

CASE REPORT

Changing Trends in Endoscopic Endonasal Medial Maxillectomy

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ABSTRACT

Medial maxillectomy is a surgical resection of the medial walls of the maxillary bone, medial part of the orbital floor, and ethmoid sinuses. Lateral rhinotomy or sublabial degloving is the traditional approach used for an open medial maxillectomy. Endoscopic medial maxillectomy is used as an alternative approach with similar cure rate with less morbidity. We report here a case of inverted papilloma of the medial wall of the right maxillary sinus where the disease clearance was done with preservative of nasolacrimal duct, inferior turbinate, and lateral nasal wall mucosa by the endoscopic medial maxillectomy approach.

Keywords: Endoscopic, Inferior turbinate, Medial maxillectomy, Nasolacrimal duct.

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INTRODUCTION

Medial maxillectomy (MM) is a surgical resection of the medial walls of the maxillary bone, medial part of the orbital floor, and ethmoid sinuses. It is the standard treatment for removal of neoplastic lesion involving the lateral wall of the nose. Lateral rhinotomy or sublabial degloving is the traditional approach used for an open MM.¹ Endoscopic MM involves removal of the medial wall of the maxilla with the uncinate process, anterior ethmoid sinus, inferior turbinate (IT) along with the nasolacrimal duct (NLD) by transnasal route;² it may be used as an alternative approach with similar cure rate and with less morbidity. We report here a case of inverted papilloma (IP)

of the medial wall of the right maxillary sinus where endoscopic MM was the approach and disease clearance was done with preservation of IT, NLD, and mucosa of the lateral nasal wall.

CASE REPORT

A 75-year-old female presented with a 3-year history of right nasal obstruction. The nasal obstruction was insidious in onset, gradually progressive with mucopurulent discharge, which was occasionally blood stained. She also had a history of anosmia and change in voice. There was no history of watering of the eyes, numbness of the face, dental pain, loosening of the teeth, difficulty opening the mouth, diplopia, or decreased vision. On examination, a reddish white polypoidal mass with irregular surface was seen filling the right nasal cavity completely just behind the anterior end of the IT (Fig. 1). Posterior rhinoscopy showed a similar mass filling the nasopharynx completely. Contrast-enhanced computed tomography (CT) scan of nose and paranasal sinuses revealed heterogeneously enhancing expansile soft tissue density filling the right maxillary sinus and the nasal cavity and extending posteriorly till the nasopharynx. The septum was pushed to the left side ((Figs 2A and B)). Biopsy of the mass was performed and it was suggestive of IP. With informed consent of the patient, an endoscopic endonasal MM was planned. Powered instruments are used to remove nasal and nasopharyngeal mass. After visualization of the lateral nasal wall completely, a horizontal incision was made 1 cm above the IT. Mucosal flaps were elevated over the bone, and maxillary line for NLD was identified. With the help of a chisel and hammer, the medial wall of the maxilla was punctured anterior to the NLD canal with preservation of the NLD. The bone over the medial wall of the maxilla was removed with preservation of the IT, NLD, and mucosa of the lateral nasal wall (Fig. 3). For wider access to maxillary sinus, IT and NLD were shifted in the medial direction. The tumor was removed completely, and base was seen arising from the medial wall of the maxilla posterior to the NLD canal above the attachment of IT. On histopathological examination, there was a mass showing ingrowth of respiratory epithelium into the underlying stroma suggestive of IP (Fig. 4). The patient is under follow-up since 6 months without recurrence.

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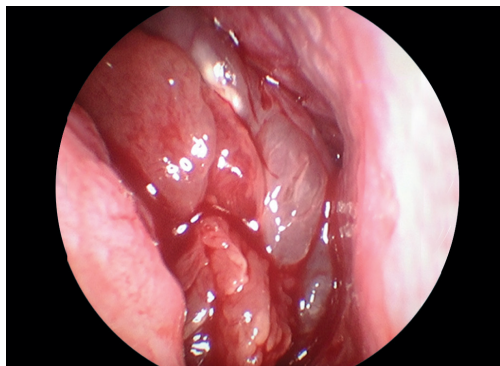


Fig. 1: A reddish white polypoidal mass with irregular surface filled the right nasal cavity completely

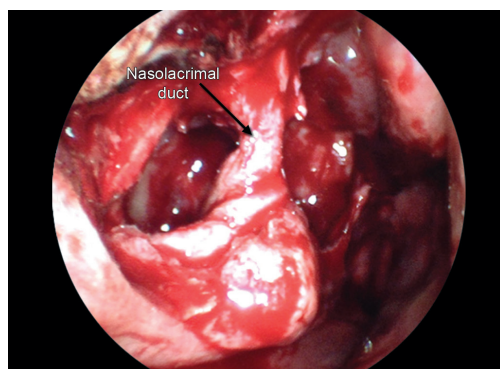
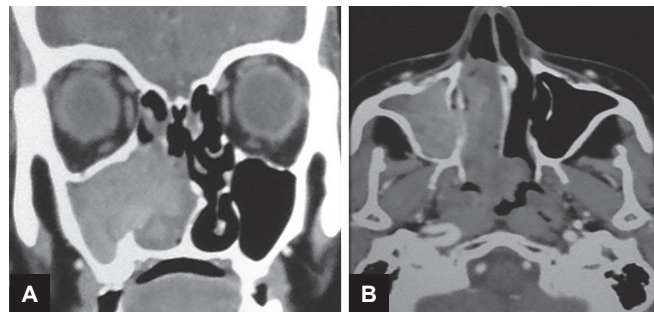


Fig. 3: Intraoperative picture of endoscopic medial maxillectomy with preservation of inferior turbinate, nasolacrimal duct, and lateral nasal wall mucosa



Figs 2A and B: Contrast-enhanced computed tomography of the nose and paranasal sinuses revealed heterogeneously enhancing expansile soft tissue density filling the right maxillary sinus and nasal cavity and extending posteriorly till the nasopharynx

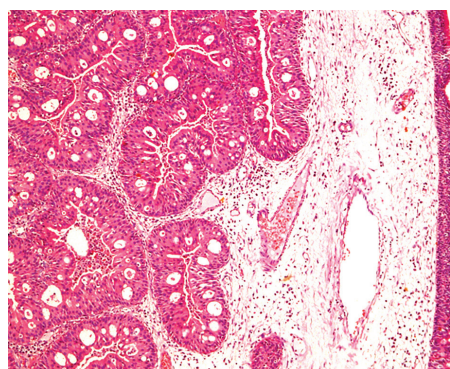


Fig. 4: Ingrowth of respiratory epithelium into the underlying stroma as a papillary process (hematoxylin and eosin 200×)

DISCUSSION

Maxillary sinus has six walls and is lined with pseudostratified columnar ciliated epithelium. Tumor may arise from any cell that makes up the mucosa. Maxillary sinus is the most common site for the origin of tumor in the nose and paranasal sinus. Inverted papilloma is a type of benign tumor where there is invasion of the surface epithelial cell into the underlying tissue. The definitive diagnosis is based on histopathology. Convoluted cerebriform pattern is the characteristic feature of IP on magnetic resonance imaging. Contrast-enhanced CT scan provides bony details, extent of the disease, and the anatomy of the skull base and paranasal sinuses. The factors affecting its management are regional aggressiveness, high rate of recurrence, and underlying risk of malignancy. Complete excision is the treatment goal.

Medial maxillectomy is a type of partial maxillectomy and the term was coined by Sessions and Larson.³ The standard approaches for MM are either external or endoscopic transnasal. To access the medial wall of the maxilla by the external route, lateral rhinotomy or midfacial degloving incisions are indicated.¹ For MM via external route, a window is created in the anterior wall of the maxilla to access lateral nasal wall, ethmoid labyrinth. It is the gold standard for the removal of IP.

With the advances in technology and expertise in endoscopic sinus surgery, increasingly transnasal endoscopic technique is being used.⁴ Initial endoscopic MM is an extended maxillary sinus antrostomy with piecemeal removal of the tumor. Tanna et al⁵ evaluated that the inferior part of maxillary sinus lies below the attachment of the IT and the anterior part of maxillary sinus lies more anterior to the NLD canal. In recent years, for complete access to maxillary and ethmoid sinuses, inferior osteotomy is made at the level of the inferior meatus; anterior osteotomy just anterior to the attachment of the IT, which is far anterior to the nasolacrimal canal; and superior osteotomy below the level of orbit, which allows en bloc removal of the tumor.⁶ Endoscopic sinus surgery provides complete access to the maxillary and ethmoid sinus by various abilities, such as higher magnification, better illumination, and visualization at angles via angled endoscope, thereby allowing the surgeon to identify the site of attachment and the extent of lesion.⁷ In comparison to the traditional external approach, endoscopic transnasal MM provides similar exposure with better control of tumor margin, less morbidity, and less operation time. If there is involvement of orbital fat, invasion in the hard palate or the posterior wall of the maxillary sinus, extends laterally beyond the infraorbital foramen, then more extensive

resection is required and traditional external approaches indicated.

Standard transnasal endoscopic MM involves the resection of the IT and NLD. Lamina papyracea removal depends on the extent of the tumor. The problems of cavity with endoscopic transnasal MM are chronic nasal dryness, neuropathic pain, epiphora, paradoxical obstruction, etc. and they have significant impact on the quality of life.⁸ In this case, the preservation of IT, NLD, and mucosa of the lateral wall of the nose has significant impact on the quality of life by reducing morbidity.⁹ By pushing IT, NLD, and lateral nasal wall mucosa medially, we can directly access the anterior and inferior parts of the maxillary sinus with straight endoscope as we did in our case.¹⁰

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