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Case Report

Ear, Nose and Throat Section

Nasopharyngeal Carcinoma: A Case of Delayed Diagnosis with Favourable Outcome

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ABSTRACT

Nasopharyngeal Carcinoma (NPC) often presents with subtle, non-specific otological or neurological symptoms that can mimic common benign conditions, leading to significant diagnostic delay. This case report describes a 50-year-old male who presented with a six-month history of right-sided headache and two-month progressive hearing loss, and was repeatedly managed as otomastoiditis and trigeminal neuralgia at multiple clinics. Despite various imaging findings suggestive of middle ear pathology, persistent unilateral symptoms prompted a diagnostic nasal endoscopy at the presenting hospital, which revealed a suspicious nasopharyngeal lesion. Histopathology confirmed non-keratinising undifferentiated NPC (T2bN0M0, Stage II). The patient underwent coblation-assisted biopsy, grommet insertion, and subsequently received definitive chemoradiotherapy with excellent therapeutic response on follow-up. This case highlights the clinical challenge of diagnosing NPC in non-endemic settings and underscores the importance of early nasopharyngeal evaluation in patients with unexplained unilateral otitis media with effusion, cranial nerve symptoms, or atypical headache. Prompt recognition and multidisciplinary management can significantly improve outcomes even in cases with delayed diagnosis.

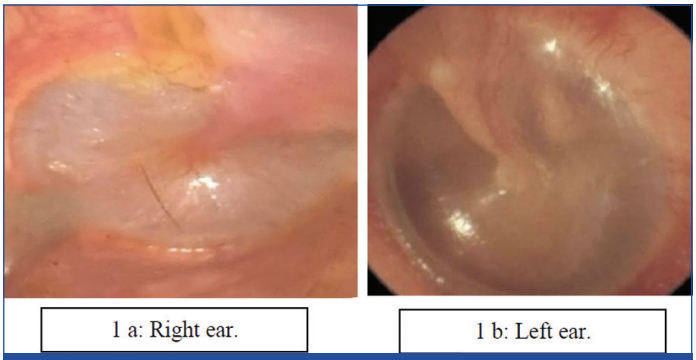
Keywords: Biopsy, Conductive hearing loss, Cranial nerve diseases, Endoscopy, Intensity modulated radiotherapy

CASE REPORT

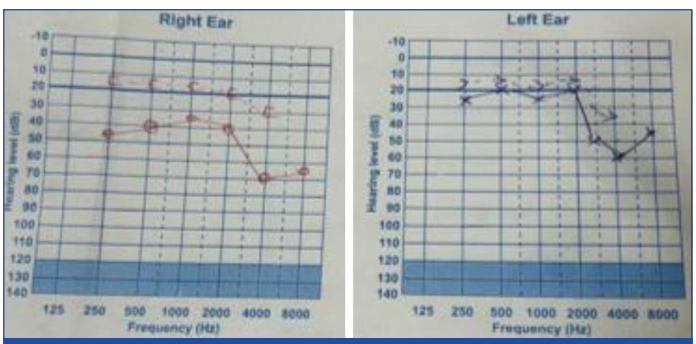
A 50-year-old male patient presented in February 2025 with complaints of right-sided headache in the parietal region for the past six months and progressive hearing loss in the right ear for the past two months. The patient also reported occasional nasal regurgitation of liquids over 10 days. There was no history of ear discharge, nasal obstruction, epistaxis, weight loss, fever, or sore throat. The past medical history included the patient being a known hypertensive for 25 years, on regular medications (Amlodipine 5 mg OD and Atenolol 50 mg OD). The patient had undergone left hernioplasty in 2014. There was no history of diabetes, asthma, tuberculosis, or coronary artery disease. The patient was a smoker (10 cigarettes/day) and an alcohol consumer from 1988 to 2008; both habits were discontinued in 2008.

The patient had consulted multiple hospitals and clinics over a period of six months. In July 2024 (Clinic 1), the condition was initially diagnosed as Eustachian tube catarrh by an ENT specialist and managed with antihistamines. By November 2024 (Clinic 2), an X-ray of the mastoid was advised and he was diagnosed with acute otomastoiditis, for which the patient was treated conservatively with antibiotics. During his next consultation in November 2024 (13/11/2024 - Clinic 3), an HRCT temporal bone was advised, which again suggested acute otomastoiditis for which he was treated with antibiotics. In January 2025 (10/1/2025 – Clinic 4), the patient visited another clinic where an MRI of the brain was performed and reported findings suggestive of trigeminal neuralgia for which he was managed medically. In February 2025 (1/2/2025 – Clinic 5) at a tertiary government medical college, the patient was diagnosed with chronic otomastoiditis and was advised a cortical mastoidectomy, which the patient declined.

He finally presented to the current hospital (February 2025), where diagnostic nasal endoscopy revealed a nasopharyngeal mass causing right Eustachian tube obstruction. Ear examination showed a bulging right tympanic membrane [Table/Fig-1a,b] with Rinne's negative, Weber lateralised to the right ear, and tympanometry revealed a 'B' type curve on the right side [Table/Fig-2]. Oropharyngeal examination revealed reduced elevation of the uvula to the left on phonation, suggestive of right-sided soft palate paresis. In view of persistent unilateral headache, ipsilateral otitis media with effusion and ipsilateral soft palate paresis, a clinical diagnosis of Trotter's triad was considered.

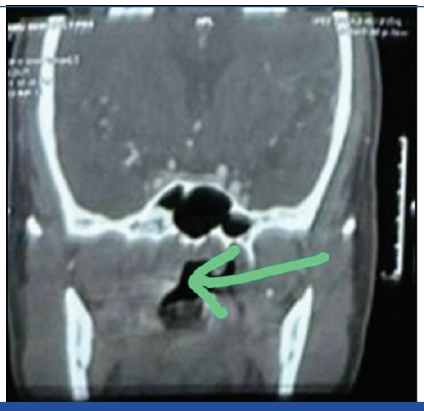


[Table/Fig-1]: Otoscopy examination revealed a bulging tympanic membrane on the right side, whereas the left tympanic membrane appeared intact.



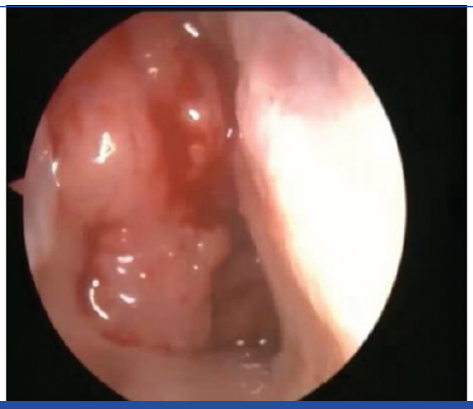
[Table/Fig-2]: Pure Tone Audiogram showing mild conductive hearing loss in the right ear {Pure Tone Average (PTA): 38 dB HL} with evident air-bone gap, and minimal hearing loss in the left ear (PTA: 22 dB HL).

At Clinic 3, a High-Resolution Computed Tomography (HRCT) of the temporal bone was performed, where the nasopharyngeal mass was missed and the findings were interpreted as acute otomastoiditis. The patient was subsequently managed with antibiotics. A later evaluation with Contrast-Enhanced Computed Tomography (CECT) of the paranasal sinuses demonstrated a mildly enhancing, ill-defined soft-tissue density lesion measuring 1.6 × 1 cm in the fossa of Rosenmüller, located in the right lateral nasopharyngeal wall [Table/Fig-3]. The lesion showed heterogeneous post-contrast enhancement, and Histopathological Examination (HPE) correlation was advised.



[Table/Fig-3]: Contrast-enhanced CT of the paranasal sinuses demonstrating mildly enhancing ill-defined soft-tissue 1.6 * 1 cm in the fossa of Rosenmuller in the right lateral part of the nasopharynx.

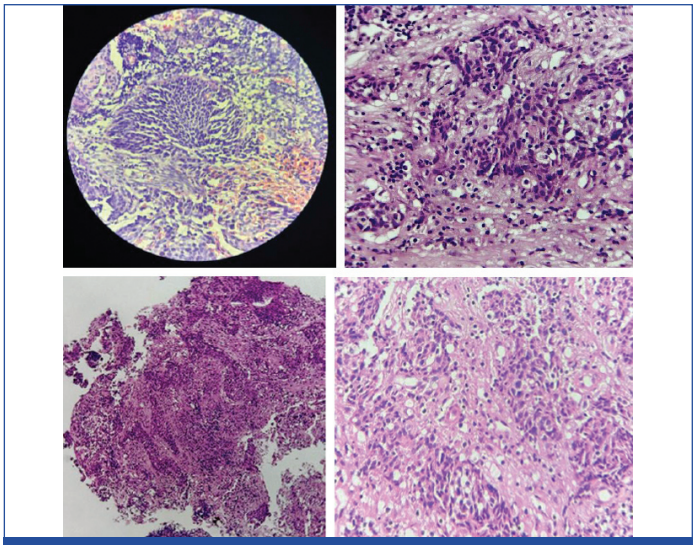
Diagnostic nasal endoscopy revealed a nasopharyngeal mass arising from the right fossa of Rosenmüller [Table/Fig-4]. Under general anaesthesia, the patient underwent a single Coblation-assisted biopsy of the mass, along with grommet insertion for middle ear ventilation. HPE confirmed non-keratinising undifferentiated NPC, staged as T2bN0M0 according to the AJCC 8th edition (Stage II) [1].



[Table/Fig-4]: Diagnostic nasal endoscopy demonstrating a mass in right nasopharynx.

Following confirmation of malignancy, the patient was planned for definitive organ-preserving therapy. The patient received Intensity-Modulated Radiotherapy (IMRT) to the nasopharynx and upper cervical nodal levels, delivered as 60 Gy in 30 fractions. Concurrent chemotherapy with Cisplatin (40 mg/m^2 weekly for six weeks) was administered as per standard recommendations for Stage II NPC to enhance radiosensitivity and improve locoregional control [Table/Fig-5].

Post-treatment, endoscopic evaluation of the nasopharynx revealed good tumour response with no residual mucosal disease. The patient continues on regular follow-up every 4-6 weeks with ENT and oncology teams, including nasoendoscopic surveillance and interval imaging as required. Post-Myringotomy with grommet insertion, the patient's conductive hearing loss improved. Resolution of the nasopharyngeal mass led to restoration of Eustachian tube patency, preventing recurrence of middle-ear effusion. Following



[Table/Fig-5]: Histopathological Examination (HPE) of biopsy specimen of lateral wall of nasopharynx showing non-keratinising squamous cell carcinoma (Haematoxylin and Eosin 10X Low power magnification).

biopsy, tumour debulking and subsequent chemoradiation, the patient's severe headache, part of Trotter's triad, also showed significant improvement.

DISCUSSION

The NPC is a rare epithelial carcinoma arising from the nasopharyngeal mucosa and accounts for less than 1% of all cancers worldwide [2]. NPC is often misdiagnosed due to its subtle and varied presentation. Globally, its age-standardised incidence is less than 1 per 100,000, but in endemic regions such as Southeast Asia, Hong Kong, and Southern China, incidence ranges between 4 and 12 per 100,000. In endemic regions, the incidence is considerably higher, ranging between 4 and 12 per 100,000, with notable geographical variation [3]. Due to changes in lifestyle and environmental exposures, regions such as Hong Kong have reported a 50% reduction in incidence over the past two decades. However, despite advances in diagnostic imaging and screening programmes, the majority of patients (approximately 75.4%) are still diagnosed at advanced stages (III-IV) [4]. In India, NPC shows marked geographical variation, being uncommon in most states but relatively common in the North-Eastern region, particularly Nagaland and Mizoram [5].

The NPC typically exhibits a bimodal age distribution, occurring most frequently between 15-20 years and 40-50 years, with a clear male predominance (3:1) [5]. This pattern is consistent with findings by Adham M et al., (2014), who reported a case in a 44-year-old man, and aligns with the present case involving a 50-year-old male patient [6]. In contrast, paediatric NPC remains exceedingly rare. Shen C et al., (2009) evaluated 42 patients younger than 20 years and found that this group represented only 2.3% of all NPC cases, with a median age of 16 years [7]. Similarly, Swain SK et al., (2020) highlighted that childhood NPC constitutes only a small fraction of overall cases [8]. Most paediatric patients present at advanced stages, commonly with neck masses (90.5%), nasal bleeding (66.7%), and nasal obstruction (57.1%) as reported by Swain SK et al., (2020) [8].

The clinical manifestations are often nonspecific, including cervical lymphadenopathy, nasal obstruction, headache, or otological complaints such as unilateral serous otitis media and hearing loss or cranial nerve palsies [9]. The classical Trotter's triad, which is unilateral conductive hearing loss, palatal paresis, and trigeminal neuralgia, is seen only in advanced disease. Studies suggest that 75% of NPC patients present with cervical lymphadenopathy, while 20% present with otological complaints [10,11]. Misdiagnosis as chronic otomastoiditis or trigeminal neuralgia is common [12,13]. Delay in diagnosis adversely affects prognosis, as advanced-stage disease has reduced survival rates compared to early-stage detection

[14,15]. In the present case, symptoms of the patients overlapped with benign otological and neurological conditions, leading to delayed diagnosis [9]. Evidence from multiple case studies indicates that these symptoms serve as important diagnostic clues. Lee YL et al., (2012) reported that headache may be the sole initial manifestation of NPC, with an average duration of 7.9 months before diagnosis [16]. Nicolaescu A et al., (2018) further classified hearing loss as a typical 'otologic type' presentation of the disease [17]. Wu ZX et al., (2016) highlighted that patients presenting with isolated headache have the highest misdiagnosis rate (86.4%), underscoring the need for thorough evaluation [12]. This is supported by Velayutham P et al., (2021), who described a case of right hemicranial headache that was ultimately diagnosed as NPC [18].

The World Health Organisation (WHO) classification distinguishes NPC into keratinising squamous cell carcinoma (Grade I) and non-keratinising or undifferentiated carcinoma (Grade II), each exhibiting distinct biological behaviour [19]. Although Grade II tumours tend to be more aggressive, they are also more radiosensitive and demonstrate significantly better treatment outcomes. Reddy SP et al., (1995) reported markedly higher 5-year survival rates for non-keratinising and undifferentiated carcinomas compared to keratinising tumours (51% vs. 6%), along with higher rates of lymph node (70% vs. 29%) and distant metastasis (33% vs. 6%) [20]. Brennan B (2006) affirmed this classification, highlighting three subtypes: squamous cell carcinoma, non-keratinising carcinoma, and undifferentiated carcinoma [21]. This case underscores the need for high clinical suspicion in patients presenting with atypical unilateral otological or cranial nerve symptoms, especially when routine management for benign conditions fails. As emphasised by Harvey RJ et al., (2013), early diagnostic nasal endoscopy and appropriate imaging are essential to avoid delays in detecting these challenging malignancies [22].

In India, an endemic clustering of NPC is observed in Nagaland, Manipur, and Mizoram, with rates among the highest outside China. This regional predisposition has been attributed to Epstein-Barr Virus (EBV) infection, genetic polymorphisms, and environmental exposures [5,23]. Early use of diagnostic nasoendoscopy and cross-sectional imaging has been recommended in patients with unilateral otitis media with effusion, cranial nerve deficits, or atypical headache. Failure to improve with standard management for benign conditions should raise suspicion of NPC [24]. Hence, the present case underscores the need for multidisciplinary evaluation, integrating ENT, radiology, and oncology expertise, for timely recognition.

CONCLUSION(S)

The present case illustrates the importance of timely evaluation of persistent unilateral otological and neurological complaints. Early suspicion and use of nasoendoscopy in unexplained otitis media or cranial nerve symptoms can facilitate prompt diagnosis of NPC, improving treatment outcomes even in delayed cases.

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