F28 The "Transformation" of a Simple Case of Identification Into a Complicated One

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After attending this presentation, attendees will see the importance of compiling and filing dental and medical records, including radiographs.

This presentation will impact the forensic community by demonstrating how a simple case of personal identification can become a hard case without complete dental and medical records.

Traditional methods used in forensic identification are based on the comparison of antemortem (AM) and postmortem (PM) radiological images, and they are often a valuable alternative to fingerprinting and DNA analysis. In addition, radiological images are only of value in making positive identifications in cases where there are AM images available for comparison.

Dental identification utilizes general teeth, jaw, and orofacial characteristics, as well as the specific features of dental work including metallic or composite fillings, crowns, bridges, and removable prostheses. Dental identification also takes into account the distinctive

configuration of bony structures of the jaws (i.e., mandible and maxilla), the presence and shape of teeth (including the roots), the configuration of maxillary sinuses, and longstanding pathologies (such as prior fractures and orthopedic procedures).

In this case the official consultants from the Court of Lecce, Italy were asked to carry out all necessary procedures in order to establish whether the skeletal remains of a subject found in the countryside in 2002, could have been those of a man who had been missing since 1989. Anthropometric analyses established that the subject was a Caucasian male, aged between 23 and 31 years. Among the useful elements available, was a fixed circular prosthesis of very high quality and made of porcelain-alloy.

Other useful elements were significant fractures (humerus, tibia, and fibula), all of which had been mended using "surgical" screws.

Despite the presence of these elements, no antemortem radiographs were available from the hospital where the subject had been admitted, which could have positively identified the remains. Furthermore, when the subject's presumed dentist was contacted, he recognized the prosthesis as his own work, but no paper or radiographic documentation was available which could have provided absolute certainty as to the subject's identity.

In the end, because of the existence of a presumed brother of the deceased subject in question, DNA extraction from pulverized bone tissue was carried out for the purpose of comparing it to a sample of blood taken from the presumed brother.

Because the presumed brother and the remains of the subject were both male, investigation focused on the y chromosome. DNA typing of the DYS391, DYS389 I, DYS439, DYS389 II, DYS393, DYS390, DYS385, DYS438, DYS437, DYS19, DYS392 systems was carried out on the samples. Amplification was performed using the Thermal Cycler- DNA Gene Amp® PCR System 9700 (Applied Biosystems, Foster City, CA), and the AmpFℓSTR® Identifiler PCR Amplification Kit (Applied Biosystems, Foster City, CA).

Analysis of the amplified allele fragments was performed by capillary electrophoresis. Identification of the genetic features of the samples, related to the DNA polymorphisms investigated, was performed by using an allelic ladder which included the major Caucasian variations. The results showed compatibility with nine out of the eleven systems, thus confirming the identification of the subject.

Positive identification of the subject in question was ultimately possible through DNA analysis. Notwithstanding the fact that other, very convincing features were present on the skeletal remains, which could have certainly made identification a much simpler task, the lack of antemortem radiographic images did not allow for positive identification. This case, in which many years had passed from the time of the subject's disappearance to the discovery of his skeletal remains, stresses the importance of compiling and filing dental and medical records, including radiographs. No regulations which require private dental practices to maintain dental charts of patients currently exist in Italy. As a result, dental records are often non-existent and when they do exist, their quality is often very poor and of little use. **Personal Identification, Odontology, Case Report**

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