Maximizing postmortem oral-facial data to assist identification following severe incineration

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Abstract (English): PURPOSE

This paper reviews the literature for methods of maximizing the postmortem oral-facial information available for a comparison to be made for identification following an incident resulting in incineration.

METHOD

A search was initially instigated utilizing PubMed, Scopus, and Google Scholar, with further library searches and correspondences among peers around the world leading to a comprehensive review of the literature.

CONCLUSION

Maximizing postmortem dental evidence in a severe incineration event requires correct recognition and recording of dental data. Odontologists should attend the scene to facilitate this recognition. The information should be documented, photographed, and stabilized before retrieval. Wrapping, padding, and further support of the remains during transportation to the examination mortuary will aid this process. Examination at the mortuary requires further photography, complete charting, and radiographic examination of any dental material available, as well as awareness of other possible medical evidence, to enable identification of the human remains.

MeSH: Age Determination by Teeth -- methods; Burns -- pathology (major); Dental Implants; Fires (major); Forensic Dentistry -- methods (major); Forensic Pathology -- methods (major); Frontal Sinus -- pathology; Frontal Sinus -- radiography; Humans; Photography; Postmortem Changes; Radiography, Dental -- methods; Skull -- pathology; Skull -- radiography; Specimen Handling -- methods; Tomography, X-Ray Computed; Tooth -- pathology; Tooth -- radiography

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Age estimation from fetus and infant tooth and head measurements

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Abstract (English): Forensic identification comprises legal, social, ethical, and religious aspects where age detection is an important factor. When the case is a fetus or infant, recording various measurements of the body, head, and teeth is essential. The aim of this research is to evaluate the effects of different tooth and body measurements and their implications on the age estimation of fetuses and infants. This research was performed on 96 fetus and infant incisor teeth taken from 24
autopsy cases (54% males and 46% females) where age of the subjects were within the range of prenatal 16 weeks to postnatal 72 weeks. The data were statistically processed by regression analysis via curve estimations. According to the results, growing patterns of the head circumference (HC) and the upper central tooth measurements indicate a strong relationship, where there is no significant difference for both sexes. The growth patterns of all variables showed a linear function to a certain age (approximately 56 weeks pre-plus postnatal); the tooth height (TH) slightly increases until the closure of the root apex, and the HC gradually stabilizes in time, therefore a log-linear relation was found considerable. The results revealed eight age estimation formulas, including the combination of HC with the labiolingual, mesiodistal (MD), crown height, and TH measurements. Among these, only MD can be applied to a living. In conclusion, tooth and head measurements are found to be the main factors of age estimation formulas.

MeSH: Age Determination by Skeleton -- methods (major); Age Determination by Teeth -- methods (major); Cephalometry; Female; Fetal Development; Forensic Anthropology; Forensic Dentistry; Humans; Incisor -- embryology (major); Male; Pilot Projects; Regression Analysis; Skull -- embryology (major)

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The chronological age estimation of third molar mineralization of Han population in southwestern China

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Abstract (English): The purpose of the study was to estimate the chronology of third molar mineralization in Han population of southwestern China and find its unique characteristics so that it would provide a reference in several legal cases like forensic age estimation. The study used Demirjian’s staging method to study 2192 orthopantomograms of 984 male and 1208 female subjects aged between 8 and 25 years. The statistical data was analyzed by Student’s t test and ANOVA. The conclusions of the study are: (1) The chronological mineralization age of third molars of Han population in Southwestern China is similar to the Turkish and the Japanese, was earlier than the Austrian and Han of South China, but later than the Spanish. (2) The mineralization timing of the third molars between two sides in maxilla or mandible has no significant differences in the same gender group. (3) There is no significant difference in mineralization of third molars between male and female, except for tooth 48 in Demirjian’s stage E. (4) The mineralization of third molar in maxilla is earlier than mandible.

MeSH: Adolescent; Adult; Age Determination by Teeth -- methods (major); Analysis of Variance; Child; China -- ethnology; Ethnic Groups; Female; Forensic Dentistry; Humans; Male; Molar, Third -- growth & development (major); Radiography, Panoramic; Sex Characteristics; Tooth Calcification (major); Young Adult

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