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Case Report

Powered instruments for managing Thornwaldt's cyst: our experience

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ABSTRACT

Thornwaldt's cyst (TC) is a benign, midline cystic swelling located in the roof of nasopharynx. Produced by persistent notochord remnants, it is relatively rare. There is no sex predilection. Most cases are diagnosed during the second and third decade. Nasal endoscopy is the best to visualise the disease and in case of doubt, imaging is helpful. Most of the cysts are asymptomatic but when the cyst is large or causing symptoms, surgery is the treatment of choice. A 32-year-old male, presented with bilateral decreased hearing since 2 and half years, with no other ear symptoms. Audiogram showed bilateral conductive hearing loss, with impedance audiogram showing bilateral type B curve. CT scan of Paranasal sinuses and nasopharynx was suggestive of midline cystic mass arising from roof of nasopharynx. Patient was taken up for nasal endoscopic surgery using microdebrider. A 17-year-old male, presented with complaints of nasal obstruction with no otologic symptoms like aural fullness, decreased hearing. MRI showed oval lesion attached to roof of nasopharynx. Patient was planned for surgery using coblation. TC although considered benign and often asymptomatic but it may be overlooked due to its overlapping of symptoms with other conditions. This under recognition highlights the need for increased awareness and high quality imaging in the diagnosis. While surgical intervention remains the mainstay of treatment for symptomatic cysts but minimally invasive technique like endoscopic drainage reduces recovery time and complication rate. Powered instruments use in managing cysts, resulting in minimal morbidity and improved postoperative outcomes

Keywords: Thornwald's cyst, Powered instruments, Microdebrider

INTRODUCTION

Thornwaldt's cyst (TC) is a benign, midline cystic swelling located in the roof of nasopharynx. It is also known as pharyngeal bursa (Luschka bursa). Produced by persistent notochord remnants, it is relatively rare with an incidence of 1.4-3%.[1,2] It represents persistence of an embryonic communication between the anterior tip of the notochord and the roof of the pharynx. It is usually a developmental abnormality where communication between pharyngeal endoderm and notochordal remnants persist. If its opening becomes obstructed, possibly due to infection or a complication from adenoidectomy, a TC might develop. There is no sex predilection. Most cases are diagnosed during the second and third decade. Nasal endoscopy is the best to visualise the disease and in case of doubt, imaging is helpful. Most of the cysts are asymptomatic but when the cyst is large or causing symptoms, surgery is the treatment of choice.

Hereby we report two cases of Thorwnwaldt's cyst which presented with diverse symptoms.

CASE REPORTS

Case 1-microdebrider for TC

A 32-year-old male, presented with bilateral decreased hearing since 2 and half years, with no other ear symptoms. There were no nasal complaints, headache, previous nasal surgery or trauma.

Pure tone audiogram (Figure 1) showed bilateral conductive hearing loss, with impedance audiogram (Figure 2) showing bilateral type B curve.

X ray soft tissue neck lateral view (Figure 3) showed soft tissue mass occupying nasopharynx with no crescent sign. On further evaluation with CT scan of paranasal sinuses and nasopharynx it showed a midline cystic mass arising from roof of nasopharynx.

Further on diagnostic nasal endoscopy, there was midline submucosal bulge seen arising from the roof of nasopharynx and abutting torus tubaris (Figure 4).

Patient was taken up for nasal endoscopic surgery. The nasopharyngeal mass was marsupialized (Figure 5 A-C) using a microdebrider

Intraoperative whitish viscous fluid expelled on breaking the cyst wall, marsupialization was completed using microdebrider. Cyst wall sent for histopathology reporting which showed respiratory epithelium suggesting TC (Figure 6). Postoperative pure tone audiometry showed improved hearing (Figure 7) and tympanometry (Figure 8) showed regression of fluid.

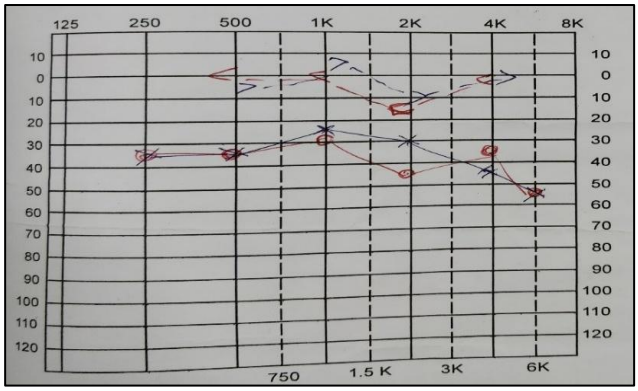

Figure 1: Preoperative pure tone audiometry showing B/L conductive hearing loss.

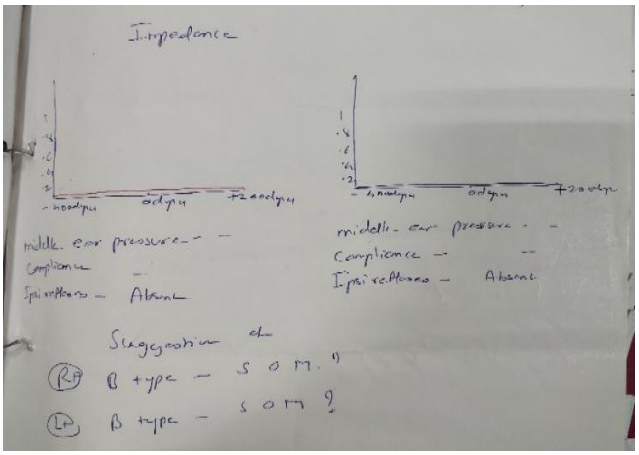

Figure 2: Preoperative impedance audiometry showing B/L type B curve.

Figure 3: X ray nasopharynx of soft tissue density in nasopharynx.

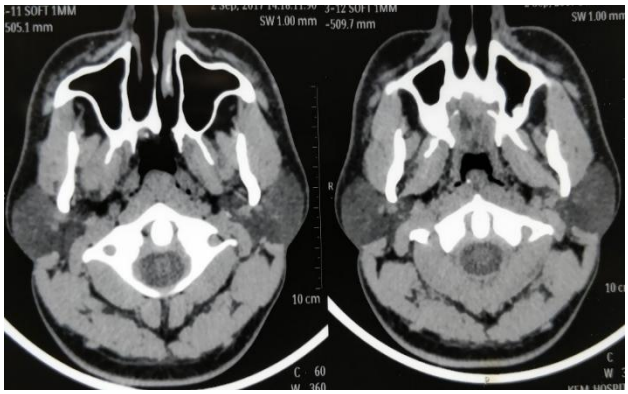

Figure 4: CT scan of paranasal sinuses with nasopharynx showing cystic mass in nasopharynx.

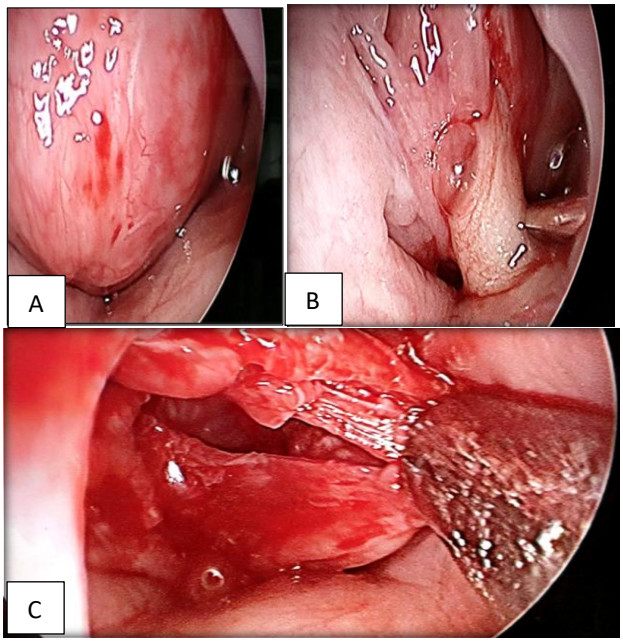

Figure 5 (A-C): Intraoperative findings. Showing cyst abutting torus tubaris, cyst wall incised and marsupilisation using microdebrider. A-Cyst abutting torus tubaris, B-Cyst wall incised and C-Marsupilisation using microdebrider.

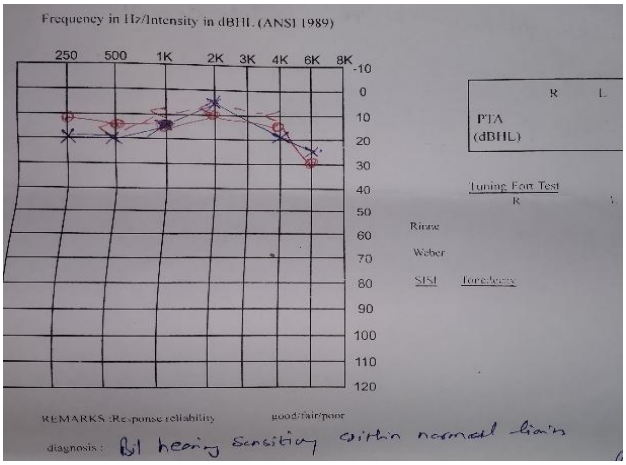

Figure 6: Postoperative pure tone audiometry showing hearing improvement.

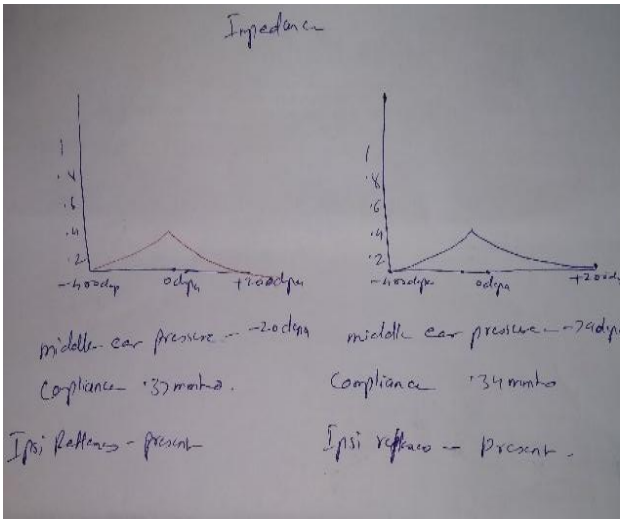

Figure 7: Post op impedance audiometry.

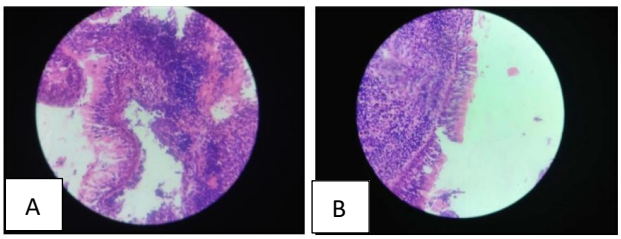

Figure 8 (A & B): Post op histopathology.

The cyst wall was lined by respiratory epithelium, with the stroma consisting of multiple individual lymphocytes- a typical description of TC.

Case 2: Coblator for TC

A 17-year-old male, presented with complaints of nasal obstruction with no otologic symptoms like aural fullness, decreased hearing.

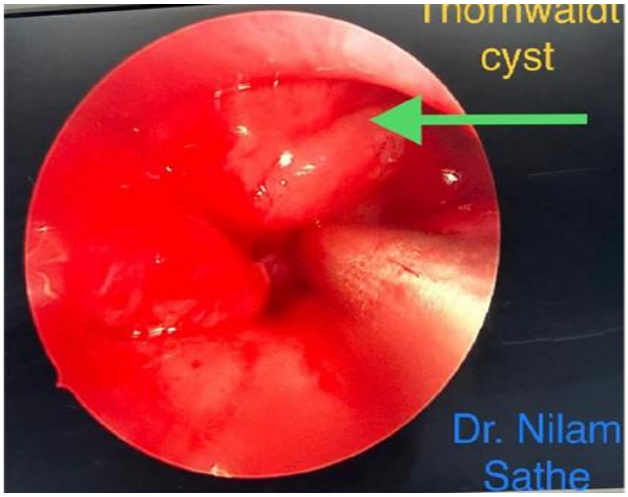

Figure 9: Nasal endoscopy showing cystic mass.

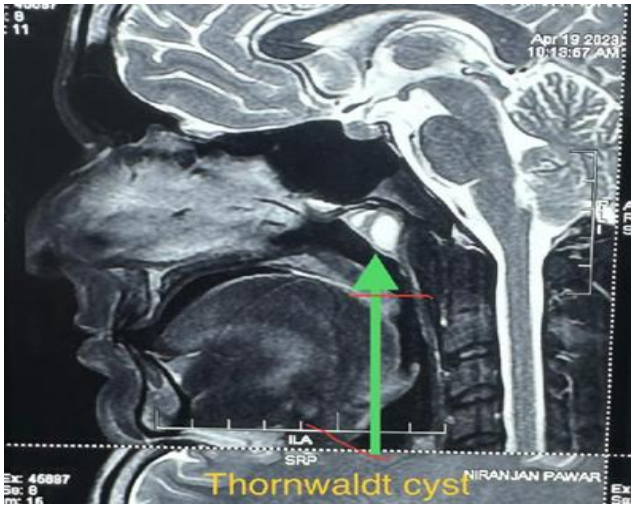

Figure 10: Sagittal section of MRI showing mass occupying filling the nasopharynx, the posterior wall of nasopharynx.

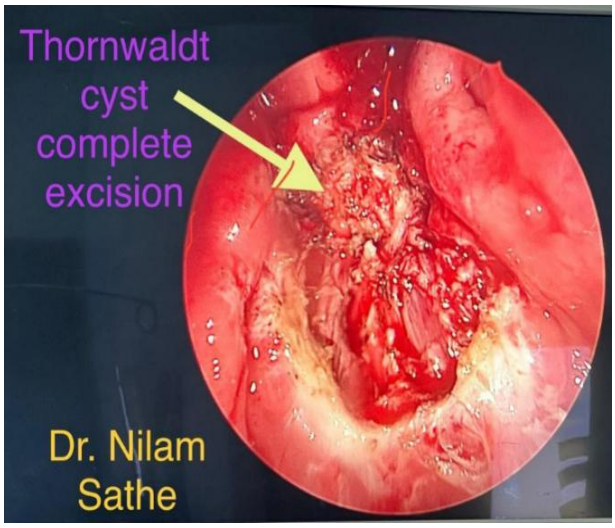

Figure 11: Marsupilisation done using coblator.

On examination, both anterior rhinoscopy and otoscopy were normal. Diagnostic nasal endoscopy showed a large lesion arising from the posterior wall of nasopharynx (Figure 9). Magnetic resonance imaging (MRI) showed oval lesion attached to roof of nasopharynx (Figure 10). Patient was planned for surgery. Complete surgical excision was done using endonasal endoscopic along with transoral retrovelar approach using the 70-degree telescope and with coblator (Figure 11). Patient was on regular follow up for 1 year and was symptom free with no recurrence.

DISCUSSION

Thornwaldt's cyst was first described in literature by Dr. Gustoff L. Thornwaldt in the 19th century as one of the causes of pharyngeal discomfort.[3] This cyst develops as a result of defected embryological development at the point where the notochord retains its union with the pharyngeal ectoderm.[4] It may also be required by means of surgical trauma, in particular nasopharyngitis, chemoradiation or adenoidectomy, which has been implicated as the etiological factor in approximately 75% of cases.[5-7] It is usually small and remains silent. Large cyst may present with symptoms such as nasal obstruction, decreased hearing, foreign body sensation and post nasal drip mimicking disease like Rathke's pouch cyst, adenoid retention cyst, menigocoele or nasopharyngeal carcinoma.

Nasal endoscopy is simple and rapid procedure to visualise the cyst. Computed tomography (CT) scan shows a low density cyst on posterior nasopharyngeal wall. MRI is the gold standard and most sensitive modality for detecting the cyst, evaluating its size, content and anatomical relationship to surrounding structures.[8] The cyst has a high signal intensity on T1-weighted, T2-weighted and fluid-attenuated inversion-recovery, with no enhancement with gadolinium contrast.[9]

Asymptomatic cysts require no treatment. When the lesion is large, symptomatic or close to the Eustachian tube torus, surgery by marsupialization via endonasal or transoral approach is the treatment option.[8] Endonasal approach is recommended for small lesions and transoral approach for large lesions as it provides better exposure.

In this study, both cases were managed using powered instrumentation by transnasal as well by transoral approach using 0 degree and 70 degree endoscopes. Jyotirmay et al used endonasal endoscopic approach using rigid endoscope and powered instrumentation.[10] We used microdebrider with a standard blade rather than any specialized blade as used by Eloy et al.[11] El-Anwar also used microdebrider for marsupialization of cysts.[12] Moody et al used the shaver to remove the entire anterior wall of cyst but surgery was complicated by diffuse bleeding.[13] Caliman et al used diode laser for marsupialization of cyst with 0.5 mm area of thermal necrosis but it is of high cost.[14] In one case we utilized a combined endonasal and transoral approach with 70 degree telescope andcoblator, whereas Wang et al employed coblation assisted transnasal endoscopic resection.[15] The benefit of using 70 degree telescope gives better manoeuvrability of the instruments and transoral approach provides wider exposure. The present study highlights the use of powered instruments in managing cysts, resulting in minimal morbidity and improved postoperative outcomes.

CONCLUSION

Thornwaldt's cyst considered benign and often asymptomatic but it may be overlooked due to its overlapping of symptoms with other conditions. This under recognition highlights the need for increased awareness and high quality imaging in the diagnosis. While surgical intervention remains the mainstay of treatment for symptomatic cysts but minimally invasive technique like endoscopic drainage reduces recovery time and complication rate. Powered instruments use in managing cysts, resulting in minimal morbidity and improved postoperative outcomes.

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