



F24 Validation of a Conventional Forensic Dental Identification Using Measurement of Internal Consistencies Software (MICS)

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The goal of this presentation is to present a case report using MICS to validate a forensic dental identification made by conventional comparison of ante-mortem and post-mortem dental x-rays.

This presentation will impact the forensic community and/or humanity by presenting a case report which demonstrates image enhancement using MICS as a means to validate the comparison of dental radiographs by conventional means alone. This software has the potential to be used as a primary tool in the process of dental identification. During a mass fatality incident, MICS could be used in conjunction with other software such as WIN ID to greatly facilitate and expedite victim identification and return of remains to family and loved ones.

Medicolegal death investigation revealed that a 30-year-old male had strangled his wife and young daughter. He placed them side by side in bed and left the residence in his truck. After purchasing 1 gallon of gasoline at a nearby gas station, he proceeded to a side road and stopped his vehicle. With the windows rolled up, it is believed that the gasoline was emptied throughout the cab and ignited, resulting in both an explosion and fire. After the fire was extinguished, the carefully recovered remains were transported to the West Virginia Office of the Chief Medical Examiner for examination and identification.

Original dental radiographs and clinical records were obtained from the primary care dentist of the alleged perpetrator. Post-mortem radiographs of recovered jaw and dental fragments were obtained in the morgue. A positive dental identification was made based on a distal occlusal amalgam restoration on the maxillary right first molar and a partial amalgam restoration on the occlusal surface of the maxillary right second molar.

Both ante-mortem and post-mortem radiographs were then scanned into MICS (Measurement of Internal Consistencies Software). Correlation was observed among multiple comparable regions of interest when compared side by side. A detailed history was generated for each input to the images.

The application of MICS for the purposes of forensic dental identification is promising. Well defined parameters of acceptable correlation will need to be established prior to using this software as a means for primary identification.

Forensic Identification, Image Enhancement, Identification Validation