F26 A Perfect Storm: Is There a New Paradigm to Keep Bitemarks Afloat Or Will They Sink?

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After attending this presentation, attendees will appreciate prosecutorial, defense, and appellate strategies used in current bitemark cases.

This presentation will impact the forensic science community by addressing the issues associated with insufficient scientific literature supporting bitemark evidence, the problems of traditional judicial acceptance which battles the 2009 National Academy of Sciences Report, systemic difficulties exposed in exoneration cases, and compelling new research that suggests a paradigm shift. The use of this information in the current peer review commentary and judicial review will be explored.

Bitemark analysis is based on the following two concepts or assumptions. First, the dental characteristics of anterior teeth involved in biting are unique in all individuals. Second, that the asserted uniqueness is transferred and recorded in the injury thus allowing distinguishing features in the patterned injury to be related with some level of certainty to a given dentition.

The historical question in bitemark analysis has been what, if anything, is "unique" regarding teeth. Recent publications have pointed to the fact that as human beings we share a common biological form and that when considering large populations, tooth positions and shapes can overlap. Consequently, dental matches can be found.[1] In light of this, the concept of dental uniqueness is not scientifically, nor statistically, supportable.

Another confounding variable in studying bite skin injuries is that most show as only bruises and discolorations, effectively reducing resolution and allowing more than one dental pattern to fit the injury.[2] With regard to the second assumption of bitemark analysis, the notion that a bitemark in skin could have been made by a particular person (i.e., someone with teeth like the defendant's), something that is commonly stated by odontologists to law enforcement investigators, the forensic community, and the court, can be called into question.

The research discussed in Miller et al,[1] Bush et al,[2,3] a 2009 scientific methods review by the U.S. Congress,[4] and the use of DNA, no longer suggests using the old method of trying to "match" teeth to bruises in the skin.

The lack of scientific research to support that "everyone's teeth are unique" (an impossible challenge to prove in relation to bitemarks) and distortion/bruising with regard to skin makes forensic bitemark opinions an obvious out-of-step use in forensic science. Even the assertion that a bitemark could have been made by one person in particular ignores the problems in the scientific reliability of bitemark identification when DNA has not been recovered from the location of the bitemark.[5] In fact, uniqueness is never used as a conclusive opinion in the much more scientifically based discipline of DNA.[6]

In addition to these events, there is obvious proof that bitemark opinions have contributed to the wrongful conviction in ten cases in the United States in the last decade. Law enforcement, prosecutors, and the courts should now realize that bitemark analysis is *not* the same as DNA in either function (giving the court reliable proof of guilt or innocence) or scientific accuracy.[7] Also, bite skin injuries often show only as bruises and discolorations, which can make analysis ambiguous and opinions discordan.[8]

The scientific and most rational approach to take is to follow the National Academy of Sciences and have bitemark identifications follow the road similar to lie detector examination and limit its use to pre-arrest investigations where it may assist in development of leads for search warrants and persons of interest. The new concept is an obvious one. The best identification evidence from a bitemark is DNA obtained from the saliva of the biter.[9]

References:

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Bitemark, Paradigm, Shift

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