

Impacted Deciduous Mandibular Second Molar Positioned Inferior of Impacted Second Premolar

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SUMMARY

Impaction of deciduous teeth is a rare condition and there are a few cases that have been reported in the literature. In the presented case, the deciduous mandibular second molar was impacted and it was positioned under second premolar which was also impacted. The position of the impacted deciduous molar increased the rarity of the case.

Key word: *Impacted deciduous molar, Impacted premolar*

ÖZET

Gömülü ikinci premoların altında konumlanmış gömülü süt mandibular ikinci molar

Sütdişlerinin gömülü kalmasını nadir görülen bir durumdur ve literatürde bildirilen birkaç vaka vardır. Sunulan vakada süt mandibular ikinci molar dişi, gömülü olan ikinci premoların altında konumlanmıştır. Gömülü süt moların konumu olgunun nadirliğini arttırmaktadır.

Anahtar kelimeler: *Gömülü süt molar, Gömülü premolar*

Introduction

A tooth that is not expected to erupt in a reasonable time is termed as an impacted tooth. Aside from the third molar, the maxillary canines, premolars, and central incisors are the principal teeth that may become impacted, but from time to time other teeth may also be impacted (1).

Mostly impacted teeth are found in permanent dentition and failure of a primary tooth eruption is considered to be a rare phenomenon. Bianchi and Rocuzzo (2) who evaluated 30,000 panoramic radiographs reported the prevalence of primary tooth impaction to be 1/10,000. Impaction of primary incisors has rarely been observed (3) and most of the reported cases included first or second molar (4,5). Literature review has shown that primary mandibular molars have been detected to be impacted more than ten times as often as primary maxillary molars (6). Moreover, from the literature it could be clearly understood that primary molars which were located under the permanent premolars had been shown in a few cases (7,8). Impacted primary tooth may cause several problems such as space loss, tipping of adjacent teeth, supra eruption of the antagonist tooth, and dislocation of the permanent tooth lying under the impacted primary tooth (9).

Impaction of teeth may be primary or secondary. The tooth that has never erupted is named as primary impaction where the tooth that re-impacted after eruption is named as secondary impaction or submerged primary tooth (10). Primary tooth impaction may occur due to various reasons like odontomas, ankylosis, congenitally missing permanent teeth, defects in the periodontal membrane, trauma, injuries of the periodontal ligament, precocious eruption of the first permanent molar, defective eruptive force or a combination of these factors (11,12). In some cases the exact etiology is unknown and thought to have inheritance basis. Secondary impaction usually results from a progressive loss of occlusal contact with no further growth in the height of the alveolar process of the submerged deciduous tooth. On the other hand, the regional alveolar processes move in the occlusal direction due to the eruption of the permanent adjacent teeth and the result is a primary tooth completely buried in the oral tissues and depressed below the occlusal plane (11-13).

In this case report an impacted deciduous mandibular second molar positioned under its permanent successor which was also impacted was presented. The position of the impacted deciduous molar increased the rarity of the case.

Case report

A 12 years old male patient was referred to our clinic for orthodontic treatment. His medical and dental histories were uneventful. Extraoral examination revealed symmetry with

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Bu vaka, 19-23 Haziran 2011 tarihinde İstanbul'da düzenlenen Avrupa Ortodonti Kongresi'nde (EOS) poster sunumu olarak tebliğ edilmiştir.

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Date submitted: Jan 05, 2012 • Data accepted: Feb 09, 2012 • Online publication date: June 20, 2014

linear profile. In the intraoral examination no sufficient space was detected for the eruption of maxillary canines. Evaluation of the mandibular dentition revealed that right mandibular deciduous first molar was retained and due to the mesial migration of the right first permanent molar, the space of the second premolar was substantially occupied. Molar relation was class III on this side because of the mesialization of the permanent molar and it was class I on the contrary side.

Panoramic radiograph was obtained to examine the position of the maxillary canines and mandibular right premolars. Radiographic evaluation showed that deciduous mandibular second molar was impacted and it was positioned below the permanent second premolar which was horizontally impacted. Root development of the first premolar and maxillary canines were completed (Fig 1).



Figure1: Panoramic radiograph of the patient revealing the impacted primary second molar and its successor positioned above it

Discussion

Failure of tooth eruption or tooth impaction is a common problem that affects almost 20% of the population (7) but impaction of a primary tooth is considered as a rare phenomenon. Antoinades et al (12) reported that the incidence of primary tooth impaction is twice as common in the mandible as in the maxilla and the most commonly affected teeth are mandibular second molars. Similar to this report, the mandibular primary second molar was impacted in this case report.

The followings are criteria for a correct diagnosis of primary impaction of primary teeth (2): (a) Deep retention into the bone; (b) Absence of caries or restorations of the crown; (c) No resorption of the roots; (d) Frequent passing of the corresponding permanent tooth; and (e) Possible retention and malposition of the corresponding adjacent permanent tooth. Impaction of primary teeth is usually associated with agenesis in their permanent successors. Antoniadis et al (12) also analyzed 28 cases of submerged teeth, in 17 orthodontic patients and in 52% of the cases permanent successor tooth was congenitally absent. In the presented case, permanent successor tooth was not congenitally missing but ectopic eruption and deviation of the eruption pathway of the related tooth was observed. It was developed above the impacted primary second molar so it couldn't stimulate to the normal exfoliation of the primary tooth. It is well known that eruption

pathway after the crown and root calcification of primary molar indicates the active eruption and normal development of the premolar teeth (7,8). In this case, the reason of the impaction of the primary second molar was probably related with the absence of its successor under its roots.

It is usually difficult to decide whether the impaction is primary or secondary. Although it was questioned, according to the anamnesis the parents couldn't remember if the impacted primary tooth has ever erupted, or not. In our opinion it was a primary impaction and the related tooth has never erupted due to the germ of the permanent second premolar developed above it. Thus, as previously described, early ankylosis was considered to be an etiologic factor for this case as similar with the others (7-10)

Impaction of the primary tooth may cause complications, such as mesial tipping of the neighboring teeth, loss of space and over eruption of the antagonist tooth (13,14). In some cases, a significant deviation of the dental midline towards the affected side has also been reported by some authors (14,15). In the present case, mandibular arch length decreased due to the mesial tipping of the right first molar and the molar relation was class III on this side. On the other hand, eruption of the antagonist teeth and the mandibular midline were not affected.

Early tooth extraction for the treatment of submerged teeth is recommended. The literature review has shown that some of the authors recommend early tooth extraction for the treatment of impacted primary teeth (16,17). On the other hand, premature extraction of the submerging deciduous molar can lead to space loss so extraction is not always the first option. Kurol and Thilander (6) suggested waiting for normal exfoliation. Some authors proposed space regaining therapy by uprighting and distalizing the permanent molars (7). Karacay et al (18) extracted the submerged maxillary primary second molar and used a cervical headgear to distalize the permanent molar to create space for the eruption of the second molar. Similarly, Altay and Cengiz (9) used a removable appliance to move the permanent first molar into an upright position so as to regain space. However, in the present case enucleation of the impacted primary second molar and the second premolar was inevitable. The patient also had maxillary arch length deficiency so extraction of the maxillary first premolars and left mandibular first premolar were also decided to create enough space for the eruption of the maxillary canines and to provide class I molar relation on both sides.

Treatment modality of the impacted primary tooth is usually enucleation but in some cases it has some risks like damaging the mental foramen or inferior dental canal so the position of the inferior dental canal and mental foramen in relation to the tooth must be established and inferior alveolar nerve bundle and the mental nerve must be evaluated carefully before the surgery (19). MRI is a useful technique in assessing the risks of surgery in cases in which the inferior dental canal cannot be clearly demonstrated on conventional radiographic images (20). To eliminate the extensive bony ankylosis which caused potential exfoliation problems, the extraction procedure had been clearly discussed in the past (9,21). While planning the enucleation of the impacted primary tooth the potential risks must be evaluated carefully.

The management of impacted primary molar is so difficult. The possible complications of this problem must be evaluated as individual treatment model for the patient. Besides extraction and comprehensive orthodontic treatment

modalities observation of the occlusion might be another way to manage this problem. Moreover, the possible complications and treatment ways should be discussed with the parents (9,10).

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