



F25 Macroscopic and Microscopic Study of the Effects of Freezing and Thawing on Bite Marks

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After attending this presentation, attendees will have a better understanding of the effects of freezing and thawing on bitten mammalian skin.

This presentation will impact the forensic science community by exploring this uncharted territory of bite mark studies, providing new knowledge in the already extensive list of factors affecting bite mark analysis.

It is known that bite mark study and analysis is complicated by many factors such as skin color, Langer's lines, location of the injury, the victim's medical history, underlying tissue, presence/absence of clothing at the bite site, victim and/or perpetrator movement as well as conditions under which a body is found and/or preserved.

On the other hand, many other variables affect the speed of freezing and thawing of a body including skin exposure, temperature, wind chill, humidity, clothing, bacterial/insect/animal activity.

The first part of the presentation will explore the macroscopic effects of freezing and thawing by photographic documentation including general overview, close-up with and without the ABFO no 2 scale, color, UV, and ALI. A comparison done between pre and post freezing photographic documentation is closely examined and discussed. Photographic comparison was performed following the various stages of the experiment to record for loss of bite mark structural detail and to observe the effects of freezing and thawing macroscopically.

Fifteen ante- and postmortem bite marks were produced on a piglet by means of a Vice-Grip mounted dentition. The subject was then placed in a mortuary refrigerator for three days, removed and allowed to reach room temperature, examined, and photographically documented (color, UV, and ALI). The specimen was refrigerated anew for two days, and finally frozen covered by a plastic bag (not vacuum packed) and preserved for (274) days at (-6 C) degrees. The piglet was removed from the freezer, placed in a mortuary refrigerator for three days and subsequently allowed to thaw to room temperature. Complete photographic documentation was performed including general overview, close-up with and without the ABFO no 2 scale, color, IR, UV, and ALI. Bite mark excision was also performed (Dorion Type V), transillumination with further photographic documentation.

The second part of the presentation will look at the microscopic effects of freezing and thawing on bitten mammalian skin and to provide knowledge about the differences or similarities that are to be expected between histological samples. The results will also be studied in the hope of providing ways of maximizing information obtained from frozen and thawed bite marks while minimizing its potential negative effects.

In summary, this presentation will inform the attendees of the influence of freezing and thawing on bitten mammalian skin. This information is expected to aid forensic dentists to take all the necessary precautions to avoid loss of valuable information in bite mark documentation and analysis in the case of artificially or naturally frozen bite mark victims.

Mark, Freezing, Thawing