Primary Maxillary Bilateral Birooted Canines: Report of Two Cases

Maksiller Bilateral Çift Köklü Süt Kaninler: 2 Olgu Raporu

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ABSTRACT

Primary teeth have fewer abnormalities with respect to size and morphology when compared to permanent teeth. Primary canines with bifurcated roots are an extremely rare dental anomaly. The present report describes two cases of birooted maxillary primary canines. In both of the cases intraoral radiographs demonstrated bilateral double-rooted maxillary primary canines. The canines appeared to have distinct mesial and distal roots. The mesiodistal width of the canines was enlarged. A supernumerary tooth was detected between the maxillary left primary lateral and canine teeth and a microodontic permanent lateral in the second case. The prevalence of birooted primary canines appears to be higher in the maxilla than the mandible, and birooted primary canines seem often to occur bilaterally. This unusual root anatomy could lead to problems during exfoliation or extraction. During exodontic procedures, the clinician should make sure that the crown of the permanent tooth is not trapped in the interradicular area of the primary tooth as this could cause accidental removal of the developing permanent tooth.

ÖZET

INTRODUCTION

The dental literature contains many articles on dental anomalies. Most of these articles report anomalies of the permanent dentition, because a smaller number of anomalies occur in the primary dentition than in the permanent dentition. Specifically, there are fewer primary radicular anomalies than of permanent radicular anomalies. It has been reported that the three-rooted mandibular molar frequency was occasional in the primary dentition and common in the permanent dentition. The incidence of two or three root canals in mandibular anterior teeth has also been documented. The incidence is reported to be as low as 1% and as high as 43%. The frequency of mandibular canines with two canals, have been reported to be between 19.3% and 31.2%. However, aberrations of maxillary anterior teeth are less frequently reported in the literature.

Primary teeth have fewer abnormalities with respect to size and morphology when compared to permanent teeth. Few primary teeth have additional roots and those that do are usually primary molars. Maxillary primary canines are normally single rooted. Birooted primary canines are very rare but cases have been reported in Japanese, Africans and Caucasians. Primary canines with bifurcated roots are an extremely rare dental anomaly. It should be noted that in all recently published reports, all canines are of a bilateral nature.

Although the etiology of this condition is unknown, it has been suggested that it may be the result of an ingrowth of tissue from Hertwig’s epithelial root sheath which fuses to form a template for a birooted tooth.

The purpose of the present case reports is to increase the awareness of morphological aberrations of the maxillary primary canine and to emphasize the importance of radiographs taken from different angles. The present report describes two cases of birooted maxillary primary canines. A supernumerary tooth and a microdontic permanent lateral accompany the second case of birooted maxillary primary canines.

CASE REPORTS

PATIENT 1

A six year and seven months-old boy was brought to the Department of Paediatric Dentistry, Hacettepe University Ankara, Turkey for routine dental care. Medical evaluation of the boy revealed no systemic disorders. An oral examination revealed multiple carious lesions, Class I canine and molar relationships. Intraoral radiographs demonstrated bilateral double-rooted maxillary primary canines (Figures 1 and 2). The canines appeared to have distinct mesial and distal roots. The mesiodistal width of the canines was enlarged (Figures 3 and 4). All other dentition (primary and permanent) was normal. The time and pattern of the primary canine root resorption and eruption of the permanent canine are being watched closely.

PATIENT 2

A six-year and three months-old boy was brought to the Department of Paediatric Dentistry, Hacettepe University Ankara, Turkey for a routine initial examination. The boy had no systemic disorders. Multiple carious lesions, Class I molar relationship, Class I canine relationship on the right side, and cusp to cusp canine relationship on the left side were observed during the intraoral examination. In addition, a supernumerary
A tooth was detected between the maxillary left primary lateral and canine teeth. Intraoral radiographs revealed bilateral double-rooted maxillary primary canines with distinct mesial and distal roots (Figures 5 and 6). Due to the radiographic examination, the permanent left lateral is expected to be microdontic (Figure 7). The time and pattern of the primary canines, the left primary lateral and the supernumerary tooth and also the eruption of the microdontic permanent left lateral, and the permanent canines are being watched.

**DISCUSSION**

The prevalence of birooted primary canines appears to be higher in the maxilla than the mandibula, and birooted primary canines seem often to occur bilaterally. The etiology of teeth with supernumerary roots is poorly understood.
Several authors have postulated theories for the occurrence of this phenomenon. It has been demonstrated that bifurcation of roots may be related to an ingrowth of Hertwig’s epithelial root sheath. Other researchers have suggested that fusion or gemination may be related to the clinical presentation of supernumerary roots. The enamel organ plays an important part in root development by forming Hertwig’s epithelial root sheath, which moulds the shape of root and initiates dentin formation. These findings suggest that, in this case a defect in the dental lamina during the early stages of root formation could be an etiological factor. Such abnormalities may be genetically determined, or associated with environmentally induced cellular changes.

The dental anatomy of the primary birooted canine reported in the dental literature has the crown morphology of the primary canines, and the root morphology of the primary mandibular molars. The normal morphology for the primary maxillary canine is that of a long, slender tapering root that is more than twice the length of the crown. The crown of the primary maxillary birooted canine has approximately the same dimensions. The root orientation is like that of primary mandibular molars; primary birooted canines have a mesial and a distal root. For normal exfoliation to occur, the permanent successor must resorb the roots evenly. The anatomy of the permanent canine may not lead to normal exfoliation of the primary canine or eruption of the permanent canine. This unusual root anatomy could lead to problems during exfoliation or extraction. During exodontic procedures, the clinician should make sure that the crown of the permanent tooth is not trapped in the interradicular area of the primary tooth as this could cause accidental removal of the developing permanent tooth. These teeth may have to be sectioned during extraction. The clinician also should inspect extracted anomalous primary teeth to ensure that all roots have been retrieved. Since it is not known whether these abnormal root configurations affect the normal exfoliation...
of the primary teeth, it is unclear whether these anomalous teeth present orthodontic problems.\textsuperscript{1} Observation of primary birooted canines during growth and development will help avoid problems during successive stages of development and eruption.\textsuperscript{6}

As stated previously, bifurcation of primary canines is an extremely rare condition. This anomaly cannot be discovered by routine intraoral examination. It can often be detected by examination of routine dental radiographs.\textsuperscript{5} As a result, this anomaly should be kept in mind and radiographs should be taken before the extraction of a primary canine.

\textbf{REFERENCES}


