



G40 Dental Morphoanalysis and Identification of Monozygotic Twins

Aime Conigliaro, MA, Fort de Rosny, 1 boulevard Théophile Sueur, Rosny sous-bois 93110, FRANCE; and Charles E. Georget, PhD, 5 Rue Voltaire, Amboise 37400, FRANCE*

After attending this presentation, attendees will better understand that the characteristics of monozygotic twins' teeth can provide useful information for the identification of skeletons or burned or decomposed victims.

This presentation will impact the forensic science community by demonstrating why no usable dental clue should be overlooked even though the genetic results provide more reliable results.

Dental morphoanalysis studies the shape of the teeth and particularly the shape and position of grooves and cusps located on the occlusal surfaces. The scope of morphoanalysis is limited to specific cases. This presentation describes a case involving comparative study of the teeth of monozygotic twins.

Materials and Methods: The study of dental characteristics of heterozygous and monozygotic twins is based on the examination of plaster casts made from dental prints. These models are observed with the naked eye, then with a magnifying glass. Finally, they are photographed to record and analyze the data. The teeth are examined in two phases and at two levels: (1) study of the general morphology takes into account the shape of the dental arches and the position and number of teeth on the arch and determines the type of occlusion; and, (2) morphodental analysis is performed with a magnifying glass and photographic enlargements. Data are obtained from the two studies, one that is descriptive and one that involves dimensional measurements.

Results: Although heterozygous twins do not display comparable usable elements, monozygotic twins do. The observations allowed for the identification of some key points. In monozygotic twins, the descriptive study of occlusal surfaces provides considerable usable information, even if some treatment or certain pathologies disrupt the analysis. For each tooth, several characteristics are studied for comparison. For molars and premolars, the following characteristics are observed: (1) cusps whose arrangements vary depending on the treated tooth; (2) axial position of the edge of the cusp compared to the transverse edge; (3) major and minor grooves; (4) the form of primary and secondary dimples; and, (5) tubers and all existing defects.

For canines and incisors, the shape of the palatal surfaces, canine tips, and incisive edges are essential and discriminating characteristics. Dimensional measurements involve the study and measurement of all teeth with dividers. These measurements include the mesiodistal diameter, buccolingual diameter, and height of the collar at the free edge of each tooth.

Conclusion: In the absence of antemortem records of deceased and unidentified monozygotic twins, the comparative study of dental casts can discriminate the twins among a given population. This study provides detailed information on each individual twin once isolated from the rest of the population.

Twins, Identification, Morphoanalysis