



### G40 A Review of Unconventional Points of Dental Identification at the Ontario Forensic Pathology Service: Thinking Outside the Viewbox

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**Learning Overview:** The goal of this presentation is to demonstrate alternate or less commonly used points of dental identification.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by explaining the use of unique dental identifiers in dental identification when more traditional points of dental identification are not available in the antemortem or postmortem data set.

The unique characteristics in the development, morphology, and pathology of dentition, coupled with their nearly indestructible quality, make teeth one of the most reliable means for establishing human identification. Additionally, well over half of North Americans are reported to have visited a dental professional in the past year, vastly improving the likelihood that antemortem dental records are available for comparison purposes should the need arise.<sup>1,2</sup> In addition, most people that have seen a dentist have some form of restorative intervention, be it dental restorations, root canal treatments, or extractions of permanent teeth.

The optimal scenario when performing a dental identification would be to have a postmortem data set containing multiple points of identification to compare against a complete antemortem data set, including radiographs. Although this is often the case, there are times when the antemortem or postmortem data set is lacking, either due to poor quality, lack of completeness, or the absence of antemortem records. In the postmortem data set, severe degradation of the body may require dental identification that relies on less traditional points of identification.

Several cases of unconventional points of identification will be discussed in which a positive dental identification was obtained or used to further support a circumstantial identification. One such identification was achieved using a photograph of the decedent's teeth taken antemortem demonstrating a rare feature of the crown in conjunction with other supportive points evident in the photograph, when antemortem dental records were not available. Age stratification was also undertaken to further aid in the establishment of this missing child's identity.

Dentures can prove to be of considerable value in identification as they may contribute to the creation of a biological profile for unidentified human remains. Wear patterns, materials used in the manufacturing, and the overall quality of the dental prosthesis can yield important clues to an unidentified person's habits, age, postmortem interval, or geographical region of origin. Dentures can also be fitted on casts in cases of presumptive identification when these items can be obtained from an individual's dentist. Unfortunately, dental casts are not always available, and a more novel approach must be taken to reveal the utility of a denture in establishing identification. One such case involved an edentulous individual whose identification was made possible by corroboration between the dentist's notes regarding a denture adjustment and an examination of the denture and shade-matching of the appliance.

Finally, several cases with irregular anatomical features or unusual pathoses will be presented in which either peri-mortem destruction or loss of the dentition, or edentulism, has made identification using more commonly used identifiers difficult. These cases include an individual with a unique unilateral nasopalatine duct cyst, a maxillary fracture, and comparison of the left maxillary sinus seen in postmortem Computed Tomography (CT) imaging to antemortem radiographs.

#### Reference(s):

1. Government of Canada, Canadian Health Measures Survey, *Oral Health Statistics 2007-2009*. Retrieved from <https://www.canada.ca/en/health-canada/services/healthy-living/reports-publications/oral-health/canadian-health-measures-survey.html>.
2. Centers for Disease Control and Prevention, National Center for Health Statistics, *Oral and Dental Health* (2016). Retrieved from <https://www.cdc.gov/nchs/fastats/dental.htm>.

#### Dental, Identification, Unconventional