Impacted Maxillary Molars with Rare Etiology: A Simplified Approach to Facilitated Eruption

Abstract
Impaction of maxillary molars is an extremely rare condition and difficult to manage. This case reports a rare cause for impacted maxillary molars which has not been reported in the literature till date. A 13-year-old patient with missing right maxillary first and second molars reported to the outpatient department. Cone beam computed tomography scan of maxilla revealed a complex relationship between the roots of first and second molars and a developing third molar crown. Surgical enucleation of third molar facilitated spontaneous eruption of both first and second molars. Dilaceration of the roots and pressure from developing third molar germ led to the impaction of both maxillary molars which has not been reported in literature yet. Hence, careful determination of etiologic factor for impaction and its elimination with periodic introspection may help in treating the problem with simple and conservative methods.

Keywords: Dilacerated roots, molar impaction, third molar position

Introduction
Impaction of maxillary molars is rare condition. Early diagnosis and elimination of etiologic factor is essential to promote proper arch development and minimize the severity of future malocclusion.

Case Report
A 13-year-old male patient reported to the outpatient department with chief complaint of missing right back teeth. The patient gave no history of trauma, extraction, or prolonged retention of deciduous right molars. Clinical examination revealed all permanent teeth erupted and in good occlusion except maxillary right permanent first and second molars. OPG revealed an impacted maxillary right permanent first and second molars with approximately 3 mm bone present occlusal to both the molars [Figure 1].

To stimulate eruption of both impacted molars, surgical exposure was done which revealed a bony covering of about 3 mm thickness over occlusal surfaces of molars. The bone over occlusal surface of molars was resected and the patient was followed up for a period of 1 year. Clinically and radiographically, insignificant improvement in the position of both maxillary right molars was observed. Hence, a cone beam computed tomography (CBCT) scan of the maxilla was taken with the consent of the patient’s guardian.

CBCT scan revealed dilacerations of both mesiobuccal and distobuccal roots of right maxillary first molar. The dilacerated portion of the distobuccal root hooked around the buccal surface of mesiobuccal root of right maxillary second molar. Maxillary right third molar was in crown formation stage abutting apical portion of distobuccal root of maxillary second molar and hindering occlusal movement of second molar [Figure 2].

It was planned to first enucleate the crown of maxillary third molar which was exerting pressure on distal root of maxillary second molar to facilitate spontaneous eruption of impacted teeth. In case of failure of spontaneous eruption, orthodontic disimpaction of impacted molars was planned, if required.

Treatment progress
Enucleation of maxillary right third molar tooth germ was done under local anesthesia. At 2 weeks follow-up, tips of the occlusal surfaces of both first and second right maxillary molars were visible

Access this article online
Website: www.ijdrr.in
DOI: 10.4103/ijdr.IJDR_399_17

How to cite this article: Tripathi T, Kalra S, Rai P. Impacted maxillary molars with rare etiology: A simplified approach to facilitated eruption. Indian J Dent Res 2019;30:954-6.
through the soft tissue. The patient was followed up at monthly intervals to assess the eruption status of both the molars [Figure 3]. At 8 months follow-up, both right maxillary first and second molars had fully erupted and were in good occlusion with opposing teeth [Figure 4].

**Discussion**

Several etiologic factors have been suggested in literature as potential cause of impaction of maxillary permanent first molar which include abnormal path of eruption of first molar, increased size, anatomy of primary second molar, maxillary arch length deficiencies, maxillary retrusion, agenesis of maxillary second premolars, and familial tendency.\[^1\] None of the above-mentioned etiologic factors was the cause for impaction of first molar in this case. Delayed eruption of maxillary first and second molars due to ectopically positioned third molar has been reported\[^2\] in early literature, but noneruption of both maxillary molars has not been reported. Impaction of second molar due to ectopic position of third molar germ has been reported in literature as a report of five rare cases. Only one of the cases reported in this case series showed spontaneous eruption of maxillary second molar after removal of third molar tooth germ.\[^3\]  

Grover and Lorton\[^4\] found that excluding third molars, the most frequently nonerupted permanent molars were the second molars (0.08% of the population for upper second molars and 0.06% for lower second molars). Impacted maxillary first molars were found in 0.02% of the population. Incidence of dilacerations of roots of maxillary molars ranges from 1.33% to 8.46%.\[^5\] Impaction of maxillary first molar due to dilacerated roots has not been reported in literature to the best of our knowledge. The probable cause of impaction of right maxillary first permanent molar was severe dilacerations of the distobuccal root which engaged the buccal surface of the root of right maxillary second molar. Since the normal eruption age for maxillary second molar is 12–13 years, eruption of first molar was hindered due to hinging of the roots. However, the anatomy and development of second molar were normal. The probable cause of noneruption of second molar even after 1 year of bony resection was attributed to the hinging of the developing third molar tooth germ under the bulge into the concavity on distobuccal root of maxillary second molar. Hence, both the first and second molars remained impacted even after removal of physical barrier from their path of eruption. Considering the spontaneous eruption of both right maxillary first and second molars after enucleation of third molar, we believe our hypothesis was correct. No other case has been reported in literature yet for noneruption of both

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**Figure 1:** Pretreatment intraoral photographs and OPG showing impacted right maxillary molars

**Figure 2:** CBCT scan showing dilacerations of buccal roots of right maxillary first molar and developing third molar germ position from buccal and palatal view

**Figure 3:** Intraoral photographs at 4 months follow-up

**Figure 4:** Posttreatment intraoral photographs and OPG showing erupted right maxillary molars in good occlusion after 8 months
maxillary molars due to third molar tooth germ and later spontaneous eruption of both molars after removal of third molar tooth germ. This case report is the first to report such an incidence.

**Conclusion**

Thus, it is essential to carefully introspect and determine the etiologic factor responsible for impaction of a tooth. Since impaction of maxillary first molars and second molars is generally reported at an early age in pediatric patients, it is essential for pediatric dentist to be aware of even the uncommon causes of impaction of maxillary molars. In this case, determining the etiology at the correct stage prevented the complicated treatment mechanics for orthodontic disimpaction of both maxillary molars.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

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