

A comparative study on the method of age estimation using measurement of mandibular first molars on radiographs in Korean adults

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ABSTRACT

In the practical forensic medicine, age estimation is of great importance to identification of human remains, as well as with living persons. Especially in Korea, demand for age estimation is increasing to correct personal birth records, ultimately to be entitled to civil liability, social benefits, employment.

The spontaneous shrinkage of pulp cavity size as a result of secondary dentin deposit could be used to estimate age. This regressive change can be analyzed using radiological technologies. Various methods of dental age estimation were proposed based on this approach. The purpose of this study is to assess the two methods using the mandibular first molar on orthopantomographs (OPGs) in Korean adults, called Drusini's method and Jeon's method respectively. A total of 232 OPGs (91 females and 141 males) of Korean individuals between the ages 20 and 69 were analyzed using both methods. Our results showed that the correlation of the two methods with age was statistically significant ($r=0.501$). Both methods showed significant correlation with chronological age, and Jeon's method showed a greater correlation with chronological age ($r=0.738$) than Drusini's ($r=0.586$). The mean absolute error was 7.99 years for Jeon's method and 9.79 years for Drusini's method. Our results demonstrate that Jeon's method using the mandibular first molar on OPGs is a practical and suitable method for age estimation especially in Korean adults.