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Case Report

Unusual presentation of Thornwaldt cyst in the elderly: a case report

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ABSTRACT

Thornwaldt cyst is an uncommon developmental midline cystic lesion arising from the pharyngeal bursa. It is most frequently detected in younger patients incidentally during imaging or diagnostic nasal endoscopy (DNE), and may later in the course of the disease present with symptoms secondary to nasal obstruction. A 75-year-old male presented with symptoms of progressive persistent nasal obstruction since three years, that worsened over past four months. DNE and Contrast enhanced computed tomography (CECT) showed a large midline nasopharyngeal cystic mass fully occupying the choana, measuring ~3×2 cm. Patient underwent transnasal endoscopic coblation-assisted excision of cyst where cheesy material and thick mucoid cyst content was identified. Histopathology showed Cyst wall lined by respiratory epithelium with reactive lymphoid cells. Follow up at 1 week and 2 months showed good postoperative healing of nasopharynx with no evidence of recurrence. Although rarely seen at this age, Thornwaldt cyst can be considered as a potential diagnosis in elderly patients presenting with nasopharyngeal mass- like lesion. In our experience with this case transnasal endoscopic coblation- assisted excision is an effective method for removal of nasopharyngeal cyst like lesions by providing adequate visualisation and access, with coblation wand acting as a single tool for excision, content aspiration and hemostasis.

Keywords: Thornwaldt cyst, Elderly, Nasopharyngeal cyst, Transnasal endoscopic coblation, Case report

INTRODUCTION

Thornwaldt cyst (or Tornwaldt cyst) is a benign midline cystic lesion of the nasopharynx arising from the blockage of orifice of pharyngeal bursa (Thornwaldt's bursa), which is a remnant communication between nasopharynx and notochord. It is uncommon and usually diagnosed incidentally on imaging, or when a diagnostic nasal endoscopy or imaging is done in larger cysts presenting with symptoms secondary to nasal obstruction.

It is mostly seen in the younger age group, and in patients with history suggestive of recurrent nasal infections, trauma, or post nasal surgical procedures like adenoidectomy. A wait and watch policy can be employed in asymptomatic patients whereas symptomatic patients require surgical marsupialization. Here we report a case of its unusual presentation as nasopharyngeal mass- like lesion in an elderly male patient and its management by transnasal endoscopic coblation-assisted excision of cyst.[1]

CASE REPORT

A 75-year-old male with a known medical history of diabetes, hypertension, ischemic heart disease, and a prior anterior wall myocardial infarction in 2017 presented to our ENT outpatient department with a history of progressive, persistent bilateral nasal obstruction, snoring, hypo nasal voice and rhinorrhea since the past three years. His symptoms had worsened over the past four months with significant breathing difficulty and hence visited his cardiologist who referred the patient for ENT evaluation. Although he had history and examination suggestive of allergic rhinitis, he did not have a prior history of recurrent nasal infections, nasal surgery or trauma. On DNE, a well circumscribed mass arising from the posterior wall and roof of the

nasopharynx which was covered by smooth mucosa and few dilated blood vessels, occupying the entire nasopharyngeal space, and extending partially into the nasal cavity anteriorly was noted (Figure 2A). It was non-pulsatile and did not bleed upon palpation. CECT scan of skull base to neck revealed a midline cystic lesion of the nasopharynx with no solid components measuring approximately 3×2 cm, obstructing the choanae and extending partly into the left nasal cavity. The lesion abutted the prevertebral muscles posteriorly, with no evidence of bony erosion, intracranial or parapharyngeal extension, and no enlarged cervical or retropharyngeal lymph nodes (Figure 1). A preliminary diagnosis of a nasopharyngeal cyst, most likely a Thornwaldt cyst, was established.

Figure 1: CECT scan from skull base to neck showing a 3x2 cm size midline nasopharyngeal cystic lesion with no solid components abutting prevertebral muscles with no bony erosion, intracranial or parapharyngeal extension; (A) sagittal view, (B) axial view and (C) coronal view.

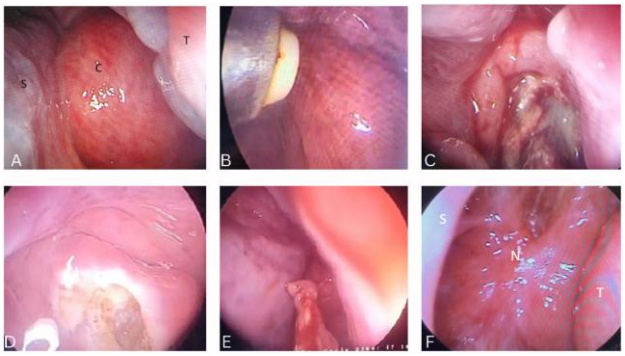

Figure 2: (A) DNE of Nasopharyngeal cyst. S-Septum, C-Cyst, T-turbinate; (B) Using coblation incision placed near the roof around the maximum bulge; (C) Purulent and cheesy material was aspirated; (D) Attachments of the cyst near the roof and posterior walls of nasopharynx were released; (E) Cyst wall removed and sent for HPE; (F) Postoperative DNE after 2 months showing healed nasopharynx and Eustachian tubal region free from blockage. S-septum, N-nasopharynx, T-torus tubarius.

The patient underwent Endoscopic transnasal coblation assisted excision of cyst (Figure 2B-E), intraoperative identification of cheesy material and thick mucoid cyst content was done (Figure 2C) and the specimen was sent for histopathological examination (HPE) for definitive diagnosis. The patient reported a significant and immediate improvement in his obstructive symptoms, including nasal blockage, snoring and hypo nasal voice. HPE was suggestive of nasopharyngeal cyst wall with presence of reactive lymphoid tissue (Figure 3). Follow-up DNE at 1 week and 2 months postoperatively revealed no residual cyst and confirmed complete healing of the nasopharynx (Figure 2F).

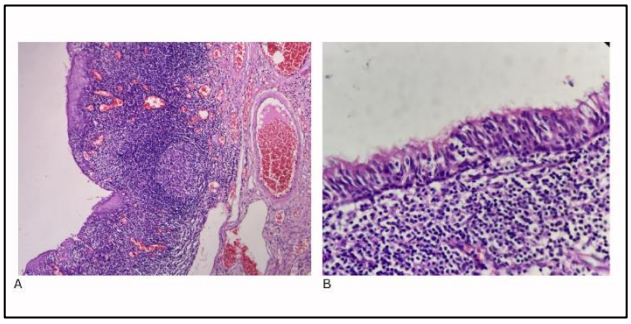

Figure 3: Cyst wall lined by respiratory epithelium and dense reactive lymphoid tissue in wall. Haematoxylin and Eosin (H and E) (A) 100X (B) 400X.

DISCUSSION

Thornwaldt's bursa, seen in approximately 3% of adults, is the persistent embryonic connection between the nasopharynx and the notochord. The obstruction of its orifice can lead to the formation of a Thornwaldt cyst.[1] First described by Mayer in 1840 as a cyst-like mass in the posterior nasopharyngeal wall, the condition was later recognized by Gustav Tornwaldt in 1885 as a pathological entity. Huber (1912) linked its formation to irregular notochord regression during the sixth week of gestation.[2] The two clinical types described are cyst type where the orifice is occluded causing a cyst like mass presentation, and Crust type where crusting may be seen at region of a patent orifice and may drain spontaneously into the nasopharynx.[3]

The cyst is located posteriorly between the longus capitis muscles and the nasopharyngeal wall anteriorly, with the cyst lining composed of respiratory epithelium that secretes mucus.[4] Our patient was classified as the cyst type, as he presented with a cyst-like mass that did not drain into the nasopharynx. Thornwaldt cysts have a peak incidence in the second and third decades of life and affect both genders equally.[4,5] From our knowledge of prior studies, the occurrence of Thornwaldt cyst in the elderly is uncommon. Differential diagnoses for nasopharyngeal cyst-like lesion include branchial cleft cyst, Rathke's pouch cyst, adenoid retention cyst, meningocele, sphenoid sinus mucocele, juvenile angiofibroma, hemangioma, hemangiopericytoma, lymphoma and nasopharyngeal carcinoma.[1,2,6]

Considering our elderly male patient, our differential diagnoses were nasopharyngeal malignancy, lymphoma or a vascular lesion, in addition to the possibility of nasopharyngeal cyst. Trauma, nasal surgery (such as adenoidectomy), upper respiratory infections, inflammation, or chemoradiotherapy can increase the risk of cyst formation by obstructing the pharyngeal bursa orifice.[7] Our patient had none of the above contributory risk factors for cyst formation except for a history and examination suggestive of allergic rhinitis. While most cysts are small and asymptomatic, they can become inflamed or infected, leading to purulent discharge.

Larger cysts may cause nasal obstruction, middle ear effusion (due to Eustachian tube obstruction), halitosis (from cyst fluid leakage), and, in some cases, prevertebral muscle spasm, neck pain, or rigidity.[2,7,8] Our patient presented with predominant complaint of progressive persistent nasal obstruction and snoring with coexisting ischemic heart disease. Thornwaldt cysts are rare, with an incidence of approximately 4% on autopsy and 0.2–5% as incidental findings on MRI of the brain and cervical spine.[2,8] With the widespread usage of nasal endoscopy and imaging it is likely that we may detect more cases of Thornwaldt cysts. Although asymptomatic cysts are typically not surgically treated and may lack a histopathological diagnosis, they can with reasonable certainty be diagnosed preoperatively through imaging.

MRI is the preferred modality, demonstrating high signal intensity on both T1- and T2-weighted sequences, likely due to proteinaceous fluid or blood products. Post-contrast studies show peripheral enhancement, and fluid-attenuated inversion recovery (FLAIR) images may highlight hyperintensity of the cyst compared to gray matter.[2,4,9] CECT shows a well-defined midline cyst of the nasopharynx, with low attenuation of the cyst and enhancement of the rim.[4]

In our patient, CECT was employed for diagnosis to assess skull base erosion, delineate the boundaries of the mass, and differentiate it from a vascular tumour which was suggestive of a midline nasopharyngeal cyst. In adults, the superior and lateral walls of the nasopharynx are lined by ciliated pseudostratified epithelium, and the posterior wall is lined by stratified squamous epithelium.[5] Histopathological analysis typically shows a respiratory epithelium-lined cyst wall with reactive lymphoid infiltration which was seen in our patient and confirmed our diagnosis of Thornwaldt cyst.[4]

Asymptomatic cysts may be left alone. Surgical intervention is recommended for symptomatic cases, with excision or marsupialization (deroofing) being the preferred treatment. This can be achieved trans nasally or trans orally. With the transoral approach, access to the entire lesion and hemostasis may be challenging and may increase recovery time.[2,5] Transnasal endoscopic coblation can overcome these disadvantages due to ability of endoscopic method to achieve optimal visualisation and access, and hemostatic capability of the coblation wand.[10] Recent advances in surgical techniques have introduced powered instruments, such as microdebriders and coblation devices. Diode and KTP lasers have also been used transnasally less frequently for cyst ablation.[6]

Cauterization is less preferable due to Collateral thermal damage. Thermal damage and high cost of lasers remains a disadvantage for their use. Aspiration may be performed to confirm cyst contents and reduce bulk, but recurrence is common if used alone.[8] Long-term follow-up (≥2 years) of patients undergoing endonasal endoscopic marsupialization and excision with powered instruments has demonstrated the effectiveness and safety of this approach, with no recurrence observed.[6,11]

Although anatomical variations, such as septal deviation or turbinate hypertrophy, may occasionally complicate endonasal access, these can be addressed intraoperatively. A retrospective chart review of outcomes of coblation assisted nasopharyngeal cyst resection in 12 patients reported it to be a highly successful, safe, and effective method.[10] We employed transnasal endoscopic coblation method in our patient and our experience was that endoscopic approach achieved good visualisation and coblation provided a single tool for cyst excision, content aspiration and hemostatic control. Given the growing use of endoscopic coblation in procedures such as adenoidectomy, we believe it could be a preferred approach for excising a nasopharyngeal cyst-like mass.

CONCLUSION

Thornwaldt cysts can present even in elderly patients, as a nasopharyngeal mass, often with delayed diagnosis, as symptoms typically emerge only once obstruction becomes significant. Therefore, we advocate for a low threshold for performing diagnostic nasal endoscopy in such patients. In our case report, the diagnosis of a Thornwaldt cyst in an elderly patient with a large symptomatic nasopharyngeal mass required a combination of clinical suspicion on history, DNE showing smooth nasopharyngeal mass, CECT detecting a midline nasopharyngeal cystic lesion, intraoperative identification of cheesy material and thick mucoid cyst content, and histopathological confirmation showing respiratory epithelial lining with lymphocytic infiltration. From our experience in this patient, transnasal endoscopic coblation has proven effective for excising large cysts that completely obstruct the nasopharynx, offering advantages such as optimal visualization, precise instrumentation, effective hemostasis, and enhanced postoperative healing.

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