Transnasal endoscopic approach to extraction of ectopic maxillary third molar tooth

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Abstract

Caldwell-Luc procedure is the most common approach performed by maxillofacial surgeons for maxillary sinus surgery. However, in recent years, transnasal endoscopic sinus surgery that spares the morbidities of traditional approaches is more commonly offered to the patients. A 15-year-old male patient was referred to our clinic for removal of an ectopic third molar tooth in the right maxillary sinus. We performed endoscopic transnasal technique and in contrary to the Caldwell-Luc procedure, there was no post-operative clinical oro-antral communication. Endoscopic transnasal removal of foreign bodies within the maxillary sinus is a safe and minimally invasive procedure compared to Caldwell-Luc procedure.

Keywords: Ectopic tooth eruption, endoscopy, maxillary sinus, tooth extraction

Introduction

Maxillary third molars located in maxillary sinus are extracted through endoscopic transnasal approach or Caldwell-Luc operation. However, Caldwell-Luc procedure is more invasive and has high incidence of complications comparing with transnasal approach.1 Endoscopy-assisted oral and maxillofacial surgeries such as foreign body removals from sinus have been continuously reported.2 Endoscopic surgery has advantages of obtaining magnified and clear visualization of the surgical area.3 With endoscopic techniques, some oral surgeries can be done more conservatively while Caldwell-Luc procedure may cause facial edema, dental par/hyperesthesia, neuralgia of nervus infraorbitalis, and oro-antral fistula formation.1,3

In this article, we present a case with an impacted third molar in maxillary sinus whom extraction performed with endoscopic approach through middle meatal antrostomy.

A Case Report

A 15-year-old male patient was referred to the Department of Oral and Maxillofacial Surgery, University of Selçuk (Turkey) with a complain of facial pain, in October 2014 for the evaluation of an impacted upper right third molar tooth in the sinus. A routine panoramic radiograph revealed an impacted upper right third molar in the maxillary sinus [Figure 1].

On computed tomography, the right maxillary third molar was medially located slightly close to the medial wall of maxilla, and osseous connections proceeding inferiorly from the third molar to the floor of maxilla were observed [Figure 2]. A transnasal endoscopic method through the right nostril was designed to treat this patient. Informed consent has been obtained from parents of him. With the patient under general anesthesia, the right nasal cavity was topically anesthetized and decongested with cotton gauze soaked in a solution of 1% lidocaine and 1:100,000 epinephrine. Under 0° rigid endoscopic visualization, the sinus ostium which located in the middle meatus was thoroughly widened with bite forceps. Tooth was removed using a 30° angled endoscope 4 mm in diameter and 18 cm in length (Karl Storz, Tuttlingen, Germany) with the illumination of a xenon light source [Figure 3]. Tooth extraction procedure was performed with the dominant hand while the non-dominant hand was holding and directing endoscope. The infected material that could be identified in the left maxillary sinus of our patient was removed with endoscopic surgery in one single session to provide better drainage and ventilation [Figure 2]. Loose nasal packing was applied at the end of procedure.

The post-operative period was uneventful. The operation took approximately ½ h. Amoxicillin clavulanate (Augmentin, GlaxoSmithKline, London, UK), 1000 mg twice a day was given for a week and diclofenac potassium (Dicloflam, Santa Farma,
Figure 1: A routine panoramic radiograph had shown an impacted upper right third molar in the maxillary sinus

Figure 2: Coronal and axial computed tomography scans revealed a molar tooth in maxillary sinus

Figure 3: (a and b) Endoscopic image showing the upper right third molar in the antrum during the operation. (c) Ectopic third molar extracted through middle meatal antrostomy

Kocaeli, Turkey), 50 mg twice a day for 4 days. Nor serious bleeding neither edema was found in the post-operative period. The patient was able to breathe through his nose well in the post-operative period.

Discussion

Caldwell-Luc operation is indicated in cases of chronic maxillary sinusitis, inverted papilloma, nasal polyposis, and cysts in sinus, fungal balls, trauma, and tooth extractions, however, preferred treatment may tend to be endoscopic approach. Endoscopic approach is being used more frequently for several maxillofacial surgery indications such as cyst enucleation and the removal of foreign bodies, such as dental implants and extraction of tooth. Furthermore, it is possible to access and resolve infectious and inflammatory problems of other paranasal sinuses with endoscopic surgery at the same operation as we performed in our case.

Middle meatal antrostomy and inferior meatal antrostomy are two methods for transnasal approach to maxillary sinus with endoscopy. Inferior meatal antrostomy has advantages such as facilitating gravity depended drainage and visualization of the floor and anterior wall of maxillary sinus. Kim et al. performed transnasal endoscopic approach through inferior meatal antrostomy to extract bilateral maxillary third molars that are located in maxillary sinus. Sinus septum and localizations of impacted teeth in the sinus were decidual factors for approaching from inferior meatal antrostomy. Although many researchers reported transnasal endoscopic foreign body removal through middle meatus, endoscopy-assisted tooth extraction through middle meatus is rare. Our case report exemplifies indications of preferring middle meatus for ectopic tooth extraction. Middle meatal antrostomy retains the orientation of mucociliary transport and physiologic drainage and allows removal of osteomental complex diseases. We preferred middle meatal antrostomy for its physiological benefits and good exposure to the ectopic tooth.

Conclusion

The endoscope offers more conservative treatment option comparing to conventional approaches, but it requires experienced surgeon, special training, and equipment.

Acknowledgment

This case was presented as poster presentation in ACBID International Congress with the title of “Transnasal endoscopic tooth extraction.”

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