



E80 Enhanced Postmortem Fingerprinting Techniques

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After attending this presentation, attendees will understand the challenges encountered when identifying human remains through postmortem fingerprinting and recognize the utility and importance of enhanced fingerprinting techniques.

This presentation will impact the forensic science community by disseminating a fingerprinting technique which reduces the overall training burden, is quickly mastered by morgue technicians and forensic investigators, is less time consuming to perform, and has proven to be a cost-effective method of obtaining quality fingerprints leading to a positive identification within a fast turnaround time.

In the United States, it is the responsibility of the many decentralized local, county, and state Medical Examiner/Coroner (ME/C) offices to investigate all violent, suspicious, sudden, and unexpected deaths that fall within their jurisdiction.¹ Beyond establishing the cause and manner of death, these offices are also frequently tasked with conclusively establishing the identity of the decedent by scientific and objective means. A majority of cases are identified visually by the legal next of kin or a friend. This common process can present complications when the death occurs suddenly or unexpectedly while unattended at home or the decedent is in a hospital for a brief duration and personal documents are of dubious origin. Due to the resulting emotional stress or visceral responses of the newly bereaved, visual identification is fraught with danger and, at times, is of limited value in cases of advanced decomposition. Despite challenges experienced in this subjective identification method, a significant proportion of the typical ME/C caseload consists of accepting unidentified individuals with little chance of routine visual identification. It is generally expected by the public at large that the offices can establish an identity; however, this expectation is at times unrealized. As of December 2015, there were more than 8,000 unidentified person records reported in the National Crime Information Center's (NCIC) Unidentified Person File database.² Additional data suggests ME/C offices reportedly receive approximately more than 4,000 unidentified decedents a year.

In cases involving significant criminal activity, or those likely to involve evidentiary scrutiny during trial, visual identification should be secondarily supported by confirmation alongside a scientific technique: fingerprint comparison, comparisons of dental records, imaging studies, and DNA analysis. Of all these scientific procedures, fingerprint comparison is the first and most commonly used method to positively identify an individual and is used prior to other more costly options.³ Once fingerprints have been obtained, most ME/Cs have the wherewithal or liaison with law enforcement personnel to establish or confirm the identity of the deceased.⁴

Enhanced fingerprinting techniques are paramount in cases of advanced decomposition or mummification and are frequently used in situations in which the decedent is recovered from scenes involving fire, prolonged submersion in water, other adverse environmental effects, extensive trauma to the face, dismemberment, insect activity, or animal predation. Older techniques for recovering fingerprints in these types of cases involved a combination of injecting fluids subcutaneously or further mutilation by removing the complete finger or hand from the body. These procedures have known limitations to successful deployment and are considered to be expensive, caustic, insensitive, and arguably morally unethical.

The demonstrable fingerprinting techniques of preference have proven effective in the most challenging circumstances. The impressions of the fingerprint are made from these methods and submitted for comparison to the relevant police department. These techniques have been used in a significant sample of cases with exemplary results.

Reference(s):

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3. Prahlow, Joseph A. *Forensic pathology for police, death investigators, attorneys, and forensic scientists*. New York, NY: Humana, 2014.
4. Tomboc, Ricardo, and Mark Schrader. Obtaining Fingerprint and Palmprint Impressions from Decomposed Bodies or Burn Victims using the Mikrosil Casting Method. *Journal of Forensic Identification*. 55, no. 4, 472-73.

Fingerprints, Decomposed, Medical Examiner/Coroner