G12 The Identification of Fiery Highway Crash Remains

Robert C. Walcott, DDS, Moraga, CA 94556*

Learning Overview: After attending this presentation, attendees will understand key forensic odontology techniques to identify severely burnt remains with only three anterior antemortem periapical radiographs.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by demonstrating key investigatory techniques to identify charred remains. Specific instruments used will be discussed. The California Highway Patrol (CHP), Contra Costa County Sheriff, news reports, and forensic odontology all contributed to the identification.

The CHP reported on September 29, 2019, at 4:00 a.m. four cars were traveling about 65mph northbound on Interstate 80 in Richmond, CA. The vehicles were actually involved in a series of at least three different crashes. The vehicles in order were a Nissan® Altima®, a Honda® CRV®, a Honda® Civic®, and a Hyundai® Sonata®. The driver of the Altima® and an adult passenger hit the CRV® and the center concrete wall divider, resulting in the passenger's death. The impact to the CRV® caused self-ignition resulting in temperatures up to 495°F and the driver's death. The CRV® also hit the Civic®, which collided with the Sonata®. All other drivers sustained serious injuries and were transported to Highland hospital. The drivers of all vehicles were identified by CHP except the Honda® CRV® driver. This driver sustained fourth-degree burns penetrating skin and muscle, fifth-degree burns penetrating to bone, and sixth-degree burns that charred bone. No immediate physical recognition was possible.

The remains were transported to the Contra Costa County Coroner's office for documenting, weighing, measuring, tagging, and storing. This office requested a forensic odontology examination. There were only three antemortem periapical films, two of tooth #24 dated 09/23/2015 and one of tooth #7 dated 10/21/2015. The maxilla and mandible were resected and cleaned. The instruments utilized were Stihl® bypass shears, eight-inch tissue retractors, toothed forceps, curved and straight hemostats, and an eight-inch Rochester® curved heavy forceps. A scalpel, #8P handle with a #22 blade, was also used. Photographs were taken and the dentition was charted on the Contra Costa County-Odontology report. A digital radiograph survey was completed utilizing Dexis® software with a Nomad® hand-held portable unit. The examination revealed that there were two teeth missing antemortem, the maxillary right third molar #1 and right lateral incisor #7. There was an implant present for the lateral incisor; however, no crown was in place. There was a removable stay plate that replaced tooth #7. Tooth #24 had a root canal and composite. The left sides of the maxilla and mandible had sustained sixth-degree burns. Seven molars had occlusal composites (3, 14, 15, 18, 19, 30, and 31). Due to the impact, teeth 8, 9, 10, 11, 12, 13, and 14 were fractured. Teeth 10 and 11 were fractured off at the alveolar crest as were teeth 18, 20, 21, 22, and 23.

After comparing the antemortem radiographs with the postmortem full-mouth films, a positive identification was achieved and reported to the Contra Costa Sheriff-Coroner. On October 1, 2019, Mario Martinez was identified.

This case study demonstrates the application of several key techniques to identify severe charred remains.

Burnt, Techniques, Identification

*Presenting Author