F46   Expert Interpretation of Bitemark Injuries

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After attending this presentation, attendees will be able to describe some common sources of disagreement in bitemark injury interpretation.

This presentation will impact the forensic science community by pointing out that disagreement between experts is one of the most difficult situations faced by judges and juries when deciding whether to accept or reject expert evidence and, consequently, answer the ultimate question of guilt or innocence. Analysis of the sources of disagreement in bitemark injury interpretation is useful to the forensic odontology community in that it can direct appropriate interpretations along the bounds of what is scientifically valid as well as what views are consistently held by the expert community.

This study attempted to characterize the nature of disagreement amongst odontologists in determining the fundamental properties of suspected bitemark injuries. Fifteen odontologists were interviewed face-to-face and asked to freely comment on six images of supposed bitemarks. Interview participants were shown six images of bitemarks, all of them taken from actual casework presented to one odontology center in Australia. They were asked to assume that these were photographs given to them by an agency for their initial comments. No contextual information was given to participants, and they were free to express as much or as little opinion as they liked regarding the image before them.

Qualitative analysis using a grounded theory approach revealed that practitioner agreement was at best fair, with wide-ranging opinions on the origin, circumstance, and characteristics of the wound given for all six images. Expression of whether the injury represented a bitemark was generally expressed in one of five categories, ranging from weakly negative (probably not a bitemark) to strongly positive (definitely a bitemark), yet there was considerable variation in opinions about the same image in this regard. Other common areas of discrepancy included the supposed orientation of the bitemark, the significance of central ecchymosis associated with the injury, and whether or not the injury was suitable for further analysis. More experienced practitioners (>10 years) agreed with each other less than those who had ten years or less experience in forensic odontology. There was no clear or consistent pattern to agreement or disagreement between any of the 15 odontologists; some practitioners whose comments were in agreement regarding one image were in complete disagreement concerning another, but nor was this consistently the case for any given odontologist pair.

Odontologists were also asked to rate the quality of the bitemark injury in accordance with a published significance and severity scale. Some issues noted with odontologists' application of this scale include its application in the absence of pictorial examples and its application to injuries that were older. The highest level of agreement in expression of the origin of the injury between odontologists was reached when the quality of the injury was poor, in that odontologists tended to agree most when there was uncertainty, as opposed to the lower level of agreement seen when more definitive opinions were expressed.

The differences in opinions can be at least partly accounted for by the inconsistent nature of approaches used by different practitioners in assessing bitemark evidence. Some practitioners used different criteria for assessing whether the injury was caused by teeth compared to other odontologists. The results of this study indicate that more definitive guidelines as to the assessment of bitemarks as patterned injuries should be developed in order to ensure the highest possible level of practitioner agreement.

Bitemark, Odontology, Forensic Science