



## G36 A Cemetery Named the Mediterranean Sea: Best Practice in Human Identification

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**Learning Overview:** After attending this presentation, attendees will be able to evaluate the application of best practice when performing the identification of human remains recovered from the sea. There is a significant amount of scientific literature highlighting the importance of having a multidisciplinary approach for unidentified human remains by following Disaster Victim Identification (DVI) standards, yet they are not always applied.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing the scientific findings of an identification case in which postmortem and antemortem data are compared to determine whether they belong to the same person. Since 2014, the human identification process has become an important procedure in Italy due to the migratory flows phenomenon and the large number of victims recovered from the Mediterranean Sea.

The European migrant crisis is a term given to a period beginning in 2014 when a rising number of people arrived in the European Union (EU), travelling across the Mediterranean Sea or overland through southeastern Europe. These people included asylum seekers, and also economic migrants.

Thousands of migrants die as a result of shipwrecks when trying to cross the Mediterranean Sea. This has caused the Mediterranean Sea to become a giant cemetery. In December 2014, a ferry boat, which routinely travels from Greece to Italy and vice versa, was set on fire. There were 443 passengers, 56 crew members, and at least 6 clandestine passengers on board. Due to sea conditions, it was not possible to rescue all passengers and, after the rescue, there were 19 missing passengers, 60 injured people, and 9 deaths. Four months later, a corpse in an advanced state of decomposition was recovered near the Tremiti Islands. It was not possible to determine the cause of death or the origin of the corpse. Was it a migrant, an accident, a homicide, or a suicide? Being of unknown origin, a general biological profile was achieved through a dental autopsy, fingerprints, and DNA collection.

One of the most challenging aspects of the human identification process is not the postmortem but the antemortem data collection. To begin gathering antemortem documents and data for identification, there is the need for “presumption of the identity,” which can be offered by the generic profile coming from the dental autopsy. The presumption of the identity was also obtained considering the circumstantial details of the report of the found body and analyzing the list of the missing people. This information was combined with the preliminary findings of the autopsy, such as the cause of death. A dental profile and genetic analysis (DNA and mitochondrial DNA (mtDNA) profiles) were also used to obtain significant data for the human identification process.

In general appearance, the recovered body appeared to be a male. The corpse wore only socks and underpants, and no other personal effects were found. Fingerprints were not practicable as the arms were not present due to sea fauna predation. The head was partially decomposed and the teeth and dental prosthetics were preserved. The histological findings guided the medicolegal analysis to determine that the person died by drowning. Dental X-ray analysis was also performed and was useful in determining the presence of an endodontic technique still used in Middle East European countries (i.e., Greece, Turkey), but no longer used by European clinicians.

Genetic analysis using Short Tandem Repeat (STR) allowed confirmation not only of the sex of the cadaver but also of the statistical distribution of the genetic profile in the population with Random Probability Match. Using mtDNA and an interactive map, it was also possible to obtain a profile for a database query that automatically directed to sampled populations: the haplotypes was R0a1a, the metapopulation was west Eurasian, the continent was Europe, specifically southern Europe, the country was Greece, and the province was Kozani. All data led to the ferry boat accident. A DNA comparison was then performed with the victims' DNA-available profiles. A DNA match was found for one of the missing person's relative's genetic profile; the corpse belonged to the one Grecian missing passenger.

This case report applied the multidisciplinary approach for best practice in human identification. Primary and secondary identifiers, following also DVI standards, could always be applied for the identification of migrant victims of the migratory flow through the Mediterranean Sea.

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### Human Identification, Migrants, Dental Identification