



## **Accidentally Displaced Upper Third Molar into Maxillary Sinus retrieved Using Canine Fossa Approach under Local Anaesthesia**

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### **ABSTRACT**

The upper third molars are often prone to displacement due to their position and unique anatomy. Almost often this occurs due to inadequate preoperative evaluation along with the use of indiscriminate forces for disimpaction. Here we report a case of an impacted upper left 3<sup>rd</sup> molar displaced into maxillary sinus during disimpaction, which was retrieved using the canine fossa approach under local anaesthesia.

### **Keywords**

Minor oral surgery, upper third molars, local anaesthesia, Caldwell Luc

### **INTRODUCTION**

Surgical removal of upper third molars is a routine procedure carried out by general dentists and maxillofacial surgeons.<sup>1</sup> Most frequent complications include fracture of crown, root, fracture of tuberosity, buccal cortical plate with unusual complications like herniation of buccal fat pad, displacement of the tooth in maxillary sinus, infratemporal fossa.<sup>1,2</sup> Tooth displaced into the maxillary sinus can act as a source of infection leading to maxillary sinusitis and other associated complications<sup>3</sup>. Here in we describe an unusual case of a whole multirrooted upper left molar getting displaced into the maxillary sinus which was retrieved under local anaesthesia.

## **CASE PRESENTATION**

A 27-year-old female reported to a private dental clinic in Bangalore with a chief complaint of pain in the upper left back tooth region. Upon clinical evaluation, deep dental caries was present wrt 27 and was tender on percussion with clinically missing 28. Iopar was taken irt 27,28 which revealed an impacted 28 positioned against 27. It was decided to carry out a single sitting root canal treatment of 27 along with disimpaction of 28. A crestal incision was placed distal to 27 to access 28. After failing to luxate the tooth, indiscriminate forces were used in apical direction to deliver the tooth causing fracture of the apical bone and leading to sudden disappearance of the upper left third molar. Vague attempts were made to isolate the field and locate the displaced third molar which was unsuccessful. The patient was advised for a digital orthopantomogram and was referred to the consulting oral and maxillofacial surgeon at Jahnavi Dental Care, Ramamurthy Nagar, Bangalore.

## **CLINICAL AND RADIOGRAPHIC EVALUATION**

The Orthopantomogram was reviewed along with an anatomist. There was a definite consensus regarding the breach along the lining of maxillary sinus indicating a breach in the cortical border of the maxillary. The displaced tooth was visible within the maxillary sinus. The patient was clinically evaluated. Palpation was performed in the tuberosity region and the patient was asked to perform opening and closing movements to rule out the displacement of tooth into the infratemporal fossa. An oroantral communication was noted irt 28 which was confirmed using tests for evaluating an Oro antral communication.

## **SURGICAL PROCEDURE**

It was decided to enter the maxillary sinus using the canine fossa approach. Under local anaesthesia using a regional nerve block an anterior releasing incision was placed distal to 24 followed by a crevicular incision along 25,26,27. A full thickness mucoperiosteal flap was elevated. A no.8 round bur was used at slow speed under copious irrigation and bone was removed just distal to the canine fossa in a sweeping fashion. An oval window was created equating to the diameter of little finger. The displaced upper third molar could be visualized through the window. It was retrieved from the sinus using curved hemostats. Maxillary sinus was thoroughly irrigated using normal saline. Closure began from the anterior release incision followed by crevicular incision. The periosteum was divided sharply at the level of distobuccal sulcus to bring in buccal fat pad to assist in 2 layered closure of the oroantral communication. The fat pad was placed over the communication and secured to the palatal flap using Vicryl 3-0 followed by the closure of the overlying mucosal flap in a similar fashion to achieve a 2-layered closure. The postoperative phase was uneventful with no signs of maxillary sinusitis. The patient is currently under follow-up for the same.

## **DISCUSSION**

Displacement of upper third molars during disimpaction is mainly due to the lack of understanding of anatomical factors, inadequate preoperative evaluation, poor visibility during extraction, incorrect technique and failure to understand the positioning of third molar wrt roots of 2<sup>nd</sup> molar.<sup>4-6</sup> When a displacement is suspected, a prompt diagnosis must be made. Clinically,

disappearance of root/tooth with an oroantral communication is noted.<sup>6</sup> Various radiographs such as the occlusal views and orthopantomograms have been used to locate the position of displaced tooth.<sup>7</sup> The primary complication associated with tooth displacement into the maxillary sinus is the development of maxillary sinusitis, attributed to either the formation of an oroantral communication or irritation caused by the displaced teeth.<sup>8</sup> The management of this complication involves extracting the dental fragments and subsequently addressing the pathological sinus mucosa through either a Caldwell-Luc (CL) approach or endoscopic surgery.<sup>9</sup> Upon the onset of sinusitis symptoms, prompt intervention is imperative to prevent potential complications in the future. Retaining the tooth or tooth fragments is considered as a viable option in instances of unintentional intraoperative displacement without evident signs of sinusitis, particularly when the displaced fragments are of a small size.<sup>10</sup> In our perspective, aligned with the recommendations of Huang et al<sup>11</sup> approaching through the socket should be avoided for extracting displaced elements to prevent the enlargement of oroantral communication. Nevertheless, this approach may be considered when there exists a substantial defect on the alveolar ridge and there is no potential risk of exacerbating the oroantral communication.<sup>11</sup> In this case the displaced tooth was surgically removed within the first 48 hours using the Caldwell Luc approach and closure of oroantral communication was done under local anesthesia to prevent complications associated with delayed retrieval such as chronic oroantral fistula and maxillary sinusitis.

## CONCLUSION

The extraction of third molars stands as one of the most conducted surgical procedures within the domain of oral and maxillofacial surgery. The successful execution of this procedure with minimal trauma demands extensive training, skill, and experience. In instances where the practitioner lacks proper training and experience, the likelihood of complications significantly rises.

A comprehensive radiographic assessment and diagnosis are imperative before initiating the procedure. Careful manipulation of instruments, particularly during root luxation, is crucial. Manipulation should be avoided if the work area is obscured by bleeding or inadequate illumination. Lastly, unnecessary attempts to extract a displaced tooth should be refrained from, as it can exacerbate postoperative complications and subject the patient to increased discomfort.

The Caldwell-Luc approach, in the hands of specialists, proves to be a secure and dependable method for retrieving displaced teeth or roots in the maxillary sinus. Furthermore, it can be carried out under local anaesthesia for added patient comfort.

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**Fig 1:** Orthopantomogram showing displacement of 28 into the maxillary sinus with breach along the floor of the sinus



**Fig 2:** Incision design to access the maxillary sinus via Caldwell Luc approach



**Fig 3:** Oval window created just distal to canine fossa; displaced tooth can be seen through the window



**Fig 4:** Retrieved upper third molar from the maxillary sinus via Caldwell lucapproach

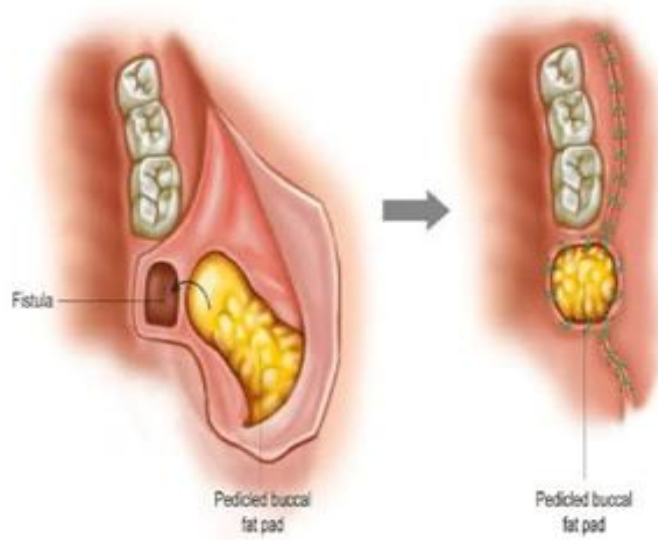


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**Fig 5:** Buccal fat pad for closure of the oroantral communication created due to of the tooth.



**Fig 6:** Surgical site showing satisfactory healing on postoperative day 14 with no signs of maxillary sinusitis.