

AMELOGLYPHICS IN FORENSIC ODONTOLOGY

Dear Editor,

Forensic odontology is primarily concerned with the use of teeth and oral structures for identification of humans. Detection of human identity using tooth is done by department of forensic odontology. Dental hard tissues gain importance of identification based on the condition of the deceased. These structures resist decomposition and high temperatures and are among the last ones to disintegrate after death. Amelogyphics or tooth prints is a study of enamel rod end patterns. Human dentition is considered hard tissue analogue to fingerprints (reliable tools only in a body obtained prior to decomposition or mutilation). Tooth prints is the term used to describe the enamel rod end patterns. Amelogyphics is the term used for the study of patterns of enamel rods. The enamel surface presents a variable appearance, exhibiting features such as aprismatic enamel, perikymata, prism end markings, pits and elevations. Tooth prints are fundamental units of the tooth enamel. These prisms run from the dentino-enamel junction to the surface. The adjacent enamel rods form a unique pattern due to undulating course of ameloblasts during formative stages. Such patterns on the surface of enamel are called tooth prints.

They are made up of hydroxyapatite crystals which are hexagonal in shape and they provide rigidity to the enamel rods. Enamel rods are also known as enamel prisms. This uniqueness of the tooth print could be used as a valuable tool in forensic science for personal identification. Using amelogyphics in human identification can be done by studying the enamel rod pattern on the outer surface by using acid etching, recording patterns and automated biometrics as sequential steps. Biometric analysis will help in revealing the enamel rod end patterns are distinctive for each tooth in an individual. The DNA analyses, finger prints, dental patterns, and more are used for personal identification; but these identification methods may not be resourceful when bodies are decomposed where only small fragments of calcified tissues are obtainable for identification. Since teeth can withstand extreme temperatures, dental evidence is the technique of choice in creating an identity from the manmade or natural disasters. Biometric analysis reveals that the enamel rod-end patterns are distinctive for each tooth in an individual. The reproducibility and reliability of these enamel rod-end patterns suggest that amelogyphics could be used as a reliable technique for personal

identification in such cases. The reproducibility and reliability of these enamel rod end pattern suggests that ameloglyphics could be used as a reliable technique for person identification. What all changes could affect the enamel rod-end patterns in daily life? To what depth do these changes reflect it? Are there other surface structures of enamel which could be easily and reliably used for personal identification? These are all avenues which need research attention.

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