



F26 A Useful Case Study for the Cleaning of Dentition for Forensic Odontological Analysis

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After attending this presentation, attendees will know the composition of the material that collects on the teeth after death related to decomposition and understand some of the difficulties in cleaning the teeth of decomposed victims for accurate examination. They will also be given specific recommendations, based on the results of the study, to clean the decomposition products from the teeth.

This presentation will impact the forensic community by providing forensic dentists practical information and products to quickly, safely, and efficiently clean the decomposition material from the teeth of the victims in a mass fatality incident to provide for accurate oral examination.

Decomposition products were collected from the teeth of three pigs and analyzed for chemical composition. Various available cleaning products were tested for their ability to quickly and efficiently remove the decomposition products from the teeth. Results indicated that the disinfecting wipes, containing N-alkyl, dimethyl benzyl ammonia chloride and dimethyl ethylbenzyl ammonium chloride, proved to be most efficient in removing the decomposition products.

In a mass fatality incident, accuracy and efficiency are both essential elements for a successful operation. For forensic odontologists, removal of the products of decomposition from the teeth of the victims is a time-consuming but important function. Removal of the decomposed material is required for an accurate oral examination of the victims. As esthetic dental restorations become less identifiable clinically, the need for thorough removal of the decomposed products becomes even more important. In the past, several agents have been used to try to clean the material off the teeth. Among those that have been commonly used are alcohol, sodium hypochlorite, and hydrogen peroxide. Each of these have advantages, but all the commonly used cleaners leave behind a greasy layer of material. In addition, the products can be incompatible with one another. For example, hydrogen peroxide can't be used in conjunction with sodium hypochlorite, which is one of the materials that can be used for decontamination, due to a chemical reaction that causes formation of a significant amount of foam. An ideal cleaning material used to remove the products of decomposition should possess the following properties: commercially available, easily obtained and stored, non-toxic, efficient for the task, able to be used in unventilated areas, and be compatible with materials used to decontaminate the remains.

The purpose of the study was to examine the chemical makeup of decomposition and investigate various cleaning materials to determine which one(s) most closely meet the desired properties. Three pigs were sacrificed and allowed to decompose. The swine were varying aged piglets, somewhere in the range of 1-2 months in age. The first one weighed approximately 11.5 kg, measured approximately 80 cm, and was buried approximately 2 ft underground. The second weighed approximately 21.2 kg, measured approximately 92 cm, and was buried approximately 2ft underground and the third weighed approximately 15.6 kg, measured 86 cm, and was placed above ground, secured within a wire mesh screen cage.

When decomposition had progressed to the desired level, the jaws were removed and a portion of decomposed material was removed for chemical analysis. The teeth were then cleaned with various commonly available cleaning products to test their efficacy and efficiency. The cleaning materials were compared to isopropyl alcohol which commonly has been used to remove the decomposition material in the past. Three evaluators evaluated the cleaning efficiency (time and effort) and efficacy (cleanliness) of the various products and rated them against the alcohol control. Of the materials tested, the disinfecting wipes, which contains ammonium chloride, proved to be the best in removing the decomposed material. The disinfecting wipes met all the criteria for an effective cleaning material.

Forensic Odontology, Decomposition, Mass Disaster
