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## G1 Non-Traditional Positive Dental Identification

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After attending this presentation, attendees will understand both traditionally utilized methods used in the positive identification process and non-traditional normal anatomical variants and pathological conditions in dento-facial remains and restorations that may provide a means of dental identification.

This presentation will impact the forensic science community by demonstrating non-traditional dento-facial therapeutic evidence as well as normal and abnormal anatomical evidence that may provide forensic odontologists with successful dental identifications.

Positive identification of the decomposed, skeletal, disfigured, or incinerated victim is the goal of forensic odontology and the foremost requirement of forensic pathology. Routine positive identification methods rely on tried and true comparison of antemortem to postmortem radiographs for restoration assessment. Such identifications are only as reliable as antemortem radiographic records, which document those dental and alveolar conditions as well as different composite resin materials, amalgams, gold inlays, endodontic conditions, and prosthodontic devices; however, at times the forensic dentist does not have those restorations in the decedent's mouth. The oral cavity may present as edentulous or contain 32 virgin teeth resulting in documentation of crown and root and/or alveolar bone peculiarities. Frequently, a more non-traditional method of comparing other unique conditions not related to restorative materials may be used.

The forensic dentist can utilize some quite unusual means of comparisons, such as amalgam tattooing, in a pattern reproducible in the postmortem radiograph. Endodontic sealer "poof" marks have been used for identification purposes where root canal sealer extruded from the apical foramen, displaying an unusual shape useful with antemortem-postmortem radiographic comparison.

Occasions also arise where oral surgeons reapproximate jaw fractures with metal stabilizing plates that exhibit unusual shapes, allowing forensic dentists to compare X-rays of like kind from the decedent. With numerous types and brands of implants on the market today, the structure of the implant can even be used, especially those from decades ago where endosseous blade implants exhibited various shapes and designs of the device's struts. These can readily provide an interesting basis for comparison.

Further examples will be demonstrated where an edentulous decedent was found wearing a broken upper denture, with a rather large piece of the denture missing. No other identifying characteristics could be discovered. Several months later, detectives were interviewing a family who had reported a missing person. The family related that their missing family member was edentulous and when shown the discovered denture fragment found on the body, did allege that the shape of the denture looked similar to the decedent's smile; however, this is not conclusive evidence, but rather a suggestive clue that would encourage investigators to look further.

In searching through the personal effects of the decedent, a denture fragment was found in the bathroom drawer, which was used to reapproximate the main denture fragment found on the body of the decedent. The fracture halves, which were irregular and jagged, matched perfectly. With the fracture lines of the two denture halves from two different locations, one from inside the house of the missing person and the other at the crime scene miles away, enough information was provided for the forensic odontologist and the medical examiner to confirm identity of the body.

Several comparisons have been submitted showing iatrogenic conditions such as a broken bur embedded within the alveolus or a separated endodontic file retained in the jaw. These less-often-used criteria are equally discriminating in securing positive identification.

Attendees will recognize several unorthodox means available to positively identify victims that have seldom been used. These cases will challenge the attendee/forensic scientist to delve further into the possibilities of unusual identifying characteristics.

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### **Positive Identification, Amalgam Tattooing, Endodontic "Poof"**