G20 The Good, the Bad, and the Ugly

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The goals of this presentation are to add to the odontologist's awareness of the complexities of this science and to allow the odontologist to observe nature taking its course.

This presentation will impact the forensic science community by illustrating how human bitemark pattern injury analysis is an observational science.

Observational science is a field of science in which controlled observations cannot be conducted in order to study cause and effect. Scientific studies are simply conducted through the observation of nature taking its course and recording the findings over time. An example of an observational science is astronomy, a science in which a person cannot change or control any aspects of the sun, moon, and stars.

The complexities involved with bites inflicted on one human by another involve numerous factors. Just a few of these factors would be position of biter versus the person being bitten, forces involved, bites inflicted antemortem versus postmortem, and the anatomical area being bitten. This is just a short list of the many factors that influence the appearance, evidentiary value, and analysis of human bites. None of these many factors can be controlled or predicted by the observer of the pattern injury. Laboratory studies of human bitemark injuries *in vivo* cannot account for the many variables seen in the real world. Cadaveric studies and *in vivo* animal models lack external validity in that they are not directly relevant to the clinical situation.

In the 1980s and 1990s, the admissibility pendulum swung to a very permissive position relative to bitemark evidence. Recently, the pendulum has swung 180 degrees to a restrictive position, to the point that there are proponents that feel bitemark evidence should never be allowed for prosecution in the judicial system. Bitemark injuries will not go away just because commissions, councils, committees, or panels feel they are not scientific. Indeed, in cases in which bitemark evidence is questioned, the courts still ask for the opinion of the forensic odontologist. There is nothing wrong with pattern injury (i.e., bitemark evidence). It is the decision to go ahead with bitemark analysis with weak evidence and incorrect or even over-interpretation of the pattern injuries that needs to be addressed. The trier of fact has a professional, ethical, and moral obligation to determine the merits of each pattern injury seen in crimes against persons.

It is, therefore, essential for the odontologist to observe as many pattern injuries as possible to be proficient in pattern injury analysis. This study would like to share with attendees three different pattern injury cases. The cases presented will cover a wide range of factors, providing attendees with an opportunity to experience the complexities of pattern injury analysis.

The "Good Case" implies that there are both class and individual characteristics that permitted this study to conclude that the pattern injury was a human bitemark. The reasoning process will be presented to allow attendees to follow the course of events that allowed the determination that the pattern injury was a human bitemark.

The "Bad Case" conveys the idea that although both the victim and the assailant, in a domestic violence situation, admit the pattern injury was a bitemark, this study was unable to arrive at a definitive conclusion.

The "Ugly Case" was a situation in which the authorities investigating the case had determined the pattern injury was a "human bitemark;" but, when an expert was called in for consultation, it was determined from both clinical examination and history that the "human bitemark" was a pattern injury of iatrogenic origin and was not caused by human teeth.

If, in fact, human bitemark pattern injury analysis is an observational science, which this study proposes it is, then the odontologist cannot observe enough pattern injuries. It is hoped that this presentation will add to the odontologist's awareness of the complexities of this science and will allow the odontologist to observe nature taking its course. These cases can then be added to the odontologist's portfolio of pattern injuries.

Observational Science, Pattern Injuries, Bitemarks

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