



G12 Bitemark Evidence

Robert B.J. Dorion, DDS, Laboratoire S.J.M.L., Edifice Wilfrid-Derome, 1701 Parthenais, 12ieme, Montreal, PQ H2K 3S7, CANADA*

After attending this presentation, attendees involved in bitemark analysis will better understand distortion of bitemarks resulting from infliction on different parts of the porcine anatomy.

This presentation will impact the forensic science community by making the attendee aware of the various potential problems involved in human bitemark interpretation, analysis, and comparison with suspect dentitions.

In vivo porcine skin is considered as a representative model for the study of human bitemarks.¹⁻⁵ Error rates have also been calculated using the porcine skin model as a substitute for human skin.⁶ The current study compares 20 bitemarks inflicted by the same dentition (known biter) on different parts of the porcine anatomy. The bite sites include the neck, the thorax, the axilla, the thigh, the stomach, and the back.

The type of photographs studied were color and alternate light imaging and all were lens and metrically corrected prior to comparison. The photographs were taken *in vivo* at the time of bitemark infliction and on the third day postmortem. The latter scenario was chosen to mimic a potential real-life encounter of a Friday body recovery with a Monday autopsy. Participants will have an exclusive and rare opportunity to observe the amount of change in the bitemark pattern from antemortem infliction to postmortem observation on the third day. The upper and the lower arches of the bitemark were compared separately and serially. The same exercise was performed comparing the bitemarks to the dentition that created them.

Conclusions will be drawn from this exercise in order to minimize potential difficulties of interpretation, analysis, and comparison with a potential suspect dentition in a human.

References:

1. Avon SL, Wood RE. Porcine skin as an *in vivo* model for aging of human bite marks. *J. Forensic Odontostomatology*. 2005;23:30–39.
2. Bush MA, Miller RG, Bush PJ, Dorion RBJ. Biomechanical factors in human dermal bitemarks in a cadaver model. *J. Forensic Sciences* 2009;54(1):167–176.
3. Bush MA, Miller RG, Dorion RBJ, Bush PJ. The Role of the Skin in Bitemarks, Part I: Biomechanical Factors and Distortion. *Proceedings of the American Academy of Forensic Sciences*; 60th Annual Scientific Meeting, Washington, DC. 2008.
4. Miller RG, Bush PJ, Dorion RBJ, Bush MA. The Role of the Skin in Bitemarks, Part II: Macroscopic Analysis. *Proceedings of the American Academy of Forensic Sciences*; 60th Annual Scientific Meeting, Washington, DC. 2008.
5. Bush PJ, Miller RG, Dorion RBJ, Bush MA. The Role of the Skin in Bitemarks, Part III: Microscopic Analysis. *Proceedings of the American Academy of Forensic Sciences*; 60th Annual Scientific Meeting, Washington, DC. 2008.
6. Avon SL, Victor C, Mayhall JT, Wood RE. Error rates in bite mark analysis in an *in vivo* animal model. *J. Forensic Science International* 2010;201(3):45–55.

Forensic Odontology, Bitemark, Dentition