

Displacement of Maxillary Third Molar into the Infratemporal Fossa- A Rare Entity.

¹Dr Amit Gaur, Reader, Department of Oral & Maxillofacial Surgery, Sardar Patel Post Graduate Institute of Dental and Medical Sciences, Lucknow

²Dr Abhinav Srivastava, Senior Lecturer, Department of Oral & Maxillofacial Surgery, Sardar Patel Post Graduate Institute of Dental and Medical Sciences, Lucknow

³Dr Tripti Shahi, Senior Lecturer, Department of Endodontics, Denatl College & Hospital Azamgarh

⁴Dr Shubhamoy Mondal, Senior Lecturer, Department of Oral & Maxillofacial Surgery, Sardar Patel Post Graduate Institute of Dental and Medical Sciences, Lucknow

Corresponding Author: Dr Abhinav Srivastava, Senior Lecturer, Department of Oral & Maxillofacial Surgery, Sardar Patel Post Graduate Institute of Dental and Medical Sciences, Lucknow

Type of Publication: Case Report

Conflicts of Interest: Nil

Introduction

Impacted maxillary third molar extraction is a common surgical procedure performed by maxillofacial surgeons. Any surgical intervention has the risk of untoward incidents and the same is true for exodontias as well.¹ These complications frequently include fracture of the tuberosity, tooth root fracture, perforation of the maxillary sinus, prolapse of the buccal fat pad, and displacement of the roots or tooth into the maxillary sinus, all of which may be easily managed but displacement of tooth in Infra Temporal Fossa (ITF) is rarely encountered.

For a displaced tooth in the infratemporal fossa, various surgical approaches are suggested for its retrieval. Some authors recommends hospitalization and immediate removal of tooth or tooth fragments under general anesthesia whereas other prefer later intervention.²

There are various factors associated with the displacement of maxillary third molars into the infratemporal fossa such as lack of the basic principles of surgical technique, poor knowledge of anatomy, inadequate flap reflection and decreased visibility during surgical extraction, improper

extraction technique, third molar crown above the level of the adjacent molar root apices, and limited bone distal to the third molar.³ Here, we present a case of retrieval of displaced maxillary third molar from infratemporal fossa.

Case report

A 23 year male patient was referred to the department of Oral and Maxillofacial surgery by a local dentist with a chief complaint of restricted mouth opening and pain in upper left back tooth region since one month. Patient gave history of unsuccessful attempt of extraction of the left maxillary third molar one month back. On examination the left maxillary third molar was found missing and not palpable in the soft tissue.

The patient's orthopantomogram revealed displaced and inverted maxillary third molar lying lateral to the maxillary tuberosity, Cone beam computed tomography was advised to precisely locate the displaced maxillary third molar.

Tooth was lying inverted in infratemporal fossa just lateral to infratemporal surface of maxilla (Fig 1). The indication to surgical retrieval was obvious. The patient was operated

under local anaesthesia using 2% lignocaine with 1:80000 adrenaline. Crevicular incision was made from maxillary 1st molar to maxillary tuberosity, and releasing incision was given distal to tuberosity.

Mucoperiosteal flap was elevated, careful blunt dissection was done using a curved artery forceps in posterosuperior direction to locate the displaced maxillary third molar. Once located and identified, the tooth was retrieved in downward and outward direction. Debridement of the surgical site was done and thorough irrigation using normal saline was done followed by closure of the wound with the help of 3-0 vicryl in simple interrupted method. Post-operative antibiotics amoxicillin 500mg 8 hourly and analgesics ibuprofen 400 mg and paracetamol 325 mg combination 8 hourly was prescribed per-orally. Post-operative instructions were given and patient recalled after 1 week for follow-up and suture removal (Fig 2).

Discussion

It has been observed that displacement of the tooth into adjacent spaces is one of the complications of extraction, reported in literatures. Maxillary third molar displacement into the ITF is a rare finding and there is lack of documentation of such cases in the literature. We have limited information regarding factor causing displacement of tooth into ITF and a specific management protocol for the same.

Preoperative planning, selection of proper surgical technique are fundamentals to any invasive procedure for successful retrieval of displaced tooth. The factors leading to increase in the incidence of displacement of maxillary third molar are inadequate clinical and radiographic examinations, use of excessive or uncontrolled force, thickness of the cortical bone in the third molar region, raising an inadequate flap (limited visualization), and third molar crown above the level of the apex of the adjacent

tooth, failure in difficult assessment, less experienced operator.^{2,4}

Sometimes it is difficult to locate a displaced tooth, so does its retrieval. Displacement of the Maxillary third molars into the infratemporal fossa occurs through the periosteum and is usually located lateral to the lateral pterygoid plate and inferior to the lateral pterygoid muscle. During retrieval of maxillary tooth, lying beneath the mucoperiosteal flap may be pushed superiorly into the infratemporal fossa.¹

Radiographic examination (occlusal, panoramic, occipitomenal) helps in locating the displaced tooth, although Cone Beam Computed tomographic scan is more precise and gives a detailed information. Patient with a displaced tooth may be asymptomatic or may have symptoms such as swelling, pain, limited mouth opening, if fibrosis is present.⁵

Decision for retrieval of displaced tooth is based on clinical signs and symptoms, on surgeon's skill and on patient's will. The various limiting factors to initiate surgical treatment are the complex anatomy of the infratemporal fossa, surgical morbidity and the limited visibility of the surgical site.⁶

Certain risks are always associated with the retrieval procedure of the maxillary third molar displaced into the ITF such as bleeding of the pterygoid venous plexus, which can make visualization of the tooth difficult, and during retrieval procedure it can be further pushed near the skull base. The surgeon should protect the distal tissues with a blunt instrument to avoid posterior displacement.⁴

Several surgical options for retrieval of displaced tooth in the ITF are mentioned in the literature which include long incision in the buccal sulcus that can be associated with the hemicoronal or coronal approach, Gillies's approach, Caldwell-Luc approach through the maxillary sinus after

removal of the whole posterior wall, and resection of the coronoid process.³

We preferred the intraoral approach because it is a minimal invasive procedure performed under local anaesthesia which allows the use of displacement tract to retrieve the tooth, along with with less morbidity and fewer complications.

Conclusion

Displacement of maxillary third molar into the infratemporal fossa is a rare occurrence, The reason being its abnormal anatomical position, injudicious application of force, improper surgical technique. If the displaced maxillary third molar is left in situ, it may lead to infratemporal space infection.

Proper pre operative clinical and radiographic evaluation should be done to assess the location of displaced maxillary third molar into the infratemporal fossa and meticulous treatment plan for retrieval. The decision to retrieve it should be based upon specific surgical technique, the surgeon's skills and the patients consent.

References

1. Sverzut CE, Trivellato AE, Lopes LMF, Ferraz EP, Sverzut AT. Accidental Displacement of Impacted Maxillary Third Molar: A Case Report. *Braz Dent J* 2005;16(2):167-170.
2. Roshanghias K, Peisker A, Zieron JO. Maxillary tooth displacement in the infratemporal fossa. *Dent Res J* 2016;13:373-75.
3. Chrcanovic BR, Custodio ALN. Recovery of an accidentally displaced third molar from the infratemporal fossa. *Arquivo Brasileiro de Odontologia* 2013;9(2): 1-7.
4. Primo BT, Stringhini DJ, Klüppel LE, Costa DJD, Rebellato NLB, Moraes RSD. Delayed removal of maxillary third molar displaced into the infratemporal

fossa. *REV ESP CIR ORAL MAXILOFAC* 2014;36(2):78-81.

5. Baig MH, Punjabi SK, Khan M. Displacement of maxillary third molar in the infra-temporal fossa. *Pakistan Oral & Dental Journal* 2012;32(1):39-41.
6. Bodner L, Joshua BZ, Puterman MB. Removal of a Maxillary Third Molar From the Infratemporal Fossa. *J Med Cases* 2012;3(2):97-99.
7. Chang WC, Chang TH, Chiu KC, Wu CT, Chen YW. Accidental Iatrogenic Displacement of the Mandibular Third Molar into the Lateral Pharyngeal Space- A Case Report. *Taiwan J Oral Maxillofac Surg* 2014;25:119-126.
8. Durmus E, Dolanmaz D, Kucukkolbsi H, Mutlu N. Accidental displacement of impacted maxillary and mandibular third molars. *Quintessence Int* 2004;35:375-77.
9. Gomez-Oliveira G, Arribas-Garcia I, Alvarez-Flores M, Gregoire-Ferriol J, Martinez-Gimeno C. Delayed removal of a maxillary third molar from the infratemporal fossa. *Med Oral Patol Oral Cir Bucal*. 2010;15(3):509-11.
10. Sverzut CE, Trivellato AE, Sverzut AT, Matos FPD, Kato RB. Removal of a Maxillary Third Molar Accidentally Displaced Into the Infratemporal Fossa via Intraoral Approach Under Local Anesthesia: Report of a Case. *Oral Maxillofac Surg* 2009;67:1316-1320.
11. Kajla P, Lata J, Sharma BS, Verma K. Delayed removal of displaced maxillary third molar from the infra-temporal fossa by intra oral approach. *Journal of Advanced Medical and Dental Sciences Research* 2016; 4(2):142-45.

Legends:

Fig 1- Pre-op radiograph showing displaced third molar(left) into the infra temporal fossa.

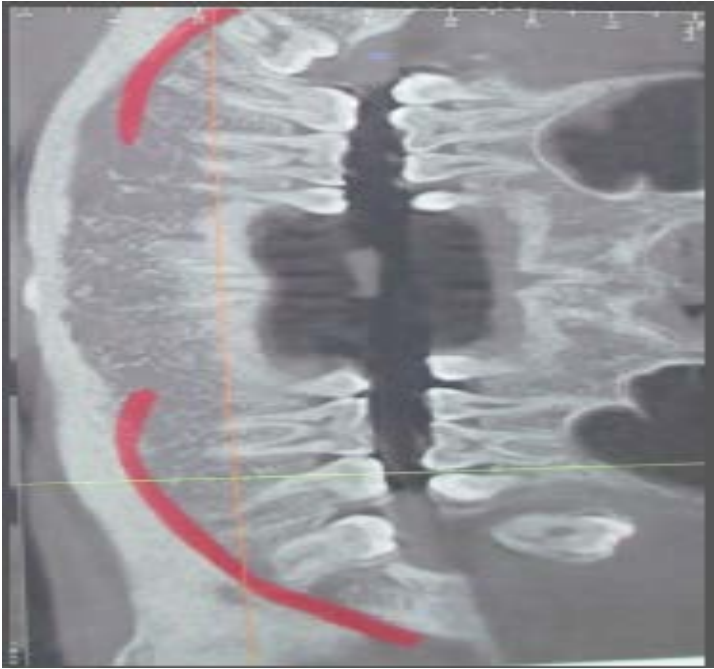


Fig 2- Post-op radiograph after removal of the displaced molar.

