



Odontology Section – 2011

F25 A Bitemark Identification by Geometric Pattern: A Medico-Legal Problem

Thomas V. Brady, DMD*, 1823 Boston Post Road, PO Box 622, Westbrook, CT 06498; Kevin D. Cross, DDS*, Higganum Dental Associates, LLC, 415 Killingworth Road, PO Box 335, Higganum, CT 06444; and Constantine P. Karazulas, DDS, 38 Alden Street, Fairfield, CT 06824

After attending this presentation, attendees will learn to appreciate the ABFO guidelines and the necessity to use accurate metrics in analyzing bitemarks involved in criminal cases. The ramifications of such testimony can be serious.

This presentation will impact the forensic science community by showing that, in light of last year's National Academy of Sciences (NAS) Report, the standard of courtroom testimony has been raised. Now, more than ever, testimony has to be supported by accepted science. This presentation will discuss the lack of proper use of ABFO guidelines, of proper metrics, of the *Daubert* rules and the loss of being an independent reporter of scientific fact.

This is a case of child abuse, not alleged child abuse. The question is who is the abuser? The victim lived with her mother, her 7-year-old brother, and her mother's boyfriend. The maternal grandmother was her babysitter. In January 2007, the 3½-year-old little girl presented at the New Bedford, Massachusetts Hospital. The grandmother stated that two days earlier the little girl fell in the bathtub hitting her lower face and chin. Upon examination, the doctors found a single midline external puncture of her maxillary lip with internal mucosal tearing and small punctures on the underside of her chin. However, further inspection indicated large bruises on the child's torso and apparent bitemarks on both the right and left arms. Several photographs were taken. Only one bitemark photo had a ruler in it. The hospital dispensed antibiotics for the child to the grandmother and they were released.

April 2007, the child again presented to the hospital. Neither the mother nor the grandmother gave the child the antibiotics. The injury to the lip deteriorated to mimic a cleft lip forcing reconstructive surgery. Approximately 5 months later, the mother's boyfriend was arrested for child abuse. When the trial began, the central issue focused on the accused as the perpetrator by bitemark identification. The prosecutor alleged the injuries to the maxillary lip, the chin, the torso, and the arms were all bitemarks caused by the accused. A forensic odontologist testified for the prosecution on the pattern injury on the child's left arm and her chest. He testified that he obtained plaster imprints of the teeth of the mother, the grandmother, the accused, and the brother. From these he made wax bites and overlays. The odontologist limited these four subjects as the only possible biters. He stated that, while he was unable to perform a metric analysis of the bitemarks due to the limitations of the evidence provided, he determined that, by evaluating the "geometric pattern" of the bitemarks on the arm and side of the chest, the accused was the biter.

A forensic odontologist testified for the defense. He rebutted the prosecution's testimony entirely. He pointed out that an examination of the only bitemark with a ruler in it excluded all four people studied by the prosecution. This automatically opens up the pool of possible biters. He showed that the wax overlays presented by the prosecution had no tooth designations to identify alleged matches. He pointed out the prosecuting odontologist's error in aligning the bitemark on the left arm. He brought into question whether there was a bitemark on the torso as opposed to bruising on the child's torso. When the defense odontologist attempted to contradict the geometric pattern theory by invoking the *Daubert* ruling the presiding judge stopped him from testifying further. The requirement for not only class characteristics (geometric pattern) but individual characteristics (not illustrated) was disallowed by the judge. The accused was found guilty and sentenced to 12 to 15 years in prison. The case is being appealed.

Daubert, Bitemark, Geometric Pattern