but they wont ever claim absolute truth or absolute certainty" (GLY.UGA.EDU).

**Analysis, Comparison, Odontology**