

A Case Report

An Unusual Case of Impacted Lower First Molar – A Case Report

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Abstract

Impaction of permanent teeth is not uncommon, but impaction of permanent teeth are like mandibular first molars are rare. In deeply impacted mandibular first molars case, it requires delicate technique as well as careful management to minimize risks of injury to the adjacent teeth, neurovascular bundle and the mandibular fracture. Here, we report an unusual case of impacted mandibular first molar in a male patient of 30-year-old which was located near inferior border of mandible, almost horizontal. Hence transalveolar extraction of tooth and endodontic treatment of adjacent teeth was done with 6 months of follow up.

Keywords: First molar, Impaction, Mandibular, Transalveolar, Ectopic

Introduction

Impacted tooth is defined as a tooth that cannot erupt into its normal functioning position and is pathologic, hence require treatment. Usually, impaction of permanent teeth occurs in the descending order - third molars, followed by maxillary cuspids, mandibular premolars, mandibular canine, maxillary premolars, maxillary central incisors, and mandibular second molars but first mandibular molars and maxillary second molars are rarely impacted.^[1]

In 1961 **Dachi and Howell**^[2] found the incidence of impacted canine in maxilla as 0.92% and of other non-third molar impaction to be 0.38%. Besides this first permanent molar impaction is still rare, with prevalence rates of 0.02% for the maxillary first molar and of less than 0.01% for the mandibular first molar.^[3,4] According to review of literatures it was found that impaction of first permanent molars is due to ectopic eruption which cause resorption of distal root of deciduous second molars or even premature exfoliation of the same. The causes for impaction are both systemic and local. Systemic factors, such as cleidocranial dysplasia, endocrine deficiency

(hypothyroidism and hypopituitarism), febrile disease, Down Syndrome and irradiation, other systemic factors may influence impaction of permanent teeth.

In all these conditions generally, multiple teeth are involved. The local factors which are more commonly involved in permanent tooth impaction are prolonged retention of deciduous tooth, premature loss of primary molars, ankylosis of primary molars, arch length deficiency, supernumerary tooth, malposed tooth germ, dentigerous cyst, odontogenic tumors, abnormal path of eruption, trauma and cleft lip and palate, may be the cause for molar impaction.^[5,6,7,8]

Treatment options for an impacted molar include extraction, surgical uprighting, transplantation, surgical-orthodontic approach, and dental implant replacement.^[9,10,11] In choosing a treatment plan for multiple impacted molars the decision-making process must be handled very cautiously as a result of the uncertain etiology, the lack of standard therapy, and the paucity of cases reported.

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Case Report

A thirty-year-old man was referred to dental clinic with chief complaint of swelling in lower right region of jaws. The history suggested intermittent pain with associated swelling. No symptoms of syndrome were evident and also his history did not reveal dental trauma or any infection. [Figure 1]



Figure 1: Extraoral photograph

There was evidence of intra oral soft tissue swelling over the right side of mandible at region of missing tooth. Intra-oral examination showed normal development except confirmed absence of mandible right first molar. [Figure 2]



Figure 2: Intraoral photograph

Surgical extraction of un-erupted first molar was planned. A mucoperiosteal flap was raised and surgical extraction of impacted primary first molar was carried out. Sutures were placed, which were removed after a week. [Figure 3a,3b]



Figure 3a: Surgical removal of 1st molar

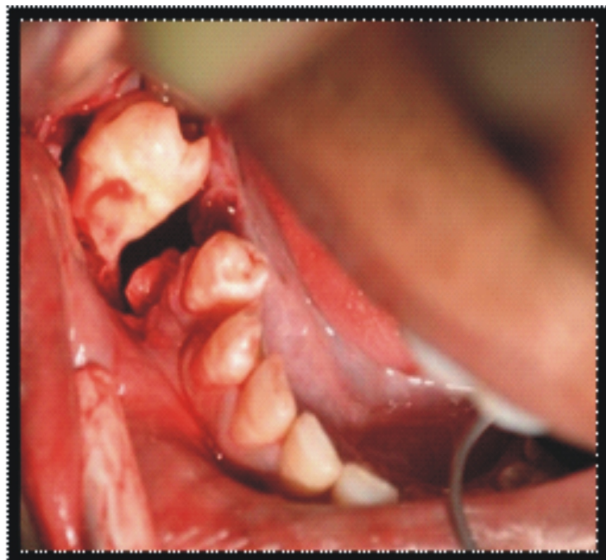


Figure 3b: Surgical removal of 1st molar

Discussion

In the literature very few cases have reported for first molar impactions, which are rare. Overall impacted mandibular molars incidence is 18%.^[2] However, according to the study by Grover and Norton^[3] there is 0% and 0.06% incidence of impaction of first molar and second molar. With slight female predilection, second molar impactions are thought to occur more frequently in the mandible than in the maxilla and most often are unilateral with mesial inclination.^[12] According to the literature, the most frequent non-third molar tooth impacted is canine which is identified, followed by premolars and second molars.^[8,13]

In 1973 **Thilander & Myrberg**^[14] found prevalence of impacted teeth excluding third molars is 5.4%. **Dachi and Howell**^[2] found 0.92% incidence of impacted canines in the maxilla and 0.38% of other non-third molar teeth. Though impactions of first molars and incisors are relatively uncommon they are often diagnosed as ectopic eruption, whereas impaction of second molars is usually associated with arch-length deficiency.^[6,15] Usually, the gubernacular canals are said to guide erupting permanent teeth into their correct positions.^[16] Heredity is also mentioned as an etiologic factor. Recently it has been identified in several familial cases of primary failure of eruption is the mutations in parathyroid hormone receptor 1.^[17,18]

We think that in the present case, the causes of impacted permanent teeth might have been influenced by local factors, such as malposed tooth germs, but not arch-length deficiency and supernumerary. The molar tooth may not follow the correct gubernacular canals guide as a cause of this the unerupted teeth inverts uncommon position. **Kokich in 1993**^[19] described the surgical and orthodontic management of impacted tooth and identifies the position and angulation of the impacted tooth, length of treatment time, space availability and the presence of keratinized gingiva as a critical factor that will affect prognosis and treatment outcome. The cost involved in orthodontic traction for impacted tooth may also influence the type of treatment options.

In this present case we did not go for orthodontic traction because it was almost horizontally impacted with the anatomy of adjacent teeth and their proximity was not in favor of doing so. Also, the patient would not be able to afford it for time and cost. It was impacted for more than 24 yrs. which made us to opt for surgical extraction as soon as possible. Other factors such as patients' medical history, dental status, oral hygiene, functional and occlusal relationship, attitude towards orthodontic treatment and compliance with treatment will influence the choice of treatment options. Leaving such cases untreated always has a constant threat of development of dentigerous cyst, pre-eruptive caries, periodontal problems or infection from the impacted tooth. It is essential to diagnose and treat eruption disturbances as early as possible (ideally during the early mixed-dentition period) because treatment at a later stage is usually more complicated.

Therefore, an impacted permanent molar should be treated as and when it was diagnosed. Surgical removal of the impacted permanent first molar is indicated where there is no hope for its eruption and when it causes pathological root resorption of the adjacent tooth. Most importantly, clinicians must inform the patient of the potential risks and possible benefits of treatment alternatives before making the final decision, which should be evaluated on an individual case basis.

Conclusion

Absence of posterior teeth is an incidental discovery during a dental examination implies a late diagnosis of the abnormality and an unfavorable prognosis. In order to prevent this situation, a radiographic examination, ideally during the mixed dentition period for early detection of eruption disturbances of permanent teeth is recommended, especially when considering that these abnormalities are associated with high rate of occlusal disturbances and need surgical intervention. Also complete understanding of impaction, primary retention and secondary retention is necessary for differential diagnosis.

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