



COMPLEX THORNWALDT'S CYST: A RARE PATHOLOGY

ENT

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ABSTRACT

Thornwaldt's cyst is a rare congenital cyst present in nasopharyngeal bursa which is an embryonic remnant of notochord which forms communication between notochord and endodermal derived nasopharyngeal mucosa. The peak prevalence in the 2<sup>nd</sup> and 4<sup>th</sup> decade of life (3). Incidence on autopsy was 4% and it had been detected incidentally on CT at 0.013% & MRI at 0.13% (4). We present a case of a young female who presented with a history of unilateral hearing loss on left side with no nasal complaints. On detailed history and work-up, she was found to have symptomatic complex Thornwaldt's cyst. The case was managed successfully by an endoscopic approach.

KEYWORDS

Endoscope, Nasopharyngeal bursa, Complex Thornwaldt's cyst, Endoscopic marsupialization

INTRODUCTION

Thornwaldt's cyst is a rare congenital cyst present in nasopharyngeal bursa which is result of developmental remnant(1). In 1885 Gustav Thornwaldts discovered pathology of cyst, hence named after him. Cyst present as embryonic remnant of notochord which form communication between notochord and endodermal derived nasopharyngeal mucosa (2). Incidence of cyst varies from author to author. It is an uncommon discovery with no sex predilection which may occur at any age. The peak prevalence in the 2<sup>nd</sup> and 4<sup>th</sup> decade of life (3). Incidence on autopsy was 4% and it had been detected incidentally on CT at 0.013% & MRI at 0.13% (4).

Here we present a case of complex Thornwaldt's cyst, which had atypical presentation in the form of unilateral conductive hearing loss with no nasal complaints. To the best of our knowledge not many such cases with atypical presentation have been reported so far.

CASE REPORT

A 33yr old woman came to our hospital with primary complaints of reduced hearing on left side of 2 months duration which was insidious in onset, gradually progressive with no history of prior bouts of upper respiratory tract infection. Apart from hearing loss, she was otherwise asymptomatic and did not have any symptoms of ear and nose.

On examination tympanic membrane was intact on both sides. Pure tone audiogram showed left side mild to moderate conductive hearing loss with Impedance audiogram showing B/L type B curve. Diagnostic nasal endoscopy using 0 degree rigid endoscope showed large oval shaped, smooth, yellowish, encapsulated lesion arising from the posterior wall of nasopharynx which was covered with smooth mucosa.

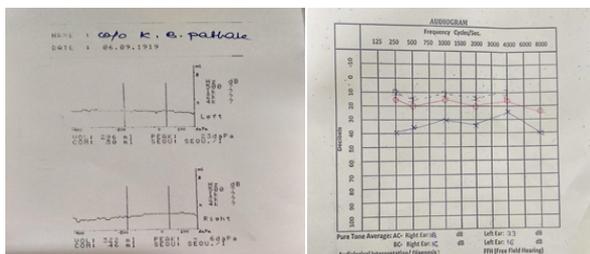


Figure 1: Impedance audiometry showing B/L Type B curve & PTA showing left side conductive hearing loss

CECT scan revealed posterior pharyngeal soft tissue thickening approx 5x6x6mm with hypodense non enhancing focus with two foci of calcification noted which suggestive of complex Thornwaldt's cyst. After informed consent, the patient underwent endoscopic excision of

cyst under general anaesthesia with orotracheal intubation. Anterior to posterior approach was followed.

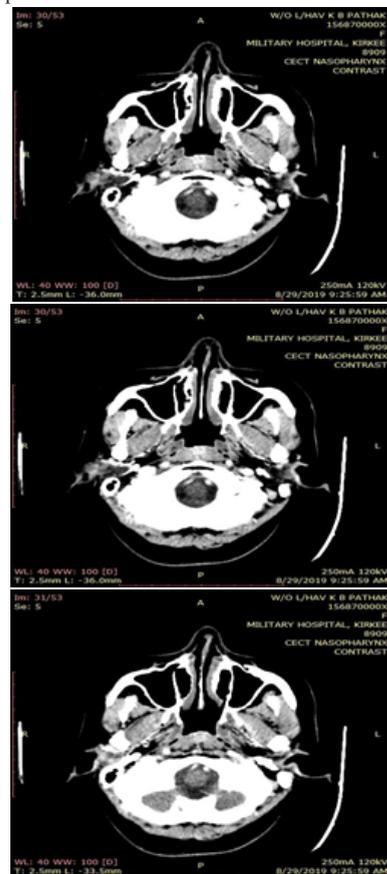
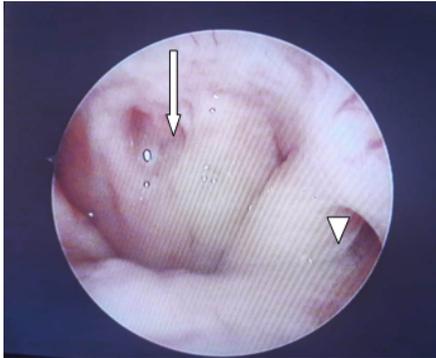


Figure 2: CECT showing hypodense non enhancing foci with calcification in the nasopharynx

For excision of cyst, a 0 degree rigid endoscope was introduced through the right nostril to get a view of cyst. Whitish viscid fluid expelled on breaking the cyst wall, viscid fluid and cyst wall sent for HPE. After complete drainage anterior wall of cyst resected out along with multiple loculi without damage to posterior wall of cyst i.e. prevertebral muscle and fascia. Cyst was then marsupialized and edges of cyst cauterized.

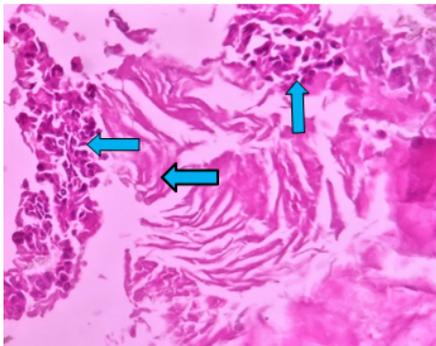


**Figure 3: Endoscopic removal & Marsupialisation of lesion**



**Figure 4: Nasal Endoscopic view of nasopharynx at 3 months follow-up. No recurrence, healthy pad of adenoid tissue (arrow) and Eustachian tube orifice (arrowhead)**

The histopathological examination of the lesion revealed Thornwaldt's cyst, overlined by respiratory epithelium with slight lymphocytic infiltration and no evidence of lymph follicles or atypia. The lumen of the cyst is filled with eosinophilic material and does not show any growth on culture.



**Figure 5: Thornwaldt's cyst showing a respiratory epithelium lining with few lymphocytes (arrow) and central lumen filled with eosinophilic material (arrowhead). Lack of lymphoid follicles and nuclear atypia are also noted. (H & E x 40)**

## DISCUSSION

Thornwaldt's cyst is clinically classified as crusting and cystic type. Types of cyst depend upon orifice of remnant whether obstructed or not. In cystic type, orifice of remnant is obliterated & doesn't discharge through nasopharynx. Another is crusting type which discharges into the nasopharynx where orifice does not close completely. Inflammation, obstruction and pharyngeal bursa could be the etiology. Adenoidectomy and concurrent radiotherapy described as an etiological factor (6, 9).

Often Thornwaldt's cysts are small, measuring <1cm in size & found accidentally. Some cysts are measuring up to 3.6x 3.4 cm, large enough lesions to become symptomatic (7, 8).

Most cysts are small and often discovered incidentally. Larger cysts lead to symptoms like nasal obstruction, snoring, halitosis and clearing

of throat, Eustachian tube dysfunction and hearing loss. Fluid gets accumulated within infected or inflamed cyst causing symptoms of occipital headache, pharyngeal pain, purulent postnasal drip and change in olfaction (10).

Thornwaldt's cyst should be differentiated from Branchial cyst, Rathke's pouch, adenoid retention cyst, meningocele, meningoencephalocele, chonal polyp, sphenoid sinus mucocele, angiofibroma and nasopharyngeal carcinoma.

Thornwaldt's cyst can easily be diagnosed on nasal endoscopy and imaging. On endoscopic examination, cyst is solitary midline smooth surface over posterior wall of nasopharynx of varying size from millimeter to centimeter. Our patient on nasal endoscopy showed a large oval shaped, smooth, yellowish, encapsulated lesion arising from the posterior wall of nasopharynx which was covered with smooth mucosa.

On CT scan Thornwaldt's cyst is well defined midline low density cyst over posterior wall of nasopharynx and contrast CT enhancing lesion suggestive of cyst but Thornwaldt's cyst remains low attenuation. MRI shows highly characteristics features of Thornwaldt's cyst, hence MRI is the best to diagnose Thornwaldt's cyst (10). Both T1 & T2 weighted images may have bright signal intensity due to high protein content of cyst or bleeding (11). In our patient CECT has been used to confirm the diagnosis.

Cysts are diagnosed accidentally on CT or MRI, generally do not require treatment. Usually cyst of size >1cm large enough to cause symptoms or close to Eustachian tube opening, require treatment. The treatment of choice for Thornwaldt's cyst is surgical marsupialisation under general anesthesia. For smaller cysts, the transnasal endoscopic approach is preferred technique (12). For larger cysts, a retropalatal approach using 70 degree rigid nasal endoscope is the procedure for option (12). Procedure can be done with assistance of transnasal endoscope and powdered instrument. The powdered instrument like microdebrider allows maximum marsupialisation with fewer traumas and bleeding into the surrounding tissue (10).

Thornwaldt's cyst primarily presents with symptoms like nasal obstruction, snoring, postnasal drip. However, in this case the patient had presented with nonspecific symptoms i.e. unilateral hearing loss. In view of the presentation of unilateral hearing loss and type B tympanogram on investigation, the patient was further investigated to rule out diagnosis of nasal mass. CECT nasopharynx was done which revealed a small complex Thornwaldt's cyst of size <1cm, unlikely causing Eustachian tube obstruction. One of the possibilities of Eustachian tube dysfunction is recurrent infection of the cyst. In our case such small nasopharyngeal cyst with only ear symptoms without nasal symptom is an atypical for the natural course of pathology. Patient had undergone transnasal endoscopic marsupialization of cyst and post operatively HPE suggestive of complex Thornwaldt's cyst.

## CONCLUSION

Thornwaldt's cysts are rare pathology presents usually with nasal symptoms. However they may presents with atypical symptoms associated with Eustachian tube dysfunction if they become repeatedly infected. Adult patients presenting with unilateral hearing loss should be further evaluated to rule out nasopharyngeal lesions. The possibility of Thornwaldt's cyst should be kept in mind even though cyst rarely presents with atypical symptoms.

## ACKNOWLEDGEMENTS

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