

Inverted and Impacted Maxillary Third Molar: Removal by Lateral Transposition Method

Shruti Chhabra, Naveen Chhabra, Guneet Dhillon

ABSTRACT

Background: Third molars are one of the most commonly impacted teeth in the oral cavity. But in very rare cases, the impacted molars can be inverted as well. In this case, the patient presented with an inverted and impacted left maxillary third molar. The aim of the operating surgeon was to execute the procedure in the least hazardous manner, to avoid any surgical complications.

Methods: The surgical extraction of the tooth by lateral transposition method was carried out rather than the classical method owing to the inverted position of the impacted tooth. The surgery was carried out under local anesthesia. An incision was made at the crest of the ridge with an anterior releasing incision. Bone overlying the impacted molar was removed following which the tooth was luxated and laterally transposed. The socket was thoroughly irrigated and closure was done by simple interrupted suture, using 3-0 mersilk.

Results: The impacted and inverted maxillary third molar was successfully removed by lateral transposition method without any complications.

Conclusion: The impacted and inverted maxillary third molars are not commonly encountered in dental practice. Subsequently, their removal can be a challenging job on the part of an oral surgeon. The surgeon should preoperatively weigh carefully the associated risk factors and explain them thoroughly to the patient.

Keywords: Impacted, Inverted, Lateral transposition, Maxillary third molar.

How to cite this article: Chhabra S, Chhabra N, Dhillon G. Inverted and Impacted Maxillary Third Molar: Removal by Lateral Transposition Method. *Int J Exper Dent Sci* 2012;1(1): 26-29.

Source of support: Nil

Conflict of interest: None declared

INTRODUCTION

According to Peterson,¹ an impacted tooth is one which fails to erupt in the dental arch within the expected time. In other words, a tooth is said to be impacted when its path of eruption into the occlusal plane is obstructed by the presence of another tooth, bone or soft tissue, so that further eruption is unlikely.² An impacted tooth can be erupted, partially erupted or unerupted and will not eventually assume a normal arch relationship with other teeth and tissues.³ The etiology of impacted teeth can be divided into local and systemic causes.^{2,4} Local causes include irregularity in position and presence of adjacent teeth, dense overlying bone or/and mucosa, underdeveloped jaw or large tooth size

and premature loss or prolonged retention of primary teeth. Systemic causes include heredity, miscegenation, endocrine dysfunctions, congenital syphilis, rickets, anemia and some rare conditions, like cleidocranial dysostosis, progeria and achondroplasia. As a general rule, all impacted teeth should be removed unless removal is contraindicated, as advancing age makes the removal of these teeth more complicated. The indications for removal of impacted teeth are pericoronitis (58.5%), dental caries (14.62%), facilitation of orthodontic treatment (1.11%), periodontal disease (3.02%), obscure facial pain (2.51%), root resorption and odontogenic cysts and tumors (0.6%) and pain of unexplained origin.^{1,5}

The incidence of impacted teeth occurs in following order of frequency:⁶ Maxillary third molars (62.57%), mandibular third molars (47.44%), maxillary cuspids, mandibular bicuspid, mandibular cuspids, maxillary bicuspid, maxillary central incisors and maxillary lateral incisors. Briefly the impaction of the maxillary third molar is classified as mesioangular, distoangular, vertical and horizontal according to the position in the jaws, and further may be deflected buccally or lingually in any of these cases. Also, the third molar may have its root pointing toward the alveolar crest. These impactions being called as inverted or complicated impactions.⁷ This case report describes a rare case of inverted and impacted left maxillary third molar.

CASE REPORT

A 58-year-old female patient reported to the Department of Oral and Maxillofacial Surgery, DAV Centenary Dental College, Yamuna Nagar, Haryana, India, complaining of obscure pain in the left maxillary posterior region that radiated to the left parietal and temporal regions of the head. The patient visited a local dentist 7 to 8 months back, who proposed the cause of pain to be carious left maxillary first and second molars, and thus advised their extraction, following which there was temporary relief of pain. As the pain persisted the patient visited our institute, where the diagnosis of an inverted and impacted left maxillary third molar was made after reading the IOPA of the patient (Fig. 1). The patient was given a guarded prognosis with regard to relief of the pain before the extraction was performed.



Fig. 1: Intraoral periapical radiograph showing an inverted and impacted left maxillary third molar

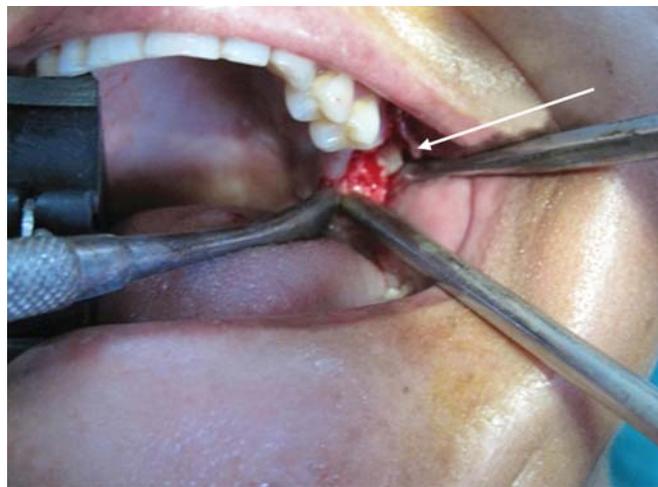


Fig. 3: Luxated inverted and impacted left maxillary third molar

CLINICAL MANAGEMENT

The patient was informed regarding the presence of this impacted tooth and was advised the surgical removal of the tooth (Fig. 4A). The surgery was carried out under local anesthesia. An incision was made at the crest of the ridge with an anterior releasing incision (Fig. 2). The lateral cortical plate of the maxillary bone overlying the impacted molar was removed by the postage stamp method with a rose head no. 8 bur (8000-10,000 rpm) (Figs 4B and C). The tooth was luxated and laterally transposed (Fig. 3). Lateral transposition of the tooth was done as (1) the tooth was inverted and to expose the crown till the CE junction, i.e. beyond the greatest width would involve lot of bone cutting. Thus, to preserve the osseous tissue lateral transposition was necessary (2) second, to prevent slippage of the tooth into the maxillary sinus following application of force using an elevator or forceps (orange seed effect), lateral transposition was done. The socket was thoroughly

irrigated and closure was done by simple interrupted suture, using 3-0 mersilk (Fig. 4D).

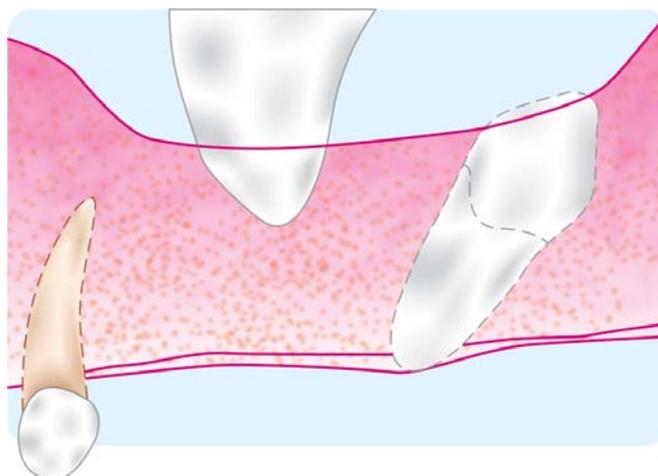


Fig. 4A: Inverted and impacted maxillary third molar. The absence of first and second molar is depicted, as was in our patient



Fig. 2: Incision given in the maxillary third molar region for the extraction of inverted and impacted maxillary third molar

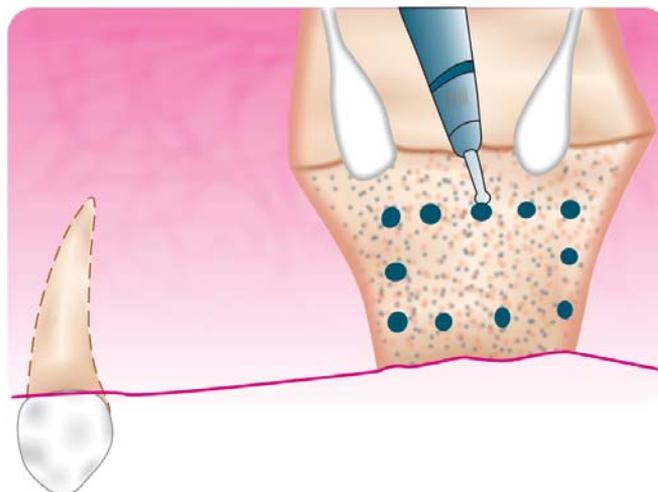


Fig. 4B: Trapezoidal flap raised and postage stamp method of bone cutting

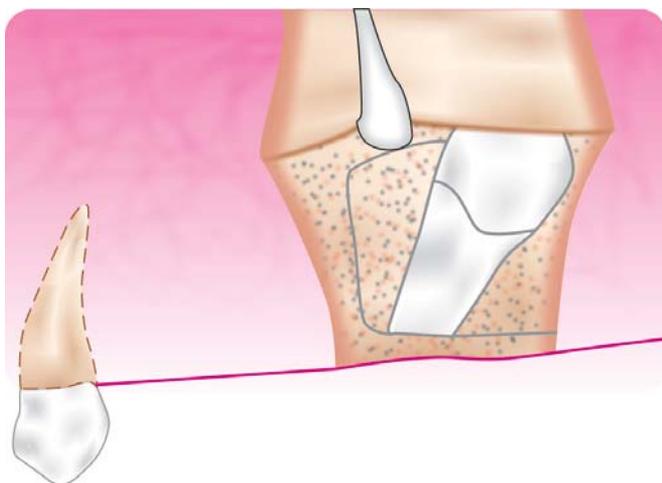


Fig. 4C: Bony window made in the buccal cortex to expose the inverted and impacted maxillary third molar

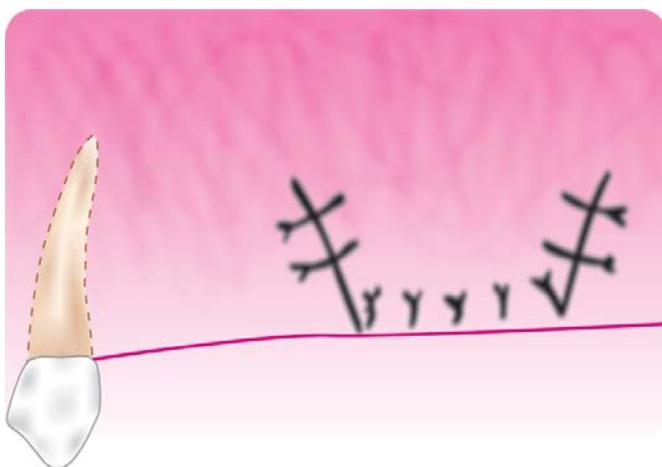


Fig. 4D: Closure done by interrupted sutures

DISCUSSION

The removal of maxillary impacted teeth requires a thorough clinical and radiographic examination of the patient. After deciding that the removal of an impacted maxillary third molar is indicated, a thorough assessment of the difficulties which would be encountered and the possible complications which might occur during the removal of the tooth are evaluated.

The maxillary third molars can be briefly classified based on the anatomic position as;⁸

Relative depth of maxillary molars in bone:

1. **Class A:** Lowest portion of the crown of impacted maxillary third molar is in line with the occlusal plane of maxillary second molar.
2. **Class B:** Lowest portion of the crown of impacted maxillary third molar is between occlusal plane of maxillary second molar.
3. **Class C:** Lowest portion of the crown of impacted maxillary third molar is at or above the cervical line of the maxillary second molar.

VARIOUS ANGULATIONS OF THE IMPACTED MAXILLARY THIRD MOLAR

The position of the long axis of the impacted maxillary third molar with respect to the long axis of the maxillary second molar (Fig. 5):

1. Mesioangular
2. Distoangular
3. Vertical
4. Horizontal
5. Buccoversion
6. Linguoversion
7. Inverted

Relationship of impacted maxillary third molar to maxillary sinus:

1. **Sinus approximation:** There is no bone or a thin portion of the bone between the impacted maxillary third molar and maxillary sinus is known as maxillary sinus approximation.
2. **No sinus approximation:** There is 2 mm or more of bone between the impacted maxillary third molar and maxillary sinus.

Thus in our case, the tooth was classified as inverted and with no sinus approximation. In addition to pain, swelling, trismus, infection, hemorrhage, ecchymosis, the complications include displacement of tooth into the maxillary sinus and infratemporal fossa, presence of maxillary third molar in close approximation with roots of second molar, fusion of third molar roots to second molar, abnormal root curvature, extreme bone density, fracture of maxillary tuberosity and difficult access.^{2,9} In case of sinus approximation, a maxillary third molar or the root portion may be displaced during surgery, lodging in or near the maxillary sinus, thus complicating its further removal. The presence of maxillary sinus in close approximation also increases the complications, like sinusitis. In our case, none of the complications was accompanied.

The maxillary tuberosity may be weakened by an alveolar extension of the maxillary sinus anterior to the maxillary third molar. This may occur idiopathically, or it may be secondary to the loss of a first or second molar. The tooth being in dense sclerotic bone, or a tooth having bulbous, ankylosed or widespread roots can be a reason for the fracture of the maxillary tuberosity. Exerting pressure on such a tooth with an elevator or through extraction forceps may produce a fracture of the tuberosity. The objective, following fracture of the tuberosity, is to preserve as much of the osseous tissue as possible and to avoid producing an oral antral fistula. The follicle surrounding the crown of an impacted tooth also has an influence on the difficulty of the extraction.¹⁰ If the follicular space is broad

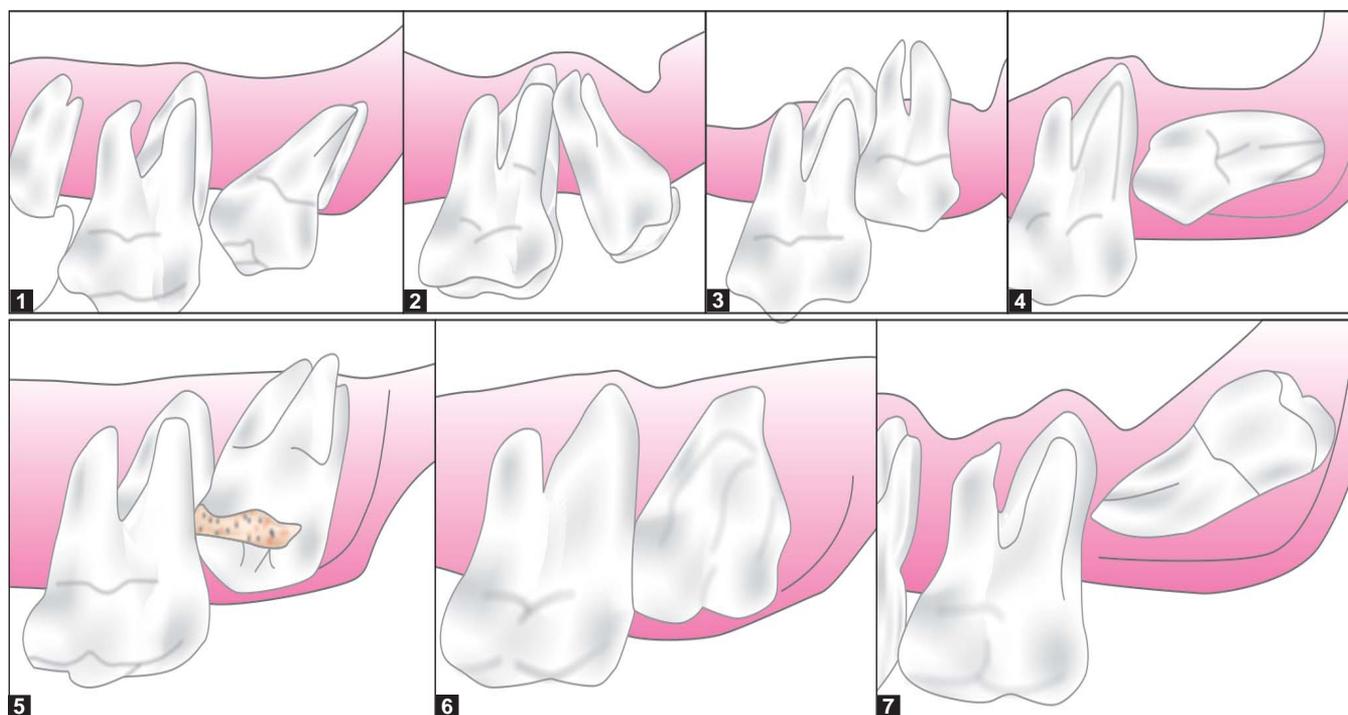


Fig. 5: Classification of impacted maxillary third molar

the tooth will be easier to remove than if the follicular space is thin or nonexistent. In our case, the follicular space facilitated the removal of the tooth.

CONCLUSION

The removal of impacted and inverted maxillary third molars can be a challenging job on the part of an oral surgeon, as such teeth are not commonly encountered in dental practice. The surgeon should preoperatively weigh carefully the risk factors associated with the surgical removal of inverted and impacted maxillary third molars and explain them thoroughly to the patient.

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