



Severe Impaction of the Primary Maxillary Second Molar Along with Horizontal Impaction of the Permanent First Premolar - A Rare Case Report

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Aim: The purpose of this case report is to present a case of a totally impacted maxillary second molar and horizontally impacted first premolar.

Background: Impaction of deciduous teeth is an uncommon event. Various factors which lead to the impaction of a deciduous tooth include ankylosis, congenitally missing permanent teeth, defects in periodontal membrane, trauma, defects in eruptive forces or a combination of all these factors.

Report: A 12-year-old male patient reported to the department with a chief complaint of pain in the upper left back teeth region. On clinical examination, first premolar tooth was missing. Panoramic and maxillary occlusal radiographs revealed a horizontally impacted first premolar close to the

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inferior wall of the maxillary sinus and a vertically impacted second deciduous molar embedded within bone close to the inferior wall of the maxillary sinus between 2nd premolar and 1st permanent molar.

Conclusion: The complete impaction of deciduous teeth is a rare condition and very few cases have been reported in the literature. This case reports a totally impacted maxillary second deciduous molar along with a horizontally impacted 1st premolar tooth and its surgical management.

Keywords: Teeth; maxillary occlusal radiograph; maxillary sinus; ankylosis.

1. INTRODUCTION

In the process of tooth development and eruption, the tooth might fail to erupt. This failure to erupt is known as Tooth impaction. Reports of impaction and eruption failure in primary teeth are relatively rare compared to permanent teeth. The prevalence of impaction in the general population ranges from 0.8-3.6% [1]. Impaction is most commonly seen in the permanent dentition but unusually it can also be seen in the primary dentition. The most common primary tooth to get impacted is the second primary molar. It ranges from 2.5-8.3% in its prevalence [2], 1.3-35% [3]. In literature the incidence of impacted primary teeth is 1:10,000 cases making it a rare phenomenon [4].

The etiology of primary impacted teeth is still not clear however various studies suggest its cause to be ankylosis [4]. It has been reported in the literature that pericoronal myxofibrous hyperplasia could present a hindrance to normal tooth eruption [5,6]. Other factors that might cause this impaction can be odontomas, congenitally missing permanent teeth, periodontal ligament, membrane defects or injury, or a combination of all [7]. Bianchi and Rocuzzo 1991 defined the criteria to be used to diagnose primary impaction are, the tooth should be deeply positioned in the jaw, no cavities and restoration, no root resorption, frequent eruption of the corresponding permanent tooth, possible retention and malposition of the adjacent permanent tooth [8].

Genuine Re-Impaction is a rare condition and results from a progressive loss of occlusal contact with no further growth in the height of alveolar process of the submerged deciduous tooth. By contrast the adjacent permanent teeth erupt; the regional alveolar process move occlusally and the submerged tooth is completely buried in the oral tissue [3].

Impaction of primary teeth can in turn lead to malposition, or even displacement and impaction of permanent teeth. This can hinder

the growth of permanent dental arch forms, so its detection and early intervention becomes a necessary step. The present case report describes an unusual case of eruption failure of the primary second molar and horizontally impacted permanent maxillary first premolar which is considered a rarity in dental practice. This is the first case of India being reported.

2. CASE REPORT

A 12-year-old male patient reported to the Department of Pediatric and preventive dentistry, with a chief complaint of pain in the upper left back tooth region since 2-weeks. No relevant past medical or dental history was reported. Family history was non-contributory.

On clinical examination, there was normal development of dentition with the exception of absence of the left maxillary first premolar tooth. There was no associated swelling or discoloration of the surrounding tissue. A panoramic radiograph (OPG) and a maxillary occlusal radiograph (Fig.1,2) were advised which revealed the presence of an impacted left maxillary second primary molar and a horizontally impacted permanent first premolar tooth. The root of the horizontally impacted first premolar tooth was at the apex of the left permanent canine with its coronal portion at the apex of the left permanent second premolar. The impacted first premolar tooth was positioned in close proximity with the inferior wall of the maxillary sinus. The crown tip of the impacted premolar was near the junction of the crown and root of the impacted second primary molar tooth. (Fig.1) Based on this information a surgical management plan was made.

The patient was scheduled for surgical extraction of both the impacted teeth under Local anesthesia. Hematological tests were advised before the surgery. Buccal approach was planned. Posterior superior alveolar, greater

palatine nerve blocks were given, followed by buccal infiltration. Buccal flap was raised in 23, 25 and 26. During the procedure the retained deciduous tooth i.e, 65 was found to be ankylosed. Bone cutting was done to expose the tooth. The tooth was extracted with the help of a maxillary extraction forcep. On extraction of the retained deciduous tooth, the crown of horizontally impacted first premolar was revealed after which its careful extraction was performed. Bone graft was placed in the socket and suturing was done. Coe-Pak was placed over the surgical site to prevent post operative pain and bleeding. Antibiotics and analgesics were prescribed (Tab. Augmentin 375mg, Tab Ibugesic Kid-BD) for 7 days and the patient was recalled after 14 days for suture removal.

3. DISCUSSION

Primary teeth impaction is a very rare condition that is usually due to disturbances in the eruption process. There can be various reasons for this impaction including the presence of odontomas, supernumerary teeth, periodontal injuries, hyperplasia of gingiva over erupting tooth, and most commonly ankylosis of the tooth [9]. In the present case, the etiology was concluded to be ankylosis of the primary second molar.

The impaction of deciduous teeth can lead to various complications such as pain, swelling, tooth decay, mal-alignment of teeth, and gingival inflammations. Along with all these complications, an impacted primary tooth can hinder or displace its permanent successor as was seen in this case wherein there was displacement of the first premolar tooth which had led to its horizontal impaction. To avoid these complications early diagnosis and intervention are required. Yawaka Y. et al [10] in their case report concluded that early detection and treatment of impacted primary teeth is of utmost importance for children's healthy growth and development. Ten Cate [11], Thornton et al. [12], and Biederman [13] recommended early extraction as the treatment for primary impacted teeth. Watanabe et al [14] in their case report similar to the present case initially attempted to preserve the unerupted primary tooth but it was finally extracted to allow eruption of the succedaneous permanent tooth. McDonald on the contrary has advised the wait-and-watch method in some cases for the tooth to exfoliate on its own [15]. In the present case, the primary impacted (second deciduous molar) tooth was causing hindrance in the eruption of permanent teeth and also there was a risk of cyst formation associated with the impacted tooth so the treatment planned was surgical extraction of the tooth.

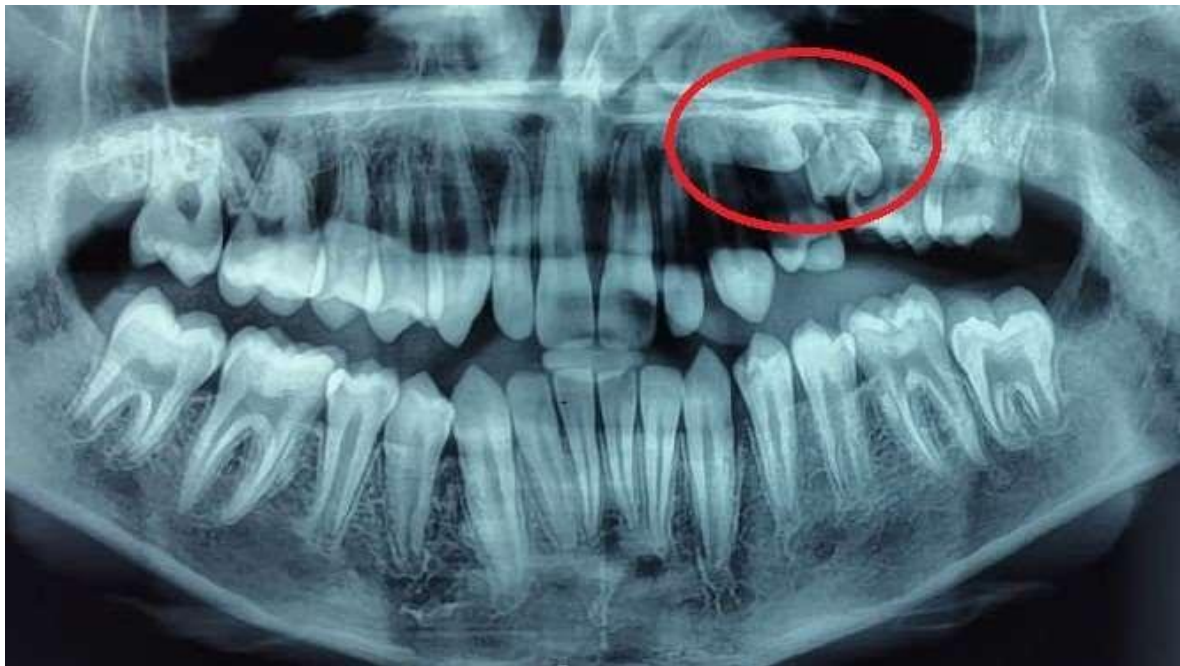


Fig. 1. OPG of a 12-year-old male with impacted teeth (65,24) [Refer the circle in red]

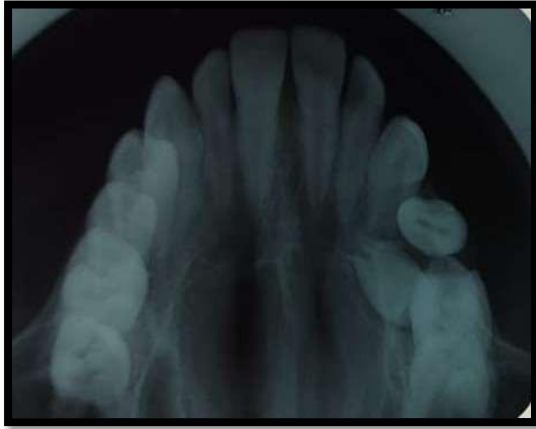


Fig. 2. Maxillary Occlusal radiograph

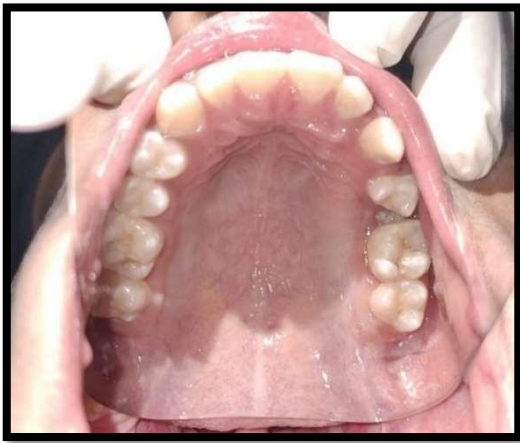


Fig. 3. Preoperative maxillary view



Fig. 4 Gingival incisions for raising the buccal flap



Fig. 5. Bone cutting was done



Fig. 6. Extraction of retained second deciduous molar



Fig. 7. Extraction of horizontally impacted first primary molar



Fig. 8. Bone graft was placed



Fig. 9. Extracted impacted teeth



Fig. 10. Sutures placed



Fig. 11. Coe-Pak was placed

For the treatment of impacted premolar, various treatment strategies are advised which include extraction of the primary impacted teeth and keeping the patient under follow-up supervising the eruption of the permanent teeth, Surgical exposure and repositioning of the tooth, and surgical removal of the premolar. [5] In the present case, surgical extraction was performed as the premolar was horizontally impacted and positioned above the roots of the permanent canine and second premolar. The extraction of both teeth was successfully carried out without any complications.

Pediatric dentists play a very important role in the early detection and management of such cases to prevent any further complications and thereby preventing any eruption disturbances of permanent teeth.

4. CONCLUSION

Impaction of primary teeth is a very rare condition and can lead to various complications, even disrupting the normal eruption pattern of permanent teeth. Early detection and management is of utmost importance in such cases. This case throws light on the importance of dental and stomatognathic screening of a child during its deciduous dentition stage. The present case, reports one such rare case of impacted second deciduous molar and first premolar.

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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