

# Tornwaldt Cyst: Rare Benign Neoplasm Mimicking Nasopharyngeal Carcinoma

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## ABSTRACT

Nasopharyngeal cancer (NPC) is the fifth most common cancer in Indonesia and highest in head and neck area. Its most common manifestations ever reported in Indonesia were unilateral ear problem, followed by persistent nasal obstruction, blood nasal secretion, cephalgia, lymph node enlargement, and tinnitus. Here we present a case of Tornwaldt cyst with symptoms similar to NPC presentation in Indonesia. A 56-year-old female presented to Ear, Nose, Throat, Head and Neck Surgery clinic with few years history of vertigo, aural fullness, unilateral tinnitus, bilateral nasal blockage, and headache. ENT endoscopic examination showed retracted left tympanic membrane and smooth round mass in the nasopharynx posterior wall. CT scan supported the examination. Endoscopic marsupialization was then performed with good results of immense symptoms improvement. Laboratory studies of the samples taken from the surgery proved it wasn't malignant. As NPC is common in Indonesia and known of its possible dire prognosis, it is best to treat all similar cases as malignancy. Until proven otherwise in cytopathology and histopathology examinations, we continued to treat the case as malignancy.

**Keywords:** Tornwaldt cyst, nasopharyngeal cancer, Indonesia, head and neck neoplasm.

## 1. INTRODUCTION

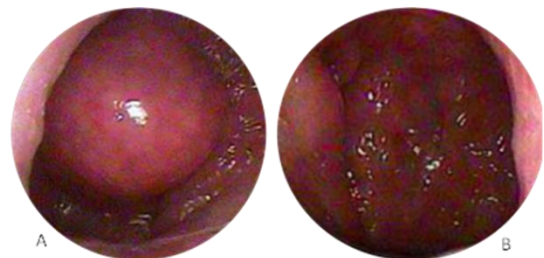
Nasopharyngeal cancer (NPC) is the fifth most common cancer in Indonesia and highest in head and neck area. Its most common manifestations ever reported in Indonesia were unilateral ear problem, followed by persistent nasal obstruction, blood nasal secretion, cephalgia, lymph node enlargement, and tinnitus. Here we present a case of benign lesion at nasopharynx, Tornwaldt cyst, with symptoms similar to NPC presentation in Indonesia..

## 2. CASE REPORT

A 56-year-old housewife presented to the ENT outpatient clinic at Atma Jaya Hospital, Jakarta, with two years history of severe headache, vertigo, aural fullness and unilateral left ear tinnitus. She had been receiving treatment for two years for multiple episodes of recurrent left middle ear infections. She also complained of pain from the back of both ears to occipital area. She also experienced progressive bilateral nasal blockage that had been going on for a few years, but epistaxis and post-nasal drip were

denied. There were no throat and oral problems. She had neither history of exposure to high pollutant environment nor the use of mosquito coils in her house.

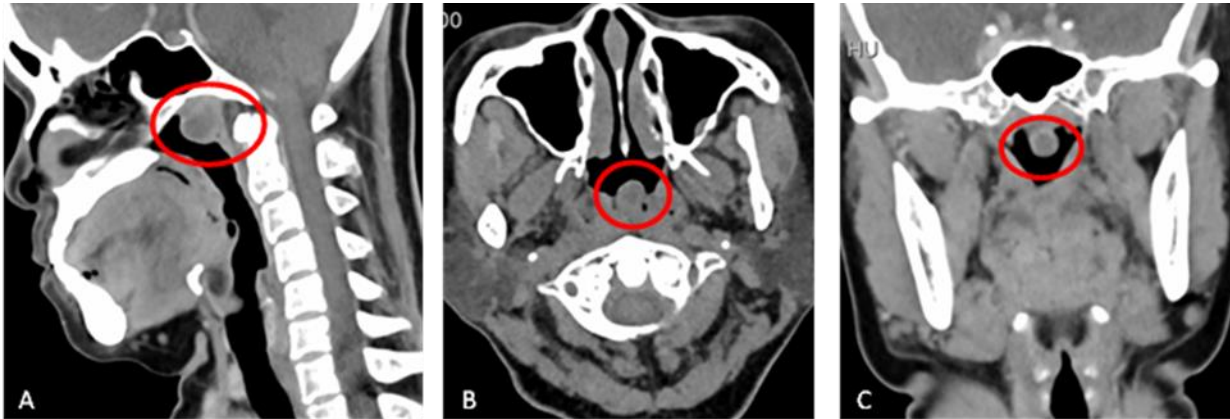
Routine ENT examination revealed retracted left tympanic membrane. Other ENT examinations were within normal limits. The facial nerves' functions were both grade I on the House-Brackmann scale. However, endoscopic examination showed a smooth round mass in the midline of nasopharynx posterior wall, covering the left eustachian tube ostium.



**Figure 1** Nasopharynx endoscopic examination: (A) Before the The surgery (B) Two weeks post-operation

Computed tomography (CT) scan of the nasopharynx with contrast was then ordered to evaluate the extension and enlargement of the mass. The radiographic finding showed a 2 x 1.63 x 1.36cm, thick

walled, cystic mass with contrast enhancement, from the midline of nasopharynx wall, consistent with a Tornwaldt cyst image. The radiograph also revealed a left chronic mastoiditis.



**Figure 2** Pre-operation nasopharyngeal CT scan in (A) Sagittal (B) Coronal (C) Axial view

The patient then went through endoscopic marsupialization to have the cyst removed. Before the procedure, she was put under general anesthesia and the cyst was aspirated, revealing 5 ml of brownish red fluid. Cytopathological analysis of the fluid showed it consisted of macrophages, hemosiderosis, leucocytes, and erythrocytes. Granulated tissue, inflammatory cells, and sign of chronic nasopharyngitis were found from the microscopic findings of the histopathological examination of the cyst wall. There was no neoplasm cell found from both specimens. Upon one month of post operation review, patient claimed her ear and nose symptoms had immensely improved, and the cephalgia was significantly reduced.

### 3. RESULT AND DISCUSSION

Here, we present a case of Tornwaldt cyst mimicking nasopharyngeal carcinoma (NPC). This cancer is the fifth most common cancer in Indonesia, contributing 5.3% of the new cases from all types of cancer each year. This makes NPC as the most common head and neck cancer in Indonesia. Data from International Agency for Research on Cancer in 2018 showed that Indonesia has the second highest of estimated incidence (17,992;14.2%) of NPC after China [1-3].

Adham et al (2012) reported the most common clinical manifestations of NPC in Indonesia were unilateral ear problem, followed by persistent nasal obstruction, blood nasal secretion, cephalgia, lymph node enlargement, and tinnitus [3]. Our patient came with history of persistent vertigo, aural fullness, unilateral tinnitus, cephalgia, nasal congestion, and recurrent otitis media. The patient's history, added with the fact that

NPC is endemic to Indonesia, led us to consider this as NPC until proven otherwise.

Nasal endoscopy examination confirmed there was a mass on the posterior wall of the nasopharynx in this patient. Several literatures advocated the need of imaging before biopsy to assess the morphology, size and extent of the tumor. Imaging is also helpful in differentiating malignant tumor from benign ones [4,5].

While magnetic resonant imaging (MRI) provides better accuracy in diagnosing nasopharyngeal mass, CT imaging was chosen for this patient, as it is a cheaper alternative with considerable sensitivity rate. In this case, CT imaging was able to identify the mass as Tornwaldt cyst, a benign mass of nasopharynx. Literatures showed CT imaging offers 61.5% of sensitivity in detecting NPC, and 87.1% for Tornwaldt cysts [6].

The typical finding of NPC in CT imaging is asymmetry of the fossa of Rosenmuller accompanied by thickening of the muscle layer caused by tumor infiltration, which were not found in this patient [7]. Biopsy of the mass also confirmed that the mass was not a malignancy.

Primary benign tumors of nasopharynx are extremely rare. Even then, they are predominant in children and young adults. Vascular tumors account for more than 50% of the cases, with other types for the rest. The presentation of these tumors is similar, with nasal obstruction and epistaxis as the most common. Physical characteristics of the mass on nasal endoscopy are also similar, which are well defined mass limited to the nasopharynx, with the majority bleed on touch and a few have surface ulceration [4]. While benign neoplasm was considered, the rarity of prevalence, characteristic

similarities to malignant ones, and urgent need of treatment if proven malignant, made this diagnosis secondary on the list.

Tornwaldt or Thornwaldt cyst, first described by Gustav Tornwaldt, is a rare benign developmental nasopharyngeal cyst [8]. There are not many literatures covering this subject, most are case reports.

Tornwaldt cyst is the result of notochord retracting from its contact point with the endoderm of the primitive pharynx, creating a persistent communication between the roof of nasopharynx and the notochord. The cyst is located at the posterior median wall of the nasopharynx, although sometimes can be found slightly off midline [9, 10].

Most Tornwaldt cysts are small and asymptomatic, but some increase in size and develop symptoms. This happens as more mucous secreted into the cyst, either spontaneously or secondary to inflammation. Edema of the orifice leads to the continuous of the cycle [10].

It often manifests as postnasal drainage, nasal obstruction, aural fullness, serous otitis media, and persistent occipital pain. The ear complaints are caused by obstruction and dysfunction of the Eustacian tube. Some cases also develop cranial nerve paralysis. If the cyst is infected, it can manifest as halitosis [9, 10]. Even fewer cases reported Tornwaldt cyst as the cause of vertigo or dizziness and tinnitus [11, 12].

The cyst can be diagnosed by endoscopic and radiological examination. Nasal endoscopy will show smooth midline mass on the posterior wall of the nasopharynx. On CT imaging, the cyst appears as well-defined low density mass in the roof of nasopharynx [10].

Large and symptomatic Tornwaldt cyst, like in this case, requires treatment. Drainage alone can lead to recurrence, so it is advised to do surgical marsupialization under general anesthesia to prevent such cases. The surgery can be performed by endoscopy using powered instruments or microdebrider, as in this case, allowing faster operation time, less bleeding, less trauma and smaller costs, compared to laser technique [10].

The cyst wall and the aspirate drained from the must be sent for further examination and confirmation of the diagnosis. From histopathology examination, the lesion is found cystic and lined with columnar epithelium, with infiltrating lymphocytes in the wall. Purulent content can be found inside the cyst [9, 10].

Marsupialization is proven as a great choice of treatment in this patient, as the previous symptoms significantly improved after the procedure. Literature also shows that this approach is an effective treatment with no recurrence in long term [13].

## 4. CONCLUSION

As NPC is common in Indonesia and known of its possible dire prognosis, it is best to treat all similar cases as malignancy. Until proven otherwise in cytopathology and histopathology examinations, we continued to treat the case as malignancy.

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