F20 Mammelons and Diastemas in an Adult Population: Frequency and Implications for Bite Mark Evidence

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After attending this presentation, attendees will become familiar with the prevalence of mammalons and diastemas in an adult population.

This presentation will impact the forensic science community by drawing attention to the prevalence of dental characteristics that impact bite mark evidence. It will also encourage dental professionals to track their patient populations for these characteristics.

The seed for this presentation was planted in 1999 at the Armed Forces Institute of Pathology course in forensic dentistry. Dr. William Morlang presented the Penn bite mark case, calling it the "Gold Standard" of bite mark evidence. In the intervening years, there has not been a case of comparable quality.

The bite mark showed the presence of mamalons on the incisal edges of the biter. The clarity and distinct quality of the mark was quite remarkable. Since there have been no cases that approached that level of merit, it became apparent that the particular dental characteristics were deserving of additional investigation.

Mammalons are present on adult incisor teeth due to the developmental lobes that fuse during maturation. They usually are worn flat by the forces of mastication, before adulthood. Sometimes they persist. The observation of that circumstance is the basis of this presentation.

For approximately six months, the adult patients in a private, general practice were evaluated for the presence or absence of mammalons, during the course of their routine recall examination.

The age minimum was established at 18 years. Gender, ethnicity, and current age were noted when mammalons were visualized. It was decided to look for the presence of diastemas as well.

This characteristic is most often associated with the upper front teeth. On occasion it is seen in the lower teeth too. This type of spacing can produce an important feature in a bite mark.

At the end of the six month period, the observations were totaled and compared with the number of patients seen. The resulting fraction will be discussed as a small step toward quantifying the presence of mammalons and diastemas in a general adult population.

The community where the dental practice is located is generally considered upper middle class, with a high proportion of Caucasian residents. These demographics will be discussed, as they could have had an impact on the findings.

This pilot study is meant to draw attention to the simplicity of gathering data that may serve the forensic community. It is hoped that dental professionals, from varying communities, will initiate similar studies. The results can aid in the eventual formulation of a statistical database that may be able to quantify the probability of a biter having mammalons or a diastema. Of course, this will be useful only in cases where these characteristics are evident.

Bite Marks, Mammalons, Diastemas

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