



F35 **Bitemark Analysis in an Italian Judicial Case: Dentists – Do They Bite Off More Than They Can Chew?**

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After this presentation, attendees will have a better understanding of the expert witness testimony in the Italian legal system.

This presentation will impact the forensic science community by raising awareness of the importance of the involvement of trained and experienced odontologists when a life sentence is at stake.

The purpose of bitemark analysis is to retrieve both distinct individual and class characteristics of teeth on the bitten skin. The odontologist compares the dentition of the suspect's with the injury pattern and draws a conclusion as to whether or not they were compatible using a variety of methods. The expert witness assessment of a bitemark pattern injury commissioned by the defendant is presented. The framework is a twenty-year-old homicide cold case, where only one suspect has recently been found guilty.

The purpose of the presentation is to promote a discussion among experts about who should perform a bitemark analysis, thus reducing potential errors and observer bias. At this point dentists and odontologists cannot be considered of equal forensic ability, thus suggesting two separate expert witness categories in civil cases related to professional litigation and/or dental traumatology and judicial cases related to crimes.

The case presented is suggestive of a partial bitemark where the forensic significance is crucial. This provides the basis for a controversial comparison with only one suspect, although it is well understood that, except specific cases, the comparison should be carried out within a sample of suspected biters. Poor quality of evidence, primary and secondary distortion of the bitten skin, combined with the lack of a direct assessment on the human specimen, plus absence of a proper metric scale, make it impossible to decide upon the correct orientation of the biting teeth. In view of this, the results of the forensic evaluation should be restricted to exclusion. The analysis of the bitemark injury by the forensic odontologist, in conjunction with the forensic pathologist, remains of unquestionable value for the investigation of this criminal case.

The case presented is not designed to provide an account of how a bitemark comparison should be undertaken but raises concerns of the validity of bitemark evidence that is dramatically connected to those involved in the technical analysis of a bitemark. This case confirms the importance of involving a forensic odontologist, rather than a general dentist, in the analysis of a bitemark injury pattern to reach a technical conclusion and reduce to the minimum the risk of subjective conclusions. The need of education, training, and updating in forensic odontology, which goes beyond everyday dentistry and dental training, suggests the need of a periodical review of those professionals registered in court for expert testimony. In the Italian legal system, as in other European countries, it may be worth considering the institution of a subcategory (or a separate one) of experts in forensic odontology and legal dentistry, within the actual single category board of court experts/consultants who only have a degree in dentistry. Many dentists involved in the judicial system in Italy are still not sufficiently aware of the extent of forensic odontology as an autonomous discipline within the forensic science field, least of all how a bitemark assessment should be performed.

The use of non-peer reviewer techniques, the lack of formal training in forensic odontology, poor quality evidence, and prosecutorial interference are some of the possible pitfalls that the review of this cold case reveals.

Bitemark Analysis, Forensic Odontology, Cold Case