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IP Journal of Surgery and Allied Sciences

Journal homepage: https://www.jsas.co.in/

Case Report

Conservative technique for surgical retrieval of iatrogenically displaced maxillary third molar from the infratemporal Fossa – a case report

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Abstract

Displacement of maxillary third molar into the infratemporal space is well known complication. Because of limited access for surgical extraction of maxillary third molar, it is often difficult to extract especially if they are located below cervical line of adjacent maxillary second molar. Patient might have pain, swelling, infection, restricted mouth opening or can be completely asymptomatic. Timing of intervention for the management of displaced maxillary third molar remains still controversial. Till date, different intraoral & extraoral techniques have been used for removal of them but no particular technique is recommended. We recommend use of this simple intraoral technique before using other invasive techniques which have several complications and also add to the cost of treatment.

Keywords: Complication, Extraction, Infratemporal fossa, Conservative management, Third molar

Received: 20-08-2025; **Accepted:** 27-10-2025; **Available Online**: 29-11-2025

1. Introduction

Surgical extraction of maxillary third molar is a common procedure in oral & maxillofacial surgery. It is known to be associated with many complications such as pain, swelling, infection, alveolar osteitis, dentoalveolar fracture, fracture of maxillary tuberosity, hemorrhage, oroantral communication or fistula, damage to adjacent root, postoperative sensitivity with second molar, distal pocket formation or mobility of adjacent second molar. The incidence reported is 2.6 to 30.9% for surgical extraction of third molars.[1]

Displacement of maxillary third molar into the infratemporal space is well known complication.[2] Because of limited access for surgical extraction of maxillary third molar, it is often difficult to extract especially if they are located below cervical line of adjacent maxillary second molar. Other causes include incorrect extraction technique, insufficient surgical training or experience, insufficient clinical & radiographic examination and condition of the tooth in the oral cavity.[3,4]

After displacement of maxillary third molar patient may present with complain of pain, swelling, infection, restricted mouth opening or can be completely asymptomatic.3-5 Timing of intervention for the management of displaced maxillary third molar remains still controversial. Some authors prefer immediate removal for preventing patient discomfort, postoperative infection and foreign body reaction while others prefer delayed removal to allow formation of fibrous tissue as a result of / secondary foreign body reaction to prevent deeper migration of tooth during removal & ease of localisation.

Till date, different techniques have been used for removal of them but no particular technique is recommended. So here we suggest a simple technique for removal of displaced maxillary third molar into the infratemporal fossa.

2. Case Report

A 53yr old female patient reported with complain of pain and restricted mouth opening associated with dislodged tooth in the right maxillary posterior region 10 days back. Patient gave history of attempted surgical extraction with right maxillary third molar at a private clinic. Patient had no significant medical history. Patient already had pre-operative orthopantomogram (OPG) (**Figure 1**) as well as after

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https://doi:10.18231/j.jsas.12968.1763958419

attempted surgical extraction showing displaced right maxillary third molarinto the right infratemporal space (**Figure 2**). To evaluate the exact location of tooth Cone Beam Computed Tomography scan (CBCT) was carried out which suggestive of dislodged third molar into right infratemporal region (**Figure 3**). Under local anaesthesia, vestibular incision was made distal to the buccal vestibule of maxillary first molar. Blunt dissection was carried out along the distal aspect of maxillary tuberosity upwards and inwards. Tooth was identified & retrieved using a hemotstat (**Figure 4**, **Figure 5** & **Figure 6**). Hemostasis was achieved. Wound was closed using 3-0 black braided silk suture. No intraoperative & post-operative complication was encountered.

Figure 1: Pre-operative orthopantomogram

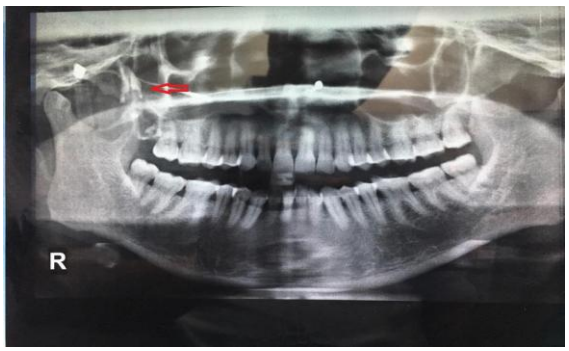

Figure 2: OPG after iatrogenically displaced right maxillary third molar tooth displaced into the right infratemporal space

Figure 3: Cone beam computed tomography scan (CBCT) was carried out which suggestive of dislodged third molar into right infratemporal region.

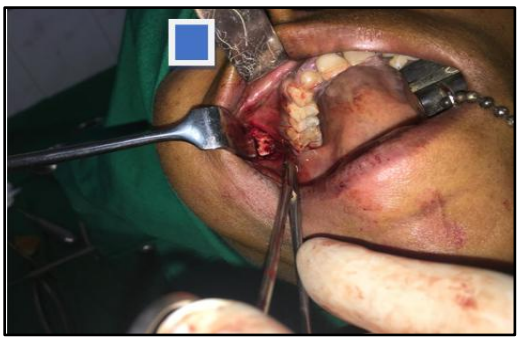

Figure 4: Surgical exposure of the tooth displaced in the infratemporal space

Figure 5: Closure of the surgical site

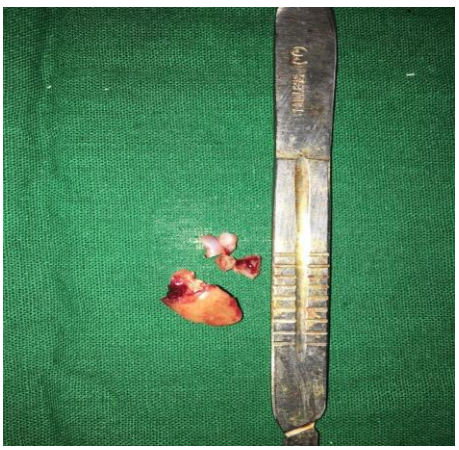

Figure 6: Surgically extracted right maxillary third molar

3. Discussion

Although rare impacted maxillary third molar can get displaced even after taking maximum precautions by experienced surgeons.4 Placement of either finger or periosteal elevator distal to the tooth is suggested in literature to prevent this complication.6Incidence of displacement of maxillary third molar into infratemporal space is unknown till date, as complications are no study is conducted mentioning it.[1]

Iatrogenic displacement of maxillary third molar into the infratemporal space have been reported in the literature as in our case. Because of complex anatomy, difficult access and chances of haemorrhage & neurologic complications retrieval of displaced maxillary third molar is often a difficult procedure. Different authors have suggested different timings for its retrieval varying from immediate removal to 4 years.[2,7] We planned for immediate removal as patient had swelling & trismus even after 10 days post-displacement.

Ideal approach to be used for retrieval of displaced maxillary third molar from the infratemporal fossa remains controversial. Different extraoral & intraoral techniques have been used in the past. Combination approach with or without use of additional device were also used where single technique was not successful.[8,9]

Several extraoral techniques have been tried in the past using coronal approach8, gillies' temporal approach,[10] intraoral flap with the resection of the coronoid process to extend the field of view, the access to the fossa through the posterior wall of the maxillary sinus as well as spinal needle above zygoma alone or in combination have been mentioned in the literature.[11,5] These were either used to facilitate intraoral removal or directly retrieve the tooth. But these techniques are invasive & have several drawbacks such as residual scar with hair loss, facial nerve palsy, temporalis wasting, temporal hollowing, temporary function impairment of temporalis muscle,significant blood loss, need of special equipment's & general anaesthesia, exposure to complications associated with general anaesthesia and expenses.[7,8]

Endoscopy either using trans-sinusal approach or through the extraction socket allows adequate visualization of the tooth but inadequate tooth stabilization for retrieval. 12 Navigation system using optical tracking have been used that allows accurate localisation of the tooth but no stabilisation to the tooth.[7]

Interventional radiology has also been used for fast & safe retrieval as it is minimally invasive & provides accurate localisation & steady stabilisation. Use of 4D MSCT interventional radiology have higher chances of success thereby decreasing complications. But it needs referral to higher centres for use of additional equipment & specialists which adds to the cost of the treatment.[12]

An intraoral technique, used trans-sinusal approach that needed two osseous windows to be made through anterior and posterior walls of the maxillary sinus but is suffers a drawback of difficulty in stabilisation of the tooth cranially or posteriorly. It can also lead to facial edema& secondary emphysema as a result of tissue trauma.[2,14]

Another intraoral technique using long incision in the superior buccal vestibule were found to be inconsistent & unpredictable for retrieval of displaced tooth.[15,9] We used similar technique & found to be successful. Our technique was simple, minimally invasive technique which does not need any special equipment, set-up or referral to higher centres that adds to the cost of treatment. Hence, we recommend use of this technique as it can be done in routine dental clinic with minimal armamentarium and complications.

4. Conclusion

Although, different techniques are available for the retrieval of displaced maxillary third molar from the infratemporal space. We recommend use of this simple intraoral technique before using other invasive techniques which have several complications and also add to the cost of treatment.

5. Source of Funding

None.

6. Conflict of Interest

None.

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Cite this article: Ghodke M, Meshram VS, Wadde KR, Khaire S. Conservative technique for surgical retrieval of iatrogenically displaced maxillary third molar from the infratemporal Fossa – a case report. *IP J Surg Allied Sci*. 2025;7(3):112-115.