



Endoscopy-assisted removal through combined lower and middle meatotomies of an ectopic upper third molar in the sinus associated with a dentigerous cyst



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ABSTRACT

The aim of this case report is to present an original conservative technique for the transnasal endoscopy-assisted extraction of an ectopic upper third molar associated with a dentigerous cyst occupying the whole maxillary sinus by means of combined lower and middle meatotomies. The proposed technique is a viable, minimally-invasive alternative to the Caldwell–Luc operation (with or without the repositioning of a bone lid), and also to endoscopic middle meatal antrostomy in cases where this would be unable to ensure adequate access because of the position and size of the ectopic tooth and associated cyst.

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1. Introduction

There have been reports of symptomatic ectopic maxillary third molars in the sinus associated with dentigerous cysts [1–5]. The aim of treatment should be to enucleate the cyst and extract the associated ectopic tooth using the most conservative and functional surgical technique. Several surgical procedures have been proposed, depending on the site of the tooth, including: cyst marsupialization [6]; simple enucleation [7]; the Caldwell–Luc operation [5,8]; and endoscopic sinus surgery [2–4,9–15].

The purpose of the present case report is to describe an original minimally-invasive surgical technique based on transnasal endoscopy with simultaneous middle and lower antrostomies to extract an ectopic maxillary third molar and associated dentigerous cyst that occupied the whole sinus, without necessitating any oral surgery.

2. Case report

A 40-year-old man with no systemic disease was referred to us by his dentist with a swelling of the left cheek, and evidence of an ectopic maxillary third molar associated with a radiopaque lesion occupying the whole sinus on panoramic dental

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X-ray (Fig. 1). A computed tomography (CT) scan of the paranasal sinuses (Fig. 2) confirmed the presence of a well-defined radiopaque neoformation associated with the ectopic tooth in the left maxillary antrum, compatible with a dentigerous cyst. The tooth was located in the palatal bone, in the floor and medial wall of the left maxillary sinus, proximal to the apexes of tooth 26.

The patient reported symptoms of recurrent maxillary sinusitis. He showed no signs of oro-antral fistula. Transnasal endoscopic surgery was performed under general anesthesia. The nasal cavity was prepared with pads soaked in a solution comprising 30 ml of 0.1% oxymetazoline hydrochloride, 20 ml of 2% lidocaine, and 4 ml of epinephrine 1:1000. The whole procedure was completed using a 4 mm, 0°, 45° and 70° Storz–Hopkins telescope (KARL STORZ GmbH & Co., Tuttlingen, Germany).

Left complete uncinectomy was performed and the natural ostium was enlarged. The wall of the cyst was immediately visible, emerging from the maxillary sinus. The cyst was gently detached from the medial wall of the maxillary sinus up to the infero-medial angle and the superior wall. The left antrostomy was enlarged in a dorsal-to-ventral direction using a backward antrum punch, and then slightly extended inferiorly with a downward antrum punch. The whole cyst was removed with angled forceps. No microdebrider was used for this maneuver. The position of the tooth was visualized using a 70° angled endoscope and its mobility was tested with angled Heuwieser forceps. A lower meatotomy was performed under a 4 mm, 0° Storz–Hopkins telescope. The left inferior turbinate was gently raised with a Freer elevator to reveal the lower meatus, and the Hasner valve was identified (Fig. 3a). Using a 3 mm diamond bur, an opening approximately 1 cm long was made 2–3 mm posteriorly to the Hasner valve, directing the instruments horizontally and downwards to avoid orbital injury. The inferior meatotomy was enlarged first in a ventral-to-dorsal direction using a straight cutting bone punch, then inferiorly with a downward antrum punch. The profile of the ostium was better defined with a microdebrider using a 2.9 mm straight shaver blade. A 4 mm, 45° or 70° Storz–Hopkins telescope was inserted through the opening to examine the maxillary cavity directly (Fig. 3b), and the tooth in particular (Fig. 3c). The tooth was extracted from the maxillary bone using a gouge. Under 45° and 70° Storz–Hopkins telescopes, the tooth was grasped via the middle meatotomy with Heuwieser forceps with extra-long curved tips (Fig. 3d–e).

After surgery, the patient was prescribed antibiotics (second-generation cephalosporin for 6 days) and painkillers (paracetamol 1000 mg every 8 hours for three days). His recovery was uneventful. The histological findings were consistent with a dentigerous cyst (Fig. 4). Six months after surgery, healing of the hard and soft tissues was confirmed on postoperative CT (Fig. 5), and endoscopic examination. There was no evidence of cyst recurrence.

3. Discussion

The transnasal endoscopic approach to the treatment of sinus pathologies meets the need for a minimally-invasive surgery capable of preserving physiological function while minimizing morbidity and preventing complications.

The Caldwell-Luc operation was avoided because a large opening in the anterior maxillary sinus wall would have been needed to extract the tooth. This would have carried a risk of complications, including damage to the sinus mucosa, retraction

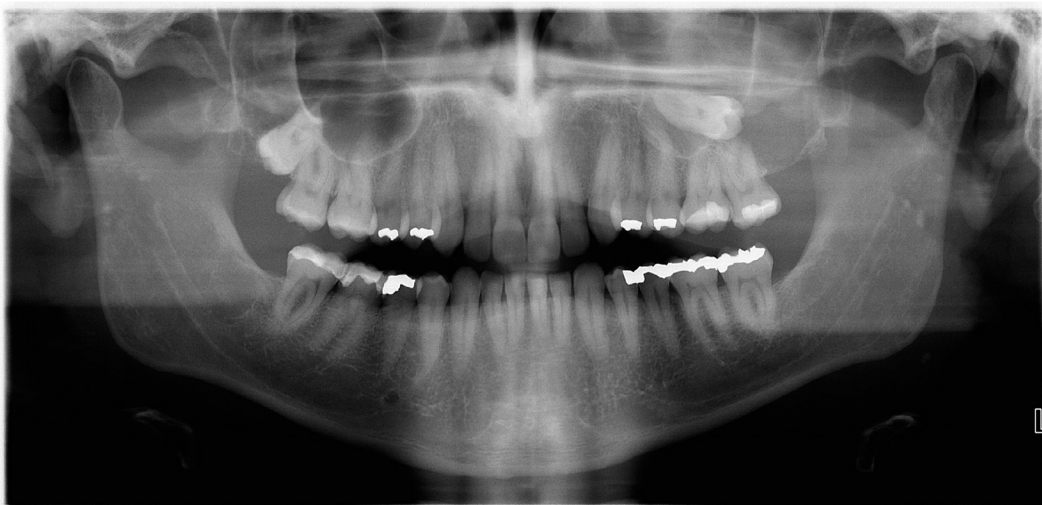


Fig. 1. Preoperative panoramic dental X-ray showing the ectopic position of the upper left third molar. A widespread opacity is visible in the left maxillary sinus.

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