

## ENDOSCOPIC MEDIAL WALL MAXILLECTOMY FOR TREATMENT OF INVERTED PAPILLOMA

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### Abstract

Sinonasal tumors are not uncommon lesions, they are either benign or malignant, benign tumors are relatively common while the malignant are considered rare. The inverted papilloma of the paranasal sinuses is the commonest benign tumor and has a potential to become malignant.

This is a report of three cases of inverted papilloma of the paranasal sinuses which were approached surgically by endoscopic sinus surgery with very good results.

These cases were diagnosed by CT-scan of paranasal sinuses followed by biopsy taken via endoscopic guidance.

*Keywords: Endoscopy, maxillectomy, inverted papilloma*

### Introduction

In 1854, Ward first described Schneiderian papillomas (SPs) of the nose, these benign lesions were named in honor of Conrad Victor Schneider who in 1600s illustrated that nasal mucosa produces catarrh and not CSF.

Kramer and Som identified SPs as nasal tumors and described them as papillomas, distinguishing them from inflammatory nasal polyps. Ringertz was the first to recognize the tendency of SPs to invert into the underlying connective tissue

stroma<sup>1</sup>.

The schneiderian papillomas arises typically from the lateral wall of the nose, rarely it is found on the septum. The incidence of these tumors is 0.5-7% of all nasal tumors.

Inverted papilloma is a lesion which originates from Schneiderian membrane. This is regarded as a transition between the endothelium derived respiratory epithelium and ectoderm derived squamous epithelium<sup>2</sup>.

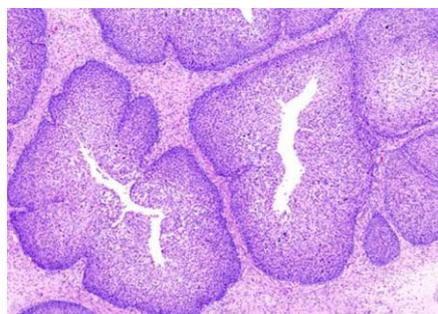


Figure 1: Histopathological picture of inverted papilloma

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The etiology is uncertain; however there is an association between SPs and human papilloma viruses. Inverted papilloma typically involves the middle meatus and

at least one sinus cavity. The most common sinuses involved are the maxillary and ethmoid sinuses. The SPs are usually unilateral but they may be

bilateral in up to 13% of cases. These tumors have a high rate of recurrence as high as 75%.with any procedure. There is a 5-15% risk of change to malignancy (squamous cell carcinoma)<sup>3</sup>.

Staging System for inverted papilloma:  
 Stage 1; tumor limited to the nasal cavity.  
 Stage 2; tumor involving middle meatus,

ethmoid sinus, and/or medial wall of the maxillary sinus. Stage 3; tumor extends to superior, inferior, anterior, posterior, or lateral wall of sphenoid sinus, maxillary sinus, and/or frontal sinus. Stage 4; tumors that involves extranasal, extrasinus regions, and all malignant tumors<sup>4</sup>.

### Case 1:

A sixty five years old woman presented with left nasal obstruction since 2 years, she suffered from facial pressure, pain, and postnasal drip which sometimes associated with left epistaxis and rhinorrhoea.

The ENT examination showed that she had left fleshy mass in the left middle meatus. There was no hearing impairment, cervical lymphadenopathy, blurred vision or proptosis. Biopsy from

the tumor was taken via nasal endoscope under local anesthesia and was sent for histopathological examination which revealed inverted papilloma.

Computerized tomography scan of the paranasal sinuses was requested and the results were; involvement of the left maxillary sinus, anterior and part of the posterior ethmoid sinuses with ipsilateral frontal sinus opacification which indicates that the staging was T2-T3.

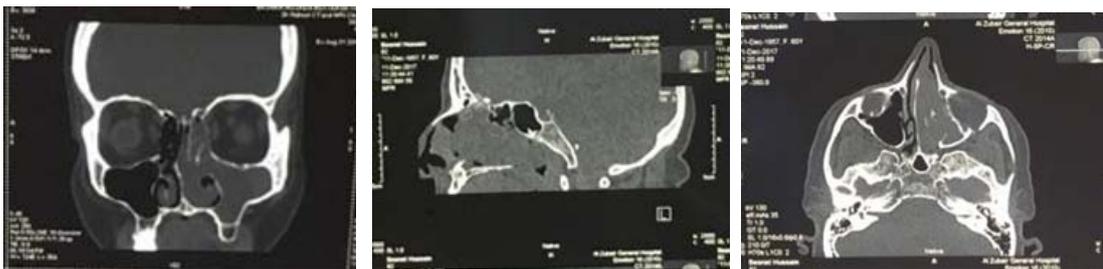


Figure 2: CT scan, coronal, sagittal, and axial views

Treatment: The best treatment for such tumor is endoscopic surgical excision<sup>5</sup>. It is preferred to perform the procedure entirely by endoscope in which the polypoidal lesion was removed via microdebrider and a tissue biopsy was taken. The maxillary sinus was identified and middle meatal antrostomy type 3 was performed. Anterior and posterior

ethmoidectomy was done till the base of the skull with sphenoid sinusotomy type 3. Frontal recess approach type 2a was done with complete clearance. Drilling was performed in the medial wall of the maxillary sinus with resection of the nasolacrimal system; therefore dacryocystorhinostomy with stent was needed.

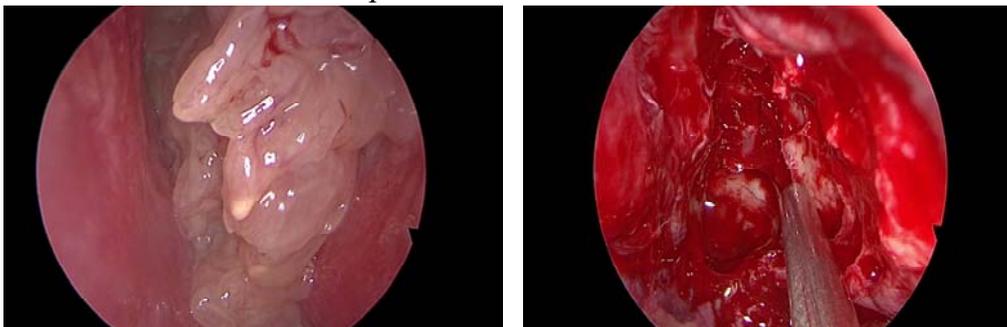


Figure 3: Endoscopic view before surgery and the field at the end of the procedure

**Case 2:**

A 60 years old woman experienced left nasal obstruction, epiphora, and sometimes associated with epistaxis since 1 year. During ENT examination, the patient had abnormal left nasal mass. The nasolacrimal system was assessed by an ophthalmologist who revealed the presence of left nasolacrimal obstruction. A biopsy was taken under local anesthesia which indicated an inverted papilloma. A work up was planned in form of CT scan of the sinuses which demonstrated an involvement of left

maxillary and anterior ethmoid sinuses as well as involvement of the left nasolacrimal duct (the presence of nasolacrimal duct erosion, stage 2 tumor).

Ultimately, the endoscopic sinus surgery in form of left medial wall maxillectomy was done with complete skeletonization of the nasolacrimal duct and the duct was sacrificed. A DCR stent was inserted to insure the patency of the nasolacrimal system. Furthermore, the followup continued till 6 months without signs and symptoms of recurrence.

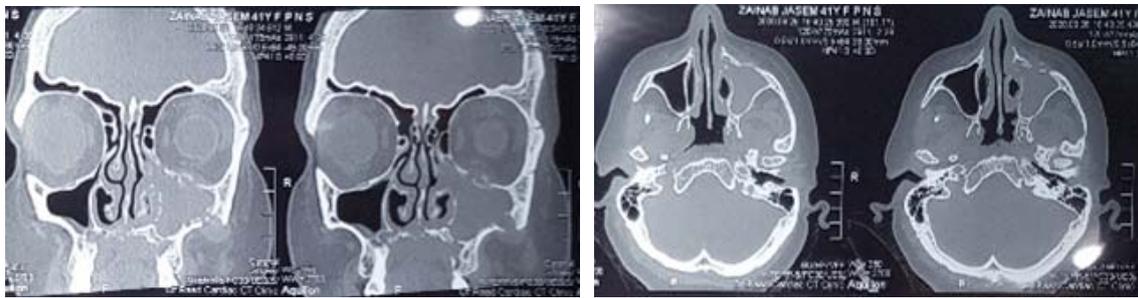


Figure 4: Sinuses CT scan, coronal and axial views illustrates the involvement of the left maxillary osteomeatal complex with anterior ethmoid sinuses.

**Case 3:**

Another patient, a 35 years old man also complained of right nasal obstruction and facial pain. The ENT finding was; right nasal mass which involved right maxillary sinus, anterior & posterior ethmoid sinuses till the sphenoid sinus.

Also the mass reached the optic canal. Endoscopic biopsy under local anesthesia was done and revealed inverted papilloma. The clinical and radiological examination (CT scan of paranasal sinuses) show inverted papilloma stage 3.

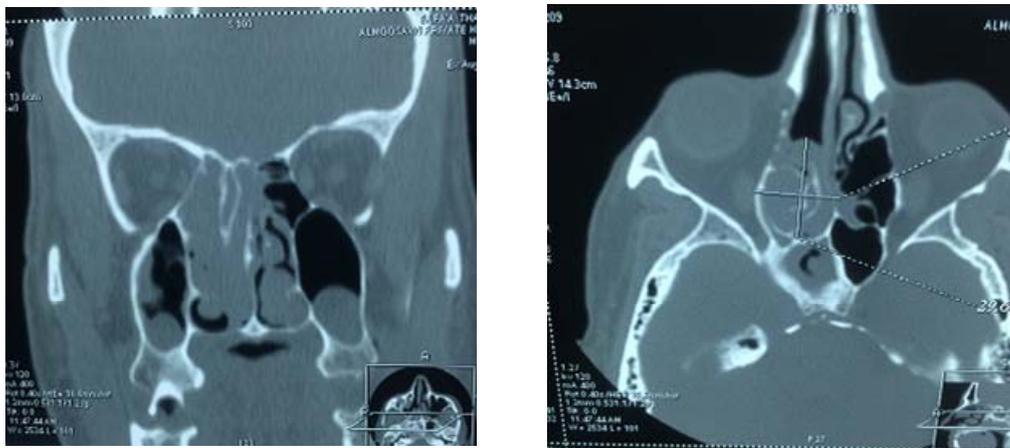


Figure 5: CT scan showing inverted papilloma.

Then treatment was done using endoscopic sinus surgery with powered instrumentations by microdebrider and intrasinus drill to clean the sinuses as follows: right endoscopic middle meatus antrostomy. Anterior and posterior ethmoidectomy with sphenoid sinusotomy type 2. Complete inspection

of intra ethmoid & sphenoid sinuses, and optic canal which was clear. The patient was discharged next day after removal of nasal pack, and was followed up after 1 year with no recurrence. All patients participated in this study did not have any complication or recurrence as demonstrated in table I.

Table I: Characteristics and outcome of patients included in this study.

Age	Gender	Staging	Results	Complications
65	female	T2-T3	No recurrence	Nil
60	female	T2	No recurrence	Nil
35	male	T3	No recurrence	Nil

## Discussion

The most confirmatory diagnostic tool for inverted papilloma is tissue biopsy but in my opinion, we have many precautions; first, it is better to take a biopsy under endoscopic guidance with full equipped area to deal with epistaxis otherwise the risk of bleeding is high if the nasal mass was vascular such as hemangioma, angiofibroma,....etc. Secondly, to be careful if the mass extends superiorly towards the skull base because of the possibility of nasal encephalocele, therefore imaging in form of CT scan of para nasal sinuses with or without MRI of paranasal sinuses including anterior cranial fossa is mandatory to arrange before biopsy<sup>6</sup>.

The treatment option for inverted papilloma of the paranasal sinuses is usually surgical resection either by open or endoscopic approach. Nowadays, the endoscope is favorable because of no facial scar and less hospital stay. In addition, the recurrence rate is 11-12%. However the patient needs regular follow up to detect any recurrence or malignant transformation<sup>7</sup>. This surgical intervention usually needs ipsilateral nasolacrimal duct surgery to ensure the patency of nasolacrimal system otherwise the patient will recover with ipsilateral epiphora<sup>8</sup>.

The general steps in endoscopic medial wall maxillectomy are as follows: Removal of tumor till reach the middle meatus. Endoscopic uncinectomy with middle meatus antrostomy till reach the posterior wall of maxillary sinus (mega antrostomy) with anterior extension to sacrifice the ipsilateral nasolacrimal system in order to give good access to anterior wall of the maxillary sinus. Anterior and posterior ethmoidectomy with exploration of the skull base should be done. If the lesion reaches the frontal recess or frontal sinus, then endoscopic frontal recess approach is indicated. Sphenoid sinusotomy is performed to ensure complete clear of the posterior part of the sinuses and to explore the skull base posteriorly in relation to the optic nerve and internal carotid artery. Ipsilateral inferior turbinectomy and Ipsilateral DCR with stent insertion should be considered.

The possible complications of endoscopic medial wall maxillectomy are<sup>9</sup>:

Intraoperative complications including; Anesthetic reaction, bleeding, penetration of lamina papyracea, CSF leak, nasolacrimal system injury, and possible optic nerve & internal carotid artery injuries.

Immediate post-operative complications includes: Intra-orbital bleeding, and epistaxis.

Early postoperative complications included: CSF leak, intracranial infections such as meningitis or brain abscess.

Late complications includes: Adhesions and recurrence of the tumour.

Conclusion: The endoscopic medial wall maxillectomy as a surgical treatment modality for an inverted papilloma is considered as a safe and good surgical strategy to deal with this common paranasal tumor but it needs efficient endoscopic sinus surgeon with good knowledge of the endoscopic paranasal sinus anatomy.

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