F58 A Proposed Human Bitemark Classification

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After attending this presentation, attendees will have acquired information regarding a proposed human bitemark classification.

This presentation will impact the forensic science community by providing a simple, logical human bitemark classification based upon measurable attributes, type, and location of the bitemark injury.

There are few references to human bitemark classification. Proposals have revolved around the type of injury, its anatomical location, the manner in which it was caused or its evidentiary value. Pretty proposed a bitemark severity scale, while Souviron used variations in class and individual tooth characteristics and assessed them as to one of four classes.[1-2]

The former have two things in common: (1) they are primarily qualitative measurements; and, (2) they are subjective in nature.

The 2009 National Academy of Sciences Report, *Strengthening Forensic Science in the United States: A Path Forward,* recommended the creation of the National Institute of Forensic Science (NIFS).[3] This agency should promote, among others, "The development and establishment of quantifiable measures of the reliability and accuracy of forensic analyses."

The present human bitemark classification reflects this need and is based upon identified measurable attributes (quantitative value). Generally speaking, as the latter increases in number so does its evidentiary value (qualitative value). There are always exceptions, of course clothing and biter/recipient movement may interfere with the qualitative value of the bitemark, as examples. As the evidentiary value increases, so does its potential for comparison with a suspect dentition. Lastly, when both quantitative and qualitative values increase, there is a greater potential for identifying the biter. Two other measurable attributes are paramount for distinguishing primary from secondary human dentitions. These are arch widths and opening diameter.

There is a famous quote attributed to defense counsel Johnny Cochran: "If it doesn't fit, you must acquit." Thus, if you can't measure, you can't identify the teeth. If you can't identify the teeth, comparison is not possible. The current American Board of Forensic Odontology (ABFO) guidelines reflect this outlook in the diagram in the Diplomates Reference Manual Section III: Policies, Procedures, Guidelines & Standards February 23, 2013 edition.[4] In essence, it states if one "can identify individual arches and individual teeth," you can proceed to bitemark analysis and, potentially, to bitemark comparison.

This presentation will impact the forensic science community by providing a simple logical human bitemark classification based upon measurable attributes, type, and location of the bitemark injury. The simple formula: 2/4/C/SHOULDER refers to an identified human bitemark involving two maxillary teeth, four mandibular teeth, inflicted by a child's dentition on the recipient's shoulder. Another example, 0/0/A/BACK, indicates a diffuse bitemark where individual teeth cannot be identified or measured, made by an adult dentition (because of the arch widths and opening diameter of the bitemark), on the recipients back. The formula gives an immediate perception of the quantitative value of the bitemark, the biter's dentition (adult, mixed, child, unknown), and where it was inflicted.

References:

1. Pretty IA. Development and Validation of a Human Bitemark Severity and Significance Scale. J Forensic Sci 2007:52: (3):687-691.
2. Souviron RR. A Bitemark Classification That Makes Sense. Proceedings of the American Academy of Forensic Sciences; 2012, Atlanta, GA.
3. Committee on Identifying the Needs of the Forensic Sciences Community, National Research Council. 2009. Strengthening forensic science in the United States: A path forward. Washington, D.C.: National Academies Press.
4. American Board of Forensic Odontology, Inc. Diplomates Reference Manual, January 2013 Edition.

Human Bitemark Classification, Bitemark, Forensic Odontology

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