

TRANSNASAL ENDOSCOPIC SURGERY BY POWERED INSTRUMENTATION IN THE TREATMENT OF SYMPTOMATIC NASOPHARYNGEAL CYSTS- OUR EXPERIENCE

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ABSTRACT

BACKGROUND

Nasopharyngeal cysts are rare lesions. Usually asymptomatic, they are found during routine nasal endoscopies and imaging studies. Symptomatic cysts are relatively uncommon, very few cases have been reported in literature and require treatment in the form of surgery. We present our experience in transnasal, endoscopic-guided surgical treatment of nasopharyngeal cysts with the aid of powered instruments along with symptomatology of the nasopharyngeal cysts and the efficacy and outcomes of the procedure.

MATERIALS AND METHODS

We retrospectively reviewed twelve patients from January 2013 to June 2017 with symptomatic nasopharyngeal cysts treated at a tertiary referral centre. The symptoms and signs were assessed, and all the patients underwent Nasal Endoscopy, MRI, or a CT scan. All the patients underwent transnasal endoscopic powered instrument assisted marsupialisation of the cyst. The patients were followed up for a minimum of six months.

RESULTS

All the patients were symptom-free on follow up of 6 - 36 months with no major complications. There were no recurrences noticed in the follow up period. Histopathological examination showed features of Tornwaldt's cysts in four cases, mucus retention cysts in six cases and intra-adenoid cysts in two.

CONCLUSION

While nasopharyngeal cysts are often detected incidentally on imaging studies, symptomatic cysts are uncommon and need definitive treatment. Marsupialisation of the cyst by powered instruments is precise and effective without any major complications.

KEYWORDS

Nasopharynx, Endoscopy, Nasopharyngeal Diseases, Cyst, Nasal Surgery, MRI Scans.

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BACKGROUND

Nasopharyngeal cysts are often found incidentally on radiological imaging or nasopharyngoscopy and are most often asymptomatic.¹ Asymptomatic cysts are not uncommon, but symptomatic cysts are relatively uncommon. Only a few studies in literature have reported about nasopharyngeal cysts which are symptomatic. Qinying et al, reported 12 cases of symptomatic nasopharyngeal cysts in a ten-year study period.² Symptomatic cysts should be subjected for imaging, nasal endoscopy and definitive treatment in the form of endoscopic endonasal total excision or marsupialisation of the cyst.

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Various methods of surgical excision and marsupialisation techniques and approaches have been described in literature, with the transoral and transpalatal approaches most commonly employed in the pre-endoscopy era.³ Other approaches used are transmandibular and transcervical route for nasobranial cysts.⁴ Complications like haemorrhage, velopharyngeal insufficiency, cosmetic deformity and extreme scarring have been reported with these approaches.⁴ The advent of endoscopes greatly improved visualization of the nasopharynx and the adjacent normal structures could be identified in a better way and protected. Use of cold steel instruments are described in literature for either excision or marsupialisation of the cysts. The use of powered instruments gives a precise result with least collateral damage.

In this paper, we report our experience in the management of symptomatic nasopharyngeal cysts with respect to diagnosis and treatment using transnasal, endoscopic, powered instrument-assisted marsupialisation of the cyst with emphasis on the symptomatology, efficacy and outcomes of the procedure.

MATERIALS AND METHODS

Type of study

Retrospective Cohort Study

We retrospectively reviewed all symptomatic patients with nasopharyngeal cysts from January 2013 to June 2017 treated at a tertiary referral centre. Patients with deviated nasal septum, sinonasal polyps (CRS), nasopharyngeal carcinoma, nasal and paranasal sinus tumours and nasopharyngeal angiofibromas were excluded from the study. Patients below the age of 18 years were excluded from the study. Patients with asymptomatic cysts either found on endoscopy or imaging were also excluded. All the patients underwent nasal endoscopy and radiological imaging to localize the cyst. After confirming the presence of nasopharyngeal cyst, the cases were subjected for endoscopic (zero-degree rigid endoscope, Karl Storz) marsupialisation of the cyst using microdebrider (Medtronic ipc system along with Straight 4 mm tricut blades). The contents and a portion of the cyst wall were sent for histopathological examination. Post operatively the patients were prescribed saline nasal douching for 2 weeks and 1 week of amoxicillin (500 mg) and clavulanate (125 mg) per oral antibiotic. The patients were followed up for a minimum of six months, with the duration of follow up ranging from 6-11 months. All the patients underwent nasal endoscopy at 6 months of follow up and even earlier if it was indicated. Patients who were lost on follow up were excluded from the cohort; a minimum of six months follow up post operatively was kept as inclusion criteria.

RESULTS

There were a total of twelve patients included in the study, during the study period. There were 7 males and 5 females. The age group ranged from 25 years to 66 years, with a mean of 45.3 years. All the cases were symptomatic, 12 (100%) cases had snoring, 8 (66.7%) cases had nasal obstruction and 6 (50%) cases had ear symptoms in the form of hearing loss and otitis media with effusion. The symptom duration ranged from 2 months to 24 months.

All the patients underwent nasal endoscopy which showed cystic swelling in the nasopharynx, either single or multiple with varied size (Figure 4). Radiological imaging, either an MRI or CT, confirmed the nasal endoscopy findings (Figure 1-3). None of the patients had lesions communicating to the intracranial cavity.

Transnasal endoscopic marsupialisation was done in all the patients. There were no major complications encountered intra-operatively and in the post-operative phase. Minimal crusting was seen in early postoperative period in the nasopharynx which healed in two weeks after saline douching. The histopathological examination revealed respiratory epithelium with lymphoid stroma in four cases, six specimens had single layer of cuboidal epithelium lining the cyst wall and two cases had cuboidal epithelium with squamous metaplasia lining with inflammatory infiltrates. Of the twelve cases, 6 had mucus retention cyst, 4 cases were diagnosed as Tornwaldt's cyst and 2 cases were large intra-adenoid cysts. All the patients

were discharged from the hospital 24 hours after of surgery.

Nasal endoscopy was done for all the cases after minimum of 6 months of follow up. The follow up ranged from 6 months to 3 years, with a mean of 22 months. There were no recurrences and all the patients were symptom-free. The results and demographics of patients are described in Table 1.

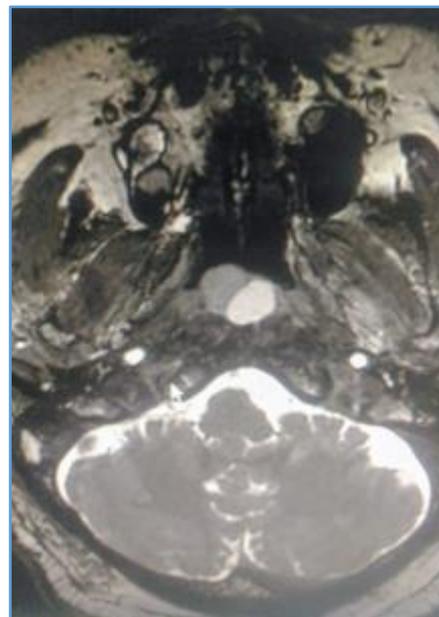


Figure 1. Axial T2 Weighted MRI Shows Two Hyperintense Cysts in the Nasopharynx



Figure 2. Sagittal Image of Nasopharynx in Midline showing the Hyperintense Cyst on T1 Weighted Image. White Arrow Indicates Roof of Sphenoid Sinus

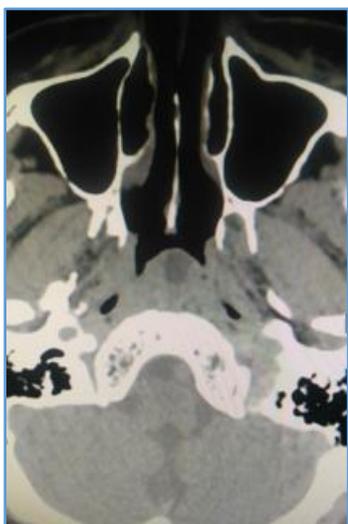


Figure 3. Axial Non-contrast CT Image Showing a Hypodense Lesion in the Midline of Nasopharynx



Figure 4. Nasal Endoscopy Showing Cystic Swelling in the Nasopharynx

No.	Gender	Age	Symptoms/signs			Duration	Diagnosis	Follow Up	Complications/ Recurrence
			Snoring	Nose Block	OME/Reduced hearing		HPE/Imaging/DNE		
1	M	66 y	+	+	+, B/L	6 m	Retention cyst	8 m	Nil
2	M	44 y	+	+	-	4 m	Retention cyst	12 m	Nil
3	F	45 y	+	-	-	3 m	Retention cyst	24 m	Nil
4	M	55 y	+	-	-	15 m	Tornwaldt's cyst	28 m	Nil
5	F	25 y	+	+	+ B/L	12 m	Tornwaldt's cyst	36 m	Nil
6	F	32 y	+	+	-	24 m	Adenoid cyst	40 m	Nil
7	M	47 y	+	+	+ Rt	6 m	Retention cyst	9 m	Nil
8	M	38 y	+	+	-	8 m	Retention cyst	18 m	Nil
9	M	57 y	+	+	-	2 m	Adenoid cyst	20 m	Nil
10	F	40 y	+	-	+ Rt	4 m	Tornwaldt's cyst	28 m	Nil
11	F	42 y	+	-	+ Lt	10 m	Retention cyst	33 m	Nil
12	M	53 y	+	+	+ B/L	6 m	Tornwaldt's cyst	6 m	Nil

Table 1

DISCUSSION

Nasopharyngeal cysts can be classified into midline and lateral types, further grouped into congenital and acquired.⁵ The most common midline cysts are mucus retention cysts.⁶ Next common are Tornwaldt's cysts which are congenital cysts described by Dr. Gustoff L Tornwaldt in the 19th century. These cysts represent the embryonic communication between mesenchymal notochord remnant and endodermal derived nasopharyngeal mucosa. They may also be acquired following adenoidectomy, nasopharyngitis and chemoradiation for nasopharyngeal carcinoma in adults.¹ These cysts are deep to the pharyngobasilar fascia.⁶

The most common lateral nasopharyngeal cysts are branchiogenic cysts; mucus retention cysts can also arise from lateral aspect, but rarely. The mucus retention cysts lie superficial to the pharyngobasilar fascia (Figure 2).⁶ Other cystic lesions in the nasopharynx are Rathke's cleft cysts, dermoid tumours, infectious cysts, nasopharyngeal encephalocele, infrasellar craniopharyngiomas, retention cysts in adenoids.¹ Daniel et al reported three cases of nasobranial cysts arising from the nasopharynx and treated endoscopically using cold steel instruments⁶.

Qinying et al reported 12 cases, of which 6 were infected adenoid cleft cysts, 3 were Tornwaldt's cysts, and the rest were retention cysts². In our study we had retention cysts in 50% of cases, Tornwaldt's cyst in 33.33% and large intra adenoid cyst in 17% of cases.

Radiologically images on CT appear as fluid attenuation between longus capiti muscle, high in the nasopharynx. MRI is the imaging study of choice, where the cysts are bright on T2 weighted images and if the cyst fluid is high in protein content, they are hyperintense in T1 weighted images, too.³ Variable intensity on MRI scans can be seen in multiple cysts when there is a change in the protein content (Figure 1). Upto 6% of cysts are found incidentally on MRI scans and usually do not require any treatment. Symptomatic cysts are to be surgically treated. Incision and drainage should be avoided, as it is a temporary measure and the cyst almost always recurs once the opening closes. Marsupialisation or excision of the cyst should be done to avoid recurrence.

Transnasal endoscopic technique enhances visualization, illumination and provides more direct access to the cysts situated in the upper part of nasopharynx. Important structures like the eustachian tube, can be

visualized and protected.⁷ While marsupialisation or excision of the cysts can be done by cold steel instruments, microdebrider adds to the precision by not stripping the nasopharyngeal mucosa. Powered instruments aid in the surgery in a similar fashion as in performing endoscopic sinus surgery where preservation of mucosa is emphasized. The same principle can be applied in these cases with powered instruments having advantage over cold steel instruments in mucosal preservation.

Qinying et.al (2015) described coblation assisted transnasal endoscopic resection of nasopharyngeal cysts with minimal bleeding and concluded that it is a safe and effective procedure.² Roohie singh et al has described a case of Thornwaldt's cyst marsupialisation using powered instrument and concluded that microdebrider serves better tissue respect to surrounding tissues of nasopharynx and eustachian tube.⁸

CONCLUSION

Nasopharyngeal cysts are not uncommon, but symptomatic cysts are uncommon and need definitive treatment. The symptoms can be nasal or otological due to the proximity of the eustachian tube. The best modality of assessment is diagnostic nasal endoscopy and MRI scan. Marsupialisation of the cyst by powered instruments is precise and effective without any major complications.

Limitations of the Study

The cohort in this study is small and a larger cohort with a longer follow up period would be ideal. But symptomatic nasopharyngeal cysts are not very common. Therefore, multicentric studies with larger number of cases, comparison with different modalities of treatment and

surgical approaches with longer follow up periods will provide greater insights into the management of this condition.

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