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Third Molar-A Boon or Bane

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ABSTRACT

Impacted teeth are those with a delayed eruption time or that are not expected to erupt completely based on clinical and radiographic assessment. The third molars can vary considerably in size; contour and relative position to the other teeth. Mandibular third molars were more often impacted as compared to the maxillary third molars. The mandibular third molars are the most frequently impacted teeth that can be found in humans. Data analysis shows that the prevalence of third molar impaction ranges from 16.7% to 68.6%. Impacted teeth are often associated with pericoronitis, periodontitis, cystic lesions, neoplasm, root resorption and can cause detrimental effects on adjacent tooth.

Keywords: periocoronitis, cystic lesions, periodontitis, neoplasm.

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INTRODUCTION

Impaction word is derived from a Latin word "IMPACTUS". It is defined as cessation of eruption of a tooth caused by a physical barrier or ectopic positioning of a tooth. An impacted tooth is one that is embedded in the alveolus so that its eruption is prevented or the tooth is locked in position by bone or the adjacent teeth.¹

Prevalence of 3rd molar impaction:

The diverse nature of third molars continues to attract more attention than any other tooth in the oral cavity. Being last teeth to erupt they possess high chance for getting impacted.² Third molars are interpreted as impacted when they fail to erupt in the dental arch within the expected period of time and therefore may persist as non-functional, abnormal or pathological. Data analysis shows the overall prevalence of third molar impaction ranges from 16.7% to 68.6%.^{3,11} most studies have reported no sexual predilection in third molar impaction^{6,12}. However some studies, however, have reported a higher frequency in females than males^{12,13}. Impacted teeth are often associated with pericoronitis, periodontitis, cystic lesions, neoplasms; root resorption may cause detrimental effects on adjacent tooth¹⁴.

According to the various studies the incidence of impacted third molar is as follows-

A study by Dachi and Howell in (1961),¹⁹ analysed 3874 radiographs and determined that impaction of third molars was more prevalent in the maxilla than in the mandible. The incidence was determined as 21.9 per cent for maxillary third molars and 17.5 per cent for mandibular third molars. No gender differences were noted in the incidence of impaction of third molars. Morris and Jerman (1971)¹⁷ reported frequencies of 65.6% of impacted third molar. Haidar and Shalhoub⁷ evaluated 1000 orthopantomograms (OPGs) and reported an incidence of 32.3% for third molar impaction with no sex predilection. Eliasson et al (1989)¹⁵, did radiographic investigation of 2128 randomly selected patients and found 30.3% of impacted third molars. Rajasuo et al (1993)¹⁶ reported 38% incidence of impacted third molar. Hattab et al (1995)¹¹ studied status of third molars radiographically in 108 male and 124 females and also found prevalence of 33% impacted third molars. Quek et al (2003)¹³ also have reported frequencies of impacted third molar in his study. Hassan (2010)¹⁸ evaluated 1039 OPGs, out of which 422 showed at least one impacted third molar, with no significant difference between males and females predilection (P=0.284). The percentage of subjects having impacted third molars was reported 40.5%. He also stated in his studies that impacted third molars were 1.64 times more likely to occur in the mandible than in the maxilla.

Maryam et al (2013)⁴ examined 1020 patients reported that the incidence of impacted third molars is 44.3%. Data analysis of several of various studies predicts that impacted third molars were 1.9 times more likely to occur in the mandible than in the maxilla. Twenty-five percent of patients with asymptomatic third molars were found to have increased periodontal probing depths and attachment loss, increased periodontal pathogen colonization, and increased levels of inflammatory mediators.²⁰

Case report-I

A 23 year old female reported to O.P.D of Periodontology department of ManavRachna Dental College, Faridabad with chief complaint of generalized bleeding gums from last 8-9 months. Bleeding was noticed only while brushing and on chewing fibrous food by the patient. Frequency of bleeding was same from last 8-9 months.

Intraoral examination and Investigations:

On intraoral examination complete set of teeth with absence of 38, 48 and 18 were present. Generalized 6-7 mm of periodontal pockets was seen with red inflamed gingiva with respect to maxillary and mandibular anterior teeth and posterior teeth with moderate amount of local irritants. Occlusal evaluation showed 4-5mm overjet of maxillary teeth with no abnormal habits. Extraoral examination revealed no abnormality.

Orthopantogram revealed generalized horizontal bone loss in relation to maxillary and mandibular teeth and localized vertical bone loss i.r.t 17 with completely erupted 28 and missing mandibular third molars. Horizontal impaction was seen i.r.t 18 with complete fused root formation and was lying in close proximity to the roots of maxillary right second molar i.e. 17 (fig-1)

There was no tenderness or pain on percussion in relation to 17. There was complete absence of mandibular third molars.

Case report-II

A 40 year old female reported to O.P.D of Periodontology department of ManavRachna Dental College, Faridabad with complaint of pain in gums and dirty teeth since 6-7 months. Pain was dull, non-continuous and non-radiating in nature.

Intraoral examination and Investigations:

On intraoral examination complete set of teeth with absence of 28, 38 and 48 were present. There were generalized 6-7 mm of periodontal pockets with red inflamed gingiva in maxillary and mandibular arch. Miller's class II Mobility was seen i.r.t mandibular anteriors. Angle's class I occlusion was present without any overjet and overbite. On extraoral examination no abnormality detected.

Orthopantogram revealed generalized horizontal bone loss with fully erupted maxillary right third molar i.e.18 and vertically impacted 28,38,48 out of which 28 was lying in close vicinity to the maxillary 2nd molar. There was no pain and tenderness on percussion in relation to 27 (figure-2)
Management of case I and II

Phase I therapy: Oral hygiene instructions including scaling and root planing was done. Antiseptic mouthwash (Betadine), warm saline rinses was prescribed to the patient.

Phase II therapy: Generalized Periodontal flap surgery.in maxillary and mandibular arch was performed.

Maintenance phase: Patient kept on maintenance visit after every 3 months for 1 year.



Fig-1 Orthopantogram depicting impacted 18.



Fig-2 Orthopantomogram depicting impacted 28 and 38.

DISCUSSION

Third molars are most likely to be impacted than any other teeth in the oral cavity. Their aetiologies remain multifactorial and they follow abortive eruption path and get impacted as a result of skeletal insufficiency in the area where they normally erupt. They are unique from other teeth in the jaws exhibiting interestingly variable patterns of eruption.³ Sinus communication is a complication encountered with upper 3rd molars; most communications close spontaneously without surgery. Chiapasco²¹ in a retrospective study of complications of 500 impacted maxillary third molars reported that a sinus communication was seen in 0.8%; and none of the cases required surgery. A prospective cohort study of 684 patients indicated a sinus communication in 13% of patients following third molar surgery. Another prospective cohort study of 389 upper third molar extractions showed a sinus perforation rate of 5.1%, with female patients, older patients, and more complicated extractions having a higher incidence. In the first case third molar is lying exactly above the root of second molar and is in the close vicinity to sinus. Trunk of the tooth is at the apex of the second molar which can lead to root resorption. Periodontal involvement of second molar can progress to third molar which is lying silently in close proximity of third molar. Ideal treatment in this case is to keep second molar periodontally sound and caries free by maintaining high level of maintenance therapy.

In the present case reports patient were not complaining of any pain in the region of third molar. But in the future it can cause root resorption of second molar and patient might experience the pain. Then, the treatment of choice would be surgical removal of third molar to avoid the resorption of second molar by taking care of maxillary sinus perforation while extraction and treatment could be made more precise by taking Cone Beam Computed Tomography (CBCT) before doing any treatment modality and treatment should be instituted only on need basis.

CONCLUSION

A responsible dental surgeon should be concerned not only about the chief complaint of the patient but also should be concerned of other pathological condition existing in the oral cavity especially of the lesions which are asymptomatic. In such conditions patient should be made aware of the lesion or the pathology. It is prime duty of the dental surgeon to inform the treatment modalities and the sequelae of each modality to the patients.

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