

# Fortuitous Displacement of Maxillary Impacted Third Molar in Infra-temporal fossa: A Case Report

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## ABSTRACT

Impacted third molar surgery is one of the complicated dentoalveolar surgeries. By having appropriate safety measures these surgeries can be carried out without much complication. Removal of impacted third maxillary molar is frequently carried out without difficulties and low rate of intraoperative complications. Here we are presenting an uncommon case of an impacted maxillary third molar having peri-apical abscess that was unintentionally displaced into the infra temporal space during its extraction. Displaced tooth was retrieved from infratemporal fossa region under general anaesthesia. It is a very rare complication to be happen during routine surgical extraction of maxillary impacted third molar tooth.

**Keywords:** Maxillary third molar, Infra-temporal fossa, Displacement of tooth, Dentoalveolar surgery, Surgical Complication.

## INTRODUCTION

Extraction of Impacted maxillary 3<sup>rd</sup> molar is quite a common dentoalveolar surgery and is one of the common procedures that is been performed by general dentists and oral surgeons. Maxillary third molar surgery is commonly associated with complications like fracture of tuberosity, fracture of the tooth, perforation of Schneiderian membrane, prolapse of Bichat fat pad, dislocation of roots or tooth into maxillary sinus<sup>1,2</sup>. The rare and particularly challenger to manage is the third molar displacement into the infratemporal fossa. This anatomical space is located right behind the posterior wall of the maxillary sinus, so it is easy to understand how the third molar dislocation in this region is the consequence of a tuberosity fracture extended superiorly

to the posterior maxillary sinus wall and the applying of an incorrect extraction maneuver.

Here, we will discuss about a case of tooth displacement during extraction into the space of infra temporal region. Although such type of mishaps has often been mentioned in oral surgery textbooks, very few cases have been reported so far. Such a mis happenings are been managed by either immediate hospitalization followed by surgical removal of the displaced tooth under general anaesthesia with an aid of radiography for detection of exact location of displacement or by late removal via trans-antral or coronal approach<sup>3</sup>. The present report describes an uncommon and unique case of a tooth displaced into the infra-temporal fossa, unique due to post

operative complication of trismus but was successfully recovered within few months.

### CASE HISTORY

A thirty-year-old female patient was referred to the Clinic of Oral and Maxillofacial Surgery, with a complaint of pain in the left side of face involving upper and lower 3<sup>rd</sup> molar region. Pain is been referred to left side of forehead, infra-orbital area and cervical region from past two months. No previous medical and dental history reported by the patient. Intraoral clinical examination revealed absence of the third molars in both upper and lower arch. A panoramic radiograph suggested the presence of impacted left maxilla and mandible 3<sup>rd</sup> molar. Before proceeding further, patient's written consent was taken. Extraction was planned for both 28 and 38 tooth respectively altogether as being present on same side. Mouth opening of the patient was noted down before extraction. It was 34mm. 38 was successfully extracted without any complication. While extracting 28, it was unintentional displaced deep into the infra temporal fossa.

### INVESTIGATION

After such unpleasant event, patient was advised an OPG and CBCT to detect exact location of the displaced tooth. OPG and CBCT revealed displacement of tooth into left side infratemporal fossa (Fig 1).

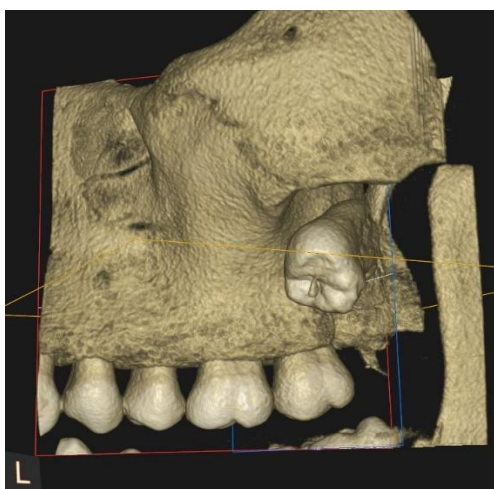


Fig 1- CBCT Showing Displaced Upper 3<sup>rd</sup> Molar in Infra-temporal Fossa

### TREATMENT

Patient was hospitalized immediately and removal of displaced tooth was planned under general anaesthesia. A vestibular incision was given on left side of maxillary arch extending from first molar till third molar region. Mucoperiosteal flap was raised. Tooth was identified in the infratemporal fossa clinically as well as by comparing with the CBCT images (Fig 2). The tooth was removed only by negative pressure of the suction canula. The site was cleaned by intensive irrigation with saline followed by closure using 3-0 silk suture. Post extraction guidelines were given to the patient. Antibiotics and analgesics were prescribed to the patient to combat post extraction swelling and pain.

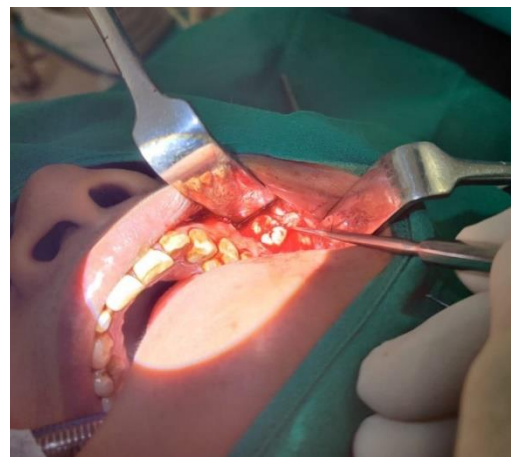


Fig 2- Clinical Photograph of Displaced Tooth

After 7 days post procedure, site of extraction was examined clinically and radiographically. During clinical examination patient reported reduction in mouth opening to 29 mm. After 10 days sutures were removed from the extraction site and physiotherapeutic exercises were advised to the patient to improve mouth opening. Patient was accessed periodically after 15 days, 30 days, and 3-month post operatively. Patient's mouth opening gradually increased by physiotherapeutic exercises and after completion of 3 months we have achieved the original mouth opening of about 34 mm which was reported to be the pre-extraction mouth opening. Patient was asked to visit on

periodic follow up of 3 months up to the duration of 1 year to ensure her about the gradually improvement of her health. Henceforth she addressed no further complaint.

## DISCUSSION

Surgical extraction of impacted third molars is a common procedure very commonly carried out in dental clinics. Final decision to extract an impacted tooth must be based on careful assessment of potential pros and cons<sup>4</sup>. Surgical removal of impacted third molars is linked with mild to moderated chances of post operative complications (mostly around 9-10%)<sup>5,6</sup>. Among the pre and postoperative complications related to maxillary third molar extraction, the most commonly variety reported in literature are fractures of the maxillary tuberosity and unintentional displacements of the tooth into the infratemporal fossa or Antrum of highmore<sup>1</sup>. Use of more of apical force and incorrect surgical technique are denoted as the most frequent reason behind such accidents. But it is very rarely reported and rarely documented in the literature<sup>1, 2</sup>. In spite of using correct and appropriate surgical measures, even though experienced surgeons may contribute to such mis happenings quite frequently<sup>7</sup>. In such a case, the patient should be thoroughly explained about the procedure and possible complications associated with the procedure. Mandibular impacted third molar has chance of developing paraesthesia and neuropraxia, if present in close proximity with the level of inferior alveolar canal<sup>2</sup>. Any sort of doubt in patients mind should not be left unsolved. In the first case, referral to a skilful oral-maxillofacial surgeon is the conduct of choice; in the second case, the procedure for retrieval of the displaced tooth must be postponed to a next date when the patient feels more comfortable. In the meantime, between the first and second interventions, the patient must be under antibiotic, analgesic and anti-inflammatory medication.

Therapy is based on clinical signs and symptoms, on surgeon professional working skills and on patient's condition. The complex anatomy of the Infra temporal fossa and the difficulty to obtain a good surgical exposure are among the important factors to initiate the treatment. However, as complications, such as infection, foreign body reaction or trismus, as reported in this case<sup>8</sup>, may increase if the retrieval is delayed. Regard less the timing of the surgery, several surgical approaches have been used successfully, like Caldwell-Luc approach or resection of the coronoid process<sup>9,10</sup>. The complication in all such cases is quite high and that should be considered before proceeding further. The immediate hospitalization and intraoral approach, was selected for this case because of the following reasons:

(A) To prevent fibrosis of the displaced tooth which makes the removal more difficult and possibly more complicated;  
(B) The related complication is mild; the intraoral approach under general anaesthesia allows removal of such a displaced tooth with minimal risk and is highly recommended<sup>10,11</sup>.

However, dental professionals face many such medical-legal problems. It is thus of utmost importance to keep each and every case documented and duly signed by the patient before and after completion of the surgery to avoid any hassle after the completion of the procedure.

## CONCLUSION

In minor and major surgical procedures, the operator should prepare for such perioperative and postoperative complications along with prior information to patient about the consequences of the procedure. A proper assessment of a case should be done by thorough preoperative clinical examination and investigations such as CBCT and OPG to rule out the exact anatomical location and variation of the case. In cases CBCT plays a vital role when compared to OPG to determine the proper

width of surrounding bone and relation with maxillary sinus.

### **Declaration by Authors**

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**Conflict of Interest:** The authors declare no conflict of interest.

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