



F28 The Identification of Burned Human Remains

James McGivney, DMD, 346 Tulip Drive, Webster Groves, MO 63119; and Eric S. Wilson, DDS, PO Box 50, Cole Camp, MO 65325*

After attending this presentation, attendees will; (1) understand the steps necessary to fully document the dental features of burned human remains; and, (2) will appreciate the difficulties encountered when working with burned human remains.

This presentation will impact the forensic science community by demonstrating the importance of step by step documentation of burned human dental features.

The identification of burned human remains is one of the most difficult tasks faced by forensic odontologists. In cases where there is extensive burning, the skin is charred and flakes off, bones become discolored, brittle, and fracture, and the crowns of teeth may crack or at times explode.

At initial recovery, the thermal destruction makes retrieval of all biological fragments difficult. In many cases small, yet important portions are missed, disturbed, or even destroyed during scene processing. A systematic, conservative approach to recovery and examination is needed to prevent the loss of valuable dental information before a thorough dental charting, intra-oral photographs, and radiographs can be obtained.

The lips, tongue, and cheeks initially insulate the oral cavity and present a barrier to heat and fire. The teeth can remain relatively undamaged while the rest of the body shows signs of extensive fire damage. This pattern is seen in cases where an accelerant is used to burn a body in an attempt to hide a homicide.

When a fire burns long and hot, the insulating tissues are consumed by the fire and the damage to the oral structures will be extensive. Teeth will be completely consumed in a hot fire. While teeth do not survive the cremation process, certain dental restorative materials such as porcelain and stainless steel can be found in cremains.

Delattre has described a four stage process to follow when examining burned human remains. First photographs are taken of the undisturbed remains. Then soft tissue is removed to allow better visualization and additional photographs. The third step is to carefully obtain access to the oral cavity to allow exposure of radiographs and photographs. Lastly loose dental specimens are placed in suitable containers to avoid further damage and loss.

In the spring of 2011, an extensively burned set of human remains was recovered from a car fire. Investigation by medical examiner's personnel allowed the formation of a putative identity and contact was made with the suspected victim's mother who was able to provide an antemortem dental chart. The mother was also able to provide a decorative tooth grill and a dental model from which the grill was fabricated. In hip hop culture, a grill (to include front or golds) is a type of jewelry worn over the teeth. Grills are made of metal and are generally removable. Grills are fitted to a dental model of the wearer. The long term safety of grills is debatable, as is their effect on oral health and hygiene. Grills can be obtained online and from beauty and barber shops.

The body was examined, photographed, and digitally radiographed. Examination of the body disclosed a loose crown and a tooth grill.

A positive identification was confirmed by several methods. Antemortem and postmortem radiographs of a root canal filling in an anterior tooth compared favorably. The grill found on postmortem examination fit the dental model obtained from the mother. The tooth grill obtained from the mother fit the postmortem dentition; and a loose metal crown found postmortem, fit a tooth on the dental model.

Care used in the examination and documentation of severely burned human remains made possible a positive dental identification via several modalities.

Odontology, Identification, Human Remains