

Eruption process of the second molar.

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Abstract

The second molar is located at the distal of the first molar, and we must be aware of its stage of development when we plan to move the first molar distally. Few researchers have investigated the development of second molars. The purpose of this study was to observe the eruption process of the maxillary and mandibular second molars by using 238 panoramic radiographs. The developmental stages of the second molar were divided into four stages: the whole crown calcified = stage 1; beginning root formation = stage 2; initial formation of the radicular bifurcation = stage 3; and the root length is equal to the crown height = stage 4. The mesiodistal crown width of the first and second molars, axial inclination and eruption rate of the second molar, and the space available for emergence of the second molar at each stage were measured, and the statistical analysis was made to assess the developmental changes. It was learned that the mandibular second molars began to erupt at stage 3 and the maxillary second molars at stage 2. The axial inclination of the mandibular second molars maintained almost the same angle and the maxillary second molars were uprighted gradually from stage 1 to 4. The available space increased significantly from stage 1 to 2 in both second molars. It is suggested that the space available for emergence of the second molar is prepared before stage 2, and then the tooth begins to erupt. As the maxillary second molars, there was further increase in the available space after stage 3. Negative correlation was seen between the mesiodistal crown width of the mandibular second molar and the available space in stage 2. Positive correlation was seen between the mesiodistal crown width of maxillary second molar and the available space in stage 3. It is suggested that greater increase in the space available for emergence of the second molar could be expected in the maxillary dental arch, if the mesiodistal crown width of the second molar required it.