

Management of Impacted Permanent First Molar –A Case Report

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Abstract: The impaction of permanent teeth is not uncommon, but few permanent teeth are rarely impacted like mandibular first molars. In case of deeply impacted mandibular first molars, the extraction 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 female patient aged 30 yrs. It was located near inferior border of mandible, almost horizontal. We did transalveolar extraction of tooth and endodontic treatment of adjacent teeth. Follow up was made for 6months.

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

I. Introduction

The definition of an impacted tooth is “A tooth that cannot erupt into its normal functioning position and is pathologic and therefore require treatment”. The impaction of permanent teeth usually occurs in the descending order of third molars, followed by maxillary cuspids, mandibular premolars, mandibular canine, maxillary premolars, maxillary central incisors, and mandibular second molars. First mandibular molars and maxillary second molars are rarely impacted.[1]

Dachi and Howell [2]in 1961 found the incidence of impacted canine in maxilla as 0.92% and of other non-third molar impaction to be 0.38%. Moreover, first permanent molar impaction is 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]

In most of our review of literatures it was found that impaction of first permanent molars are due to ectopic eruption and it may 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.

II. Case Report

This report presents a case of a 30-year-old female patient who was reported to the department of Dentistry Dr SC Government Medical college Nanded, Maharashtra India. She has two month history of pain at the rest position and during chewing over the left corpus of mandible. The region was tender on palpation. Missing lower left first molar was noted on clinical examination. Second Molar was mesially tipped occupying the first molar space. On palpation the first molar could not be felt on buccal or lingual position. On radiographic examination of Orthopantomogram it was found that first molar was impacted near the inferior border of the mandible. Roots of the second molar were dilacerated. (Fig.1)

The patient's family did not have a similar complaint. Clinical examination and history did not reveal any systemic and embryologic diseases, dysplastic syndromes and trauma in the facial region.



Fig.1: Preoperative Orthopantomogram



Fig.2: Postoperative six month follow up Orthopantomogram

Treatment planned was trans-alveolar extraction of first molar with buccal approach. Prior to surgical procedure routine blood investigations were carried out which were within normal limit. The operation was performed under local anaesthesia. A crevicular incision with a vertical releasing incision was made from distal of first premolar crown extending to the retromolar region. With a surgical bur the bone above the crown of the impacted tooth was removed along with copious flow of normal saline. When the crown was exposed, it was irrigated with normal saline to remove any bony spicules and debris. The hemorrhage was arrested with pressure pack. During surgical procedure it was found that first molar is impacted with crown pointing lingually and mesially. Sectioning was done to avoid pressure on adjacent teeth and neurovascular bundle. Suturing was done with mersilk 3.0 suture. The patient was asked to maintain good oral hygiene and a chlorhexidine mouth rinse was prescribed for plaque control. Follow up was made after 8 days for suture removal. Endodontic treatment second premolar and second molar was advised to the patient. On Six month follow up appointment there was good healing of wound without any anaesthesia or paresthesia of the concerned side. On OPG a good healing with healthy bone was noted. (Fig.2) A written informed consent was obtained for case report and disclosure of photographs, radiographs for scientific purposes.

III. Discussion

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

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

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