



F40 Anatomy of a Bitemark Case With Comments on Unbiased Analysis, Terminology, Report Writing, and Second Opinions

Mark L. Bernstein, DDS, Univ of Louisville Sch of Dent, Dept of Diagnostic Sciences, Health Sciences Center, Louisville, KY 40292*

After attending this presentation, attendees will be able to evaluate two opposing opinions rendered in a patterned injury analysis and understand what the American Board of Forensic Odontology (ABFO) can do to continue to ensure objectivity in bitemark analysis.

This presentation will impact the forensic science community by showing that the current status of bitemark analysis remains prone to differing conclusions among experts. Improvement in ABFO guidelines and standards are needed to improve validity and reliability of the discipline.

Expert opinions drawn from bitemark analysis have been criticized in the National Academy of Sciences (NAS) Report as failing to apply the requisite scientific methodology that would ensure valid and reliable opinions. The ABFO has responded to this Report by imposing guidelines and standards with regard to terminology, techniques, and procedural safeguards. Yet cases still emerge where experts, presumably applying similar analysis, reach diametrically opposing views. These cases serve to legitimize the concerns of the NAS.

A defense attorney sought a forensic odontologist to review a case in which an opposing expert concluded that the defendant was the “probable biter” of a “lacerative” bitemark on the wrist of a homicide victim. Additionally, the victim was determined to be the “probable biter” of a bitemark in the defendant’s arm. Both injuries were said to be prototypical bitemarks showing class and individual characteristics. A second opinion was consistent with this conclusion.

Upon review of the evidence and the prosecution’s expert’s report, the defense’s consultant arrived at a different conclusion. This analysis opined that the injury on the decedent’s wrist was “not a bitemark” by current terminology guidelines, failing to show anything more than two short linear red markings and no opposing arch. The injury on the accused was “suggestive of a bitemark” with consistent shape and size but without any defined individual tooth marks. Opposing the prosecution’s expert opinion, the defense’s consultant concluded that there was insufficient evidentiary value to comment relationship between the dentitions of either party to the injuries to which they were compared — let alone a confidence of “probable biter.”

This study suggests that something other than a comparison between the anatomy of the dentition and the characteristics of the patterned injuries emboldened the opinion of the prosecution’s expert. In this regard, commentary on bias, terminology, report writing and second opinions is examined.

In conclusion, this study recommends the re-examination of approved terminology, blinding of cases for analysis and accountability for second opinions.

Bitemark Analysis, Validity, Opposing Opinions