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Impaction of Second Premolar and Primary Molar in an Inverse Relation: A Unique Radiographic Presentation

Zatrzymanie stałego zęba przedtrzonowego i trzonowca mlecznego – rzadki przypadek radiologiczny

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A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation; D – writing the article; E – critical revision of the article; F – final approval of article

Abstract

Impaction of teeth is more commonly noticed with permanent dentition compared to primary dentition. Impaction of deciduous teeth can result in a variety of consequences including effects on the succedaneous teeth.

Here we present a unique incidental finding on a panoramic radiograph of a 19-year-old male who had an unerupted mandibular right second premolar with the deciduous second molar being significantly off positioned against the lower border of the mandible. Inversion of the intraosseous positions of the primary molar and its succedaneous premolar is a very rare phenomenon. Various factors, such as lack of space in the dental arch, obstruction caused by supernumerary teeth, infectious process in the path of eruption or displacement of the tooth bud due to traumatic facial injury, have been implicated in the causation of impaction of teeth. Hence, disturbances in the eruption of the primary tooth could result in non-eruption of the succedaneous tooth (**Dent. Med. Probl. 2016, 53, 4, 570–572**).

Key words: intra-oral radiographs, impacted tooth, primary molar.

Słowa kluczowe: wewnątrzustne zdjęcia rentgenowskie, ząb zatrzymany, mleczny ząb trzonowy.

Impaction of primary teeth is an uncommon occurrence. An impacted primary molar positioned inferior to the succeeding premolar is even rarer and such cases have been reported very sparingly in the literature. Here we report impaction of a mandibular second primary molar with the succedaneous premolar also impacted with distal inclination and in an inverse relation.

Case Report

A 19-year-old, otherwise-healthy male reported with complaint of decayed teeth on the right side of his lower jaw, with food lodgment and associated discomfort. His medical and family history were unremarkable. Examination revealed carious destruction of the crown of the mandibular right

first molar with gingival outgrowth into the cavitation. The mandibular right second premolar was clinically missing (Fig. 1). The patient denied hav-

Fig. 1. Intra-oral picture of the same patient revealing absence of mandibular right second premolar

Fig. 2. Panoramic radiograph of the patient revealing displaced mandibular right second molar to the lower border of the mandible with thinning of roots and distal inclination of overlying premolar

ing had any tooth extractions in the past and said that a tooth had not erupted in that region even when he had had primary dentition. Panoramic radiograph revealed impaction of the primary second molar very close to the inferior border of the mandible. The succedaneous second premolar was impacted superior to it with a distal inclination (Fig. 2). The follicular spaces around the crowns of the impacted primary molar and the premolar showed slight widening. The alveolar crestal bone distal to the first premolar showed a slight increase in radiopacity, possibly indicating sclerosed bone. There was no evidence of significant resorption of the roots of the impacted teeth or the erupted teeth. After seeing the radiographic findings, the patient was asked about any trauma to the right side of the lower jaw in childhood, which was denied, thus ruling out traumatic injury as the cause for the local disturbance.

The patient was made aware of the presence of the deep intrabony impaction of the primary molar and impaction of the premolar superior to it. He was advised to have CBCT imaging to ascertain the size of the follicular space around the crowns of the impacted teeth, which would facilitate optimum treatment planning. However, our patient refused to undergo CBCT scan as he was totally asymptomatic, but agreed to return for regular follow ups on an annual basis.

Discussion

A few terms used in association with delayed/altered eruption of teeth are as follows [1]:

Reimpaction – a completely erupted tooth suffers submergence into the alveolar bone, producing the clinical aspect of infraocclusion;

Reinclusion: After eruption, teeth become ankylosed and lose their ability to maintain the

continuous eruptive potential as the jaws grow. Such teeth lose their contact with antagonists and might eventually be more or less “reincluded” in the oral tissues;

Infraocclusion – a tooth situated below the normal occlusal plane. It can appear following partial eruption or reimpaction;

Ankylosis – is considered the major cause of infraocclusion and denotes the fusion of the cementum of the tooth with the alveolar bone without the intervening periodontal ligament.

The primary teeth and their succeeding permanent teeth undergo a series of distinct but coordinate changes before the primary tooth undergoes exfoliation and the permanent tooth replaces it. Local or systemic disturbances may result in alterations in dental development. Impaction or failure to erupt into a normal functional position is one such alteration [2].

Various factors such as a lack of space in the dental arch, obstruction caused by supernumerary teeth, infectious process in the path of eruption or displacement of the tooth bud due to traumatic facial injury have been implicated in the causation of impaction of teeth [2].

Eruption of a tooth occurs in several stages. In the pre-eruptive phase, the permanent tooth buds are located lingual to and near the occlusal level of their primary predecessors. When the primary molars erupt, the tooth buds of the premolars are located between the divergent roots of the primary molars mainly because of the eruption of the primary tooth and the simultaneous growth of the supporting tissues and not because of the apical migration of the permanent tooth bud [2].

Inversion of the intraosseous positions of the primary molar and its succedaneous premolar is a very rare phenomenon [3]. Kjaer et al. [4] studied 29 cases of arrested eruption of primary molars and found 4 premolars to be located occlusal to the

impacted primary molars. In the present case, not only was the second premolar positioned superior to the impacted primary molar but it also failed to erupt and assumed a distal inclination. A local disturbance which prevented eruption of the primary molar could have resulted in the reversal of positions of the primary molar and its succedaneous premolar. However, since there was no history of trauma or infection in the region during childhood and the size of the dental arch was normal with no evidence of significant abnormality in the path of eruption, idiopathic impaction of the primary molar and succedaneous premolar was considered. Memarpour et al. [5] also reported a similar case of an unerupted primary molar tooth positioned inferior to the permanent premolar in a 14-year-old boy.

An increase in the width of the follicular space would indicate cyst formation, which would require enucleation along with the extraction of the tooth. Since the premolar was placed more superiorly, surgical exposure of the crown with orthodontic banding and traction to guide it into the space between the first premolar and the first molar could be tried. Extraction of the deeply impacted primary molar would be challenging because of its proximity to the inferior border of the mandible and the inferior alveolar canal.

Disturbances in the eruption of the primary tooth could result in non-eruption of the succedaneous tooth. A thorough radiological investigation is essential for accurate assessment and appropriate treatment planning for such cases.

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