**Case Report**
Iranian Journal of Otorhinolaryngology, Vol.38(5), Serial No.148, Sep-2026

# Nasopharyngeal Branchial Cleft Cyst in an Elderly Man: An Atypical Presentation

Gautam Bir Singh[1], *Priyanka Sharma[1], Kavita Gaur[2]

***Abstract***

***Introduction:***
Branchial cleft cysts (BCCs) account for nearly one-third of congenital cervical masses, but their occurrence within the nasopharynx is exceedingly uncommon. Most reported nasopharyngeal cases involve children or young adults; presentation in older patients raises concern for cystic metastasis from an occult head and neck malignancy.

***Case Report:***
We describe a 64-year-old man with a three-year history of progressive bilateral nasal obstruction and recurrent rhinosinusitis. Endoscopy disclosed a smooth, mobile, midline pinkish nasopharyngeal mass; cross-sectional imaging confirmed a well-defined T2-hyperintense cystic lesion in the upper posterior nasopharynx. Endoscopic transnasal piecemeal excision was performed, and histopathology established a branchial cleft cyst without dysplasia or malignancy. The patient remained asymptomatic on follow-up.

***Conclusion:***
This case underscores the importance of including nasopharyngeal BCC in the differential diagnosis of cystic nasopharyngeal lesions, even in elderly patients in whom cystic carcinoma metastasis must first be excluded.

***Keywords:*** Branchial cleft cyst; Nasopharynx; Endoscopy, Excision; Congenital cyst

Received date: 17 May 2026
Accepted date: 11 Aug 2026

****Please cite this article;*** *Singh GB, Sharma P, Gaur K. Nasopharyngeal Branchial Cleft Cyst in an Elderly Man: An Atypical Presentation. Iran J Otorhinolaryngol. 2026:38(5):341-345. Doi: 10.22038/ijorl.2026.95727.4153*

*[1]Department Otorhinolaryngology- Head & Neck Surgery, ABVIMS & DR. RML Hospital, New Delhi, India.*
*[2]Department of Pathology, Lady Hardinge Medical College & Associated Hospitals, New Delhi, India.*
****Corresponding author:*** *E-mail: priyankaenthn@gmail.com*

## *Introduction*

The nasopharynx harbors a remarkably diverse spectrum of cystic lesions, broadly stratified by anatomical laterality and developmental origin into midline and lateral, congenital and acquired subtypes. Among midline lesions, Thornwaldt's cyst and mucus retention cysts predominate; laterally, branchial cleft cysts (BCCs) reign as the most common congenital culprit, despite their relative rarity in this anatomical compartment (1,2).

BCCs are congenital epithelial-lined cysts arising from incomplete obliteration of the branchial apparatus, collectively accounting for approximately one-third of all congenital cervical masses. Second branchial arch anomalies constitute the overwhelming majority, characteristically manifesting as fluctuant swellings along the anterior border of the sternocleidomastoid muscle during late childhood or early adulthood (3).

Their emergence within the nasopharynx, particularly in an older adult, represents a striking anatomical and temporal aberration that challenges conventional diagnostic paradigms.

Against this backdrop, we present an exceptional case of a nasopharyngeal BCC in a 64-year-old male, a demographic and anatomical combination that defies the established clinical archetype. This report not only underscores the importance of maintaining BCCs within the differential diagnosis of nasopharyngeal cystic lesions irrespective of patient age, but also provides a contemporary synthesis of the evolving literature on their radiological characterisation, histopathological confirmation, and surgical management.

## *Case Report*

A 64 year old male presented to the ENT outpatient department with a 6-year history of gradually progressive right-sided nasal obstruction that progressed to involve both sides over the last 3years. He was treated with intranasal corticosteroids with short-term relief in his symptoms. Nasal endoscopy showed a pink, smooth globular mass in the nasopharynx, moving with respiration and sensitive to touch. (Figure.1).

Oropharyngeal examination, Laryngeal endoscopy and neck examination was done to exclude any primary malignancy and cervical metastatic nodes but did not reveal any positive finding.

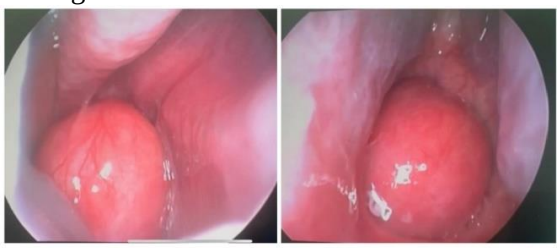


**Fig. 1.** Nasal Endoscopy depicting pink, globular mass obliterating the nasopharynx - left side

Computed tomography of the nose and paranasal sinus and neck (CT-Nose and PNS) demonstrated a well-circumscribed midline cystic lesion of approximately 47x18mm in size in the upper posterior nasopharynx. Anteriorly, it is obliterating the posterior choana. It is projecting into the nasopharyngeal column with severe compromise of the nasopharyngeal airway. A small lobulation of a cystic lesion is projecting into the right side of the nasopharynx (Figure 2. A,B,C).

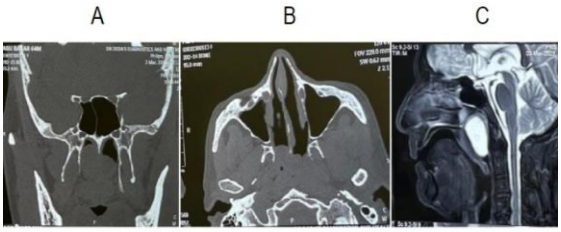


**Fig. 2.** Computed tomography of nose and paranasal sinus (**A** coronal and **B** axial view) demonstrating well circumscribed lesion in upper posterior nasopharynx. (**C**) Magnetic Resonance Imaging Sagittal view demonstrating T2W hyperintense midline lesion in the nasopharynx.

No lesion was seen in oropharynx, hypopharynx and larynx. No cervical lymphadenopathy was noted.

Magnetic Resonance Imaging (MRI- Nose and PNS) shows an approximately 47x18mm well-circumscribed midline cystic lesion in the upper posterior nasopharynx. It is displaying hyperintense signal intensity on T2W and STIR sequences and intermediate to hyperintense signal on T1W and FATSAT T1W sequences, suggestive of highly proteinaceous contents. It is bordered by the floor of sphenoid sinus superiorly and the upper margin of the soft palate inferiorly, resulting in severe compromise of the nasopharyngeal airway Figure 2 C.

No lesion was seen in oropharynx, hypopharynx and larynx. No cervical lymphadenopathy was noted. After the endoscopic removal under general anaesthesia, histopathological examination is suggestive of a benign lymphoepithelial cyst. Haematoxylin and eosin staining of cyst sections reveals that cyst wall shows tissue lined by respiratory-type epithelium, and focal squamous metaplastic epithelium also noted. The Cyst wall shows the presence of expanded lymphoid follicles with a germinal centre and with infiltrating lymphocytes. No Thyroid parenchyma/ cutaneous adnexal structure/ malignant cells/ no notochordal remnants were seen (Figure 3).There were no postoperative complications, and 12 months after the endoscopic excision, there was no evidence of recurrence.

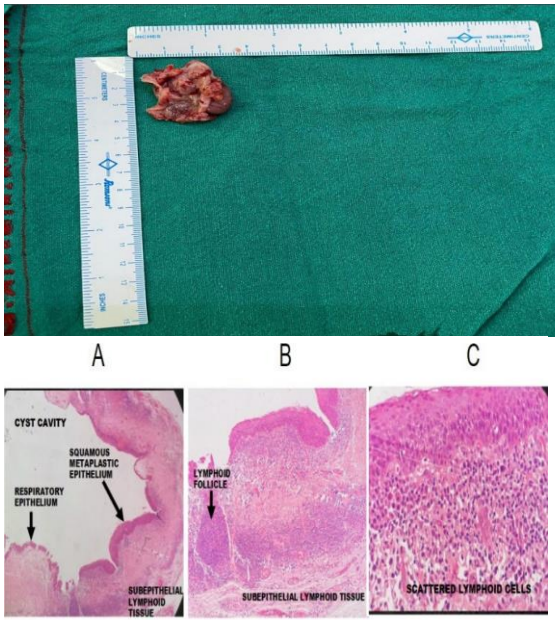


**Fig. 3 (A, B, C).** Cyst wall composed of respiratory epithelium and squamous metaplastic epithelium and sub-epithelium region filled with lymphoid follicles with germinal centre

## *Discussion*

Among all the branchial anomalies, the nasopharyngeal branchial cleft cyst is the rarest (1-3). Branchial cleft cysts (BCC) are benign congenital epithelial cysts that secrete mucus. They are congenital but usually present in childhood or adolescence (1). They are more common on the right side: single with inferior and medial extension and slight male preponderance 4:3 (3). It would be prudent to note that second branchial cleft cysts are almost always in the neck, so it is rare for them to present in the nasopharynx. Moreover, its presentation later in age is also uncommon[4]. In this case, it was seen at 64 years of age.

The etiology of BCC is attributed to incomplete obliteration of nasopharyngeal clefts during normal embryonal development (4,5). In the nasopharynx, mostly the second branchial cleft anomaly is seen (70-90%) (6). They are further divided into:

Type 1: located at the anterior edge of the sternocleidomastoid

Type 2: below the enveloping fascia, extending to the great vessels

Type 3: extension to the lateral wall of the pharynx, between ICA & ECA

Type 4: Columnar-lined cyst medial to carotids and close to pharyngeal wall (3).

First and fourth branchial arch anomalies are extremely rare (7,8). Third arch branchial cleft anomalies are also less commonly seen in the posterior cervical area. However, they are the second most common birth defects in this region[3]. Based on site and histopathological features, we conclude that this case represents BCC: second arch anomaly, type 4.

They are usually asymptomatic. Clinically, they may enlarge and cause nasal obstruction, ear symptoms, dyspnea, dysphagia and stridor. They can also be a source of upper respiratory infection. If they get secondarily infected, they can lead to abscess formation. It is important to distinguish it from a tumor [NPC & metastatic lesion from head and neck carcinoma/ Oncocytic Cyst] especially at old age. Some other important differentials are (Table 1).

Thornwaldt's cyst, Dermoid cyst, Teratoma, Meningocele, Meningoencephalocele and Lymphoma are discussed. A CT and MRI with contrast are sufficient to distinguish between the aforementioned lesions (1-3).

Nevertheless, only a biopsy with the knowledge of the anatomic site clinches the diagnosis.

Compared with previously reported nasopharyngeal BCCs, most of which present in children or young adults with lateral or paramedian lesions confined to the fossa of Rosenmüller, our patient's age (64 years) and predominantly midline extension place this case at the extreme end of the reported spectrum. Unlike the case series of Vinciguerra et al. and the isolated reports of Alsharhan et al. and Alzaidi et al., which described lateral or paramedian lesions in younger patients, this

case combines an unusually advanced age with an atypical midline configuration, a combination not previously documented (1-3). This extends the recognised clinical and anatomical range of nasopharyngeal BCC and reinforces that age and midline location should not, by themselves, exclude this diagnosis from consideration.

**Table 1.** Differential diagnosis of cystic nasopharyngeal lesions in adults

| Lesion | Typical location | Imaging signature | Histology | Key clue |
|---|---|---|---|---|
| Branchial cleft cyst | Lateral wall, fossa of Rosenmuller (rarely midline) | Well-defined; T2-hyperintense; deep to pharyngobasilar fascia | Squamous and/or respiratory epithelium with lymphoid stroma | Lymphoid-rich wall |
| Thornwaldt cyst | Strict midline, posterior wall | T2-hyperintense; deep to pharyngobasilar fascia | Respiratory epithelium; no lymphoid stroma | Notochordal remnant |
| Mucus retention cyst | Variable | Superficial to pharyngobasilar fascia | Respiratory epithelium; mucus | Acquired; superficial |
| Oncocytic cyst | Lateral wall | Variable signal | Oncocytic epithelium (Warthin-like) | Eosinophilic granular cells |
| Cystic carcinoma metastasis | Cervical lymph nodes; rarely nasopharynx | Thick wall; mural nodule; necrosis | Malignant epithelium; EBV/p16 markers | Older age; primary in oropharynx/nasopharynx |
| Dermoid/teratoma | Midline | Heterogeneous; fat/calcification | Multilineage tissue | Fat or calcium on imaging |
| Meningocele/meningoencephalocele | Midline; skull-base defect | CSF signal; bony defect | Neural/meningeal tissue | Continuity with intracranial space |
| Lymphoma | Waldeyer ring | Solid; bulky; restricted diffusion | Atypical lymphoid infiltrate | Constitutional symptoms |

Abbreviations: CSF, cerebrospinal fluid; EBV, Epstein-Barr virus.

The location of this lesion, primarily midline, upper posterior, is atypical for a branchial cleft cyst and overlaps with the classic site of a Thornwaldt cyst. Histology, however, does not favour a notochordal origin: Thornwaldt cysts are lined by respiratory epithelium without lymphoid stroma, whereas the present specimen showed a lymphoid-rich wall with expanded follicles and germinal centres, a feature inconsistent with Thornwaldt cyst and characteristic of branchial cleft origin. We believe that the midline extension is due to the medial reach of a type 4 second branchial cleft anomaly that can approximate the pharyngeal wall close to the midline, rather than a true midline embryological origin. Thus, this case illustrates that histological evidence should take priority over the consideration of location when these two entities are anatomically overlapping. Surgical excision and Marsupialisation of the cyst is the treatment of choice. Cold steel, Diode laser, Microdebrider, Robotic surgery, all have been used in the literature with good results (1-3). The trans-nasal endoscopic method is regarded as one of the best surgical routes as it results in good cosmetic and functional results when compared to transoral, trans-palatal, trans-mandibular and transcervical routes (9,10). Cyst aspiration with or without sclerosing agents is another described standard - of - care. However, this carries a great risk of recurrence (9).

## *Conclusion*

Nasopharyngeal branchial cleft cyst is uncommon but should remain in the differential diagnosis of cystic nasopharyngeal masses across all age groups. In older adults, occult cystic carcinoma metastasis must be rigorously excluded through careful endoscopic, radiological, and histopathological evaluation. Transnasal endoscopic excision or marsupialization provides a safe, minimally invasive, and definitive treatment with excellent functional and cosmetic outcomes.

## *References*

**1.** Alsharhan SS, Alghuneem AA, Alrusayyis DF, Aljahli MS. Atypical site of nasopharyngeal branchial cleft cyst: a case of an unusual age presentation. *J Fam Community Med*. 2023;30(2):145-147. doi: 10. 4103/jfcm.jfcm_342_22.

**2.** Vinciguerra A, Verillaud B, Kaci R, Guichard JP, Herman P. Management of nasopharyngeal cyst of second branchial cleft origin: case series and systematic review. *Laryngoscope*. 2022; 132(10): 1904-1908. doi:10.1002/lary.30126.

**3.** Alzaidi S, Alsulami OA, Alqarni S, et al. Nasopharyngeal branchial cleft cyst: a rare case report and literature review. *Cureus*. 2023;15(8):e43432. doi:10.7759/cureus.43432.

**4.** Nahata V. Branchial cleft cyst. *Indian J Dermatol*. 2016;61:701. doi:10.4103/0019-5154.193718.

**5.** Papadogeorgakis N, Petsinis V, Parara E, Papaspyrou K, Goutzanis L, Alexandridis C. Branchial cleft cyst in adults: diagnostic procedures and treatments in a series of 18 cases. *Oral Maxillofac Surg*. 2009; 13:79-85. doi:10.1007/s10006-009-0156-6.

**6.** Nayan S, MacLean J, Sommer D. Thymic cyst: a fourth branchial cleft anomaly. *Laryngoscope*. 2010;120:100-102. doi:10.1002/lary.20720.

**7.** Finn DG, Buchalter IH, Sarti E, Romo T, Chodosh P. First branchial cleft cysts: clinical update. *Laryngoscope*. 1987;97:136-140. doi: 10.1288/ 00005537-198702000-00003.

**8.** Jeyakumar A, Hengerer AS. Various of fourth branchial pouch anomalies. *Ear Nose Throat J*. 2004;83:640-642, 644. PMID: 15529652.

**9.** Chen PS, Lin YC, Lin YS. Nasopharyngeal branchial cleft cyst. *J Chin Med Assoc*. 2012; 75(12): 660-662. doi:10.1016/j.jcma.2012.09.001.

**10.** Haught E, Stevens L, Turner M. Endoscopic marsupialization of a nasopharyngeal branchial cleft cyst using a drug-eluting stent. *Ear Nose Throat J*. 2022;101(3): NP110-NP111. doi:10. 1177/014556 1320948762.