IJPHS:
International Journal of Psychology and Health Science
GREENATION PUBLISHER
+62 812 1046 7572 http://greenpub.org greenation.info@gmail.com
DOI: https://doi.org/10.38035/ijphs.v4i4
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Received: 29 October 2026 | **Revised:** 11 November 2026 | **Accepted:** 16 November 2026

Nasopharyngeal Tumor with Multiple Cranial Nerve Palsy: A Rare Case

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Abstract: Nasopharyngeal tumors frequently present with nonspecific otolaryngological and neurological symptoms, leading to delayed diagnosis. Facial nerve palsy as a clinical manifestation is rare with an incidence of <1% and can mimic Bell's palsy. To report a case of nasopharyngeal tumor with multiple cranial nerve palsy. A 77-year-old man with nasopharyngeal tumor suspected of malignancy involving multiple cranial nerve palsy. Involvement of CN V, VII, IX, X, and XII manifested as pain in the jaw and mouth when chewing, right facial paralysis, left tongue deviation, dysphagia, dysphonia, and dysarthria, accompanied by progressive headache, otalgia, and chronic otorrhea. MRI results show a mass in the left nasopharyngeal in the fossa of Rosenmüller with suspected parapharyngeal lymphadenopathy suggestive of malignancy. Literature was searched using relevant keywords in PubMed, ScienceDirect, and Google Scholar. Additional cranial neuropathies and persistent head and neck symptoms were identified, prompting further imaging and histopathological evaluation. This case demonstrates that additional cranial neuropathies and persistent head and neck symptoms should raise suspicion of underlying nasopharyngeal malignancy. Early diagnosis and histopathological confirmation are crucial for appropriate management.

Keywords: Nasopharyngeal Tumor, Bell's Palsy, Multiple Cranial Nerve Palsy

INTRODUCTION

Nasopharyngeal tumor is an abnormal growth originating from the nasopharyngeal mucosa and can be either benign or malignant, with the most common malignant form being nasopharyngeal carcinoma (NPC) (Chen et al., 2019). Globally, NPC is a relatively rare malignancy compared to other types of cancers, with an incidence of approximately 1–1.5 cases per 100,000 population per year. Nevertheless, this disease has a distinct geographic distribution, with the highest incidence rates found in East Asia and Southeast Asia. In 2021, the global prevalence of nasopharyngeal cancer was 525,219 cases (6.14 per 100,000), with 75,359 deaths (0.87 per 100,000) (Wu T et al., 2025; Sung H, 2020). In Indonesia, the average prevalence of KNF cases reaches 6.2 per 100,000, with 13,000 additional cases reported

annually. Men account for the majority of KNF cases, with incidence rates peaking at ages 50–54, while mortality rates peak at ages 70–74 (Indrasari et al, 2025; 5. Adham et al, 2012).

Clinically, NPC is known as a "silent tumor" because it often presents with nonspecific early symptoms, such as ear, nose, or mild neurological symptoms, leading to delayed diagnosis. The hidden anatomical location of the nasopharynx and the tumor's tendency to grow submucosally also contribute to the difficulty of early detection, even during initial endoscopic examination. (Bossi et al, 2021; Adham et al, 2020). One late manifestation of NPC is cranial nerve involvement due to invasion of the cranial base. This involvement can lead to multiple cranial nerve palsy (MCNP), which are reported to occur in approximately 8–20% of cases. However, facial nerve (CN VII) involvement as an initial manifestation is extremely rare, with an incidence of less than 1%, and can mimic Bell's palsy, potentially leading to misdiagnosis. This condition poses a diagnostic challenge because peripheral facial nerve palsy is often considered an idiopathic condition, especially when it is not accompanied by other neurological symptoms in the early stages (Low et al, 2002; Denton et al, 2021).

The combination of cranial nerve deficits reflects extensive invasion of the cranial base and indicates a more aggressive disease course. Therefore, early recognition of atypical patterns of cranial nerve involvement is crucial to improve diagnostic accuracy which helps to speed up treatment. This article aim to report a rare case of nasopharyngeal tumor that initially mimicked Bell's palsy but progressed to MCNP, and highlights the diagnostic challenges encountered in clinical practice.

METHODS

Literature search was carried out using PubMed, ScienceDirect, and Google Scholar with keywords "nasopharyngeal tumor," "Bell's palsy," and "multiple cranial nerve palsy." Relevant articles discussing the clinical presentation and diagnosis of nasopharyngeal malignancy were included.

Case Report

A 77-year-old man presented to the emergency department with a chief complaint of right-sided facial asymmetry for two months prior to hospitalization. The patient reported that that his lip that appeared to be slanted to one side, fluid leaking from the right corner of the mouth when gargling, and an inability to close the right eyelid. These complaints were not accompanied by facial numbness or pain. The patient also reported intermittent headaches over the past two months that had worsened in the past few days, to the point of disrupting sleep. The pain was felt throughout the upper part of the head and was throbbing quality. Three days after admission, the patient experienced pain in the jaw and mouth when chewing, making it difficult to eat. The patient also experienced difficulty swallowing both solid and liquid foods, accompanied by pain and a sensation of blockage in the throat. Furthermore, the patient complains of choking when drinking water, making it difficult to take medication. The patient's voice also sounds hoarse. The patient has a history of chronic ear pain accompanied by discharge from the ear. There were no complaints of fever, cough, runny nose, or other symptoms of upper respiratory tract infection. A history of similar complaints in the past was denied. A history of chronic diseases such as hypertension, diabetes mellitus, and other conditions was denied. There was no family history of similar complaints.

The patient was in a state of general weakness with vital signs within normal limits. An ears examination revealed an attic perforation of the tympanic membrane with purulent discharge in the right auricle and in the left ear, a subtotal perforation of the tympanic membrane was found, accompanied by purulent discharge (figure 1). Nasal examination revealed bilateral congestive turbinates without discharge. Oropharyngeal examination was

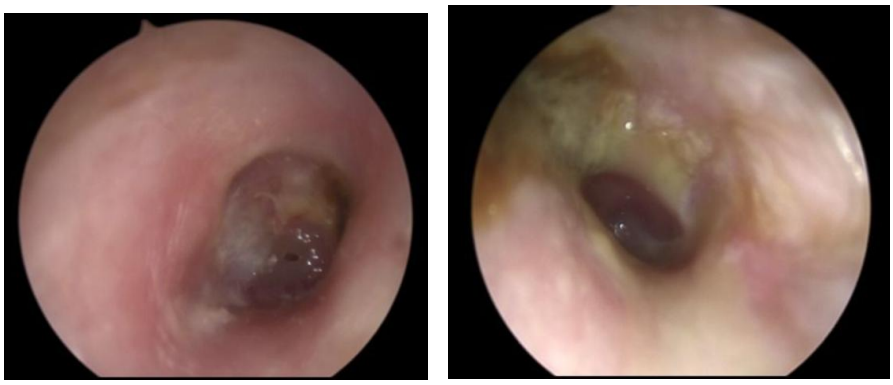
within normal limits. Neck examination revealed no enlarged lymph nodes, but there was tenderness in the submandibular region without edema.

On neurological examination, the patient reported pain in the jaw and mouth, particularly when chewing. Facial asymmetry was noted due to weakness on the right side. The patient was unable to raise his eyebrows, close his eyes, smile, puff out his cheeks, or purse his lips on the right side. Further examination of the facial nerve is described in Table 1. Additionally, there was a leftward tongue deviation and dysphagia, dysphonia, and dysarthria with a positive gag reflex. These findings indicate involvement of multiple cranial nerves, including CN V, VII, CN IX, CN X, and CN XII.

A magnetic resonance imaging (MRI) of the head revealed a left nasopharyngeal mass with obliteration of the torus tubarius and Rosenmüller's fossa, along with suspected parapharyngeal lymphadenopathy, suggesting a malignant process (figure 2). A multislice computed tomography (MSCT) of the mastoid revealed bilateral otomastoiditis (figure 3) and chronic rhinosinusitis involving the maxillary, ethmoidal, and sphenoidal sinuses (figure 4). Laboratory tests revealed mild anemia (hemoglobin 11.1 g/dL) and neutrophilia. Ear discharge cultures isolated Aeromonas veronii. Esophagography showed no structural abnormalities.

Table 1. Facial Nerve Examination

Examination	Right	Left
Forehead wrinkling (m. frontalis)	0/5	5/5
Eye closure (m. orbicularis oculi)	0/5	5/5
Smiling/showing teeth (m. zygomaticus)	0/5	5/5
Lip pursing (m. orbicularis oris)	0/5	5/5



(A) **(B)**

Figure 1. (A) Right tympanic membrane with attic perforation and purulent discharge (B) left tympanic membrane with subtotal perforation and purulent discharge.

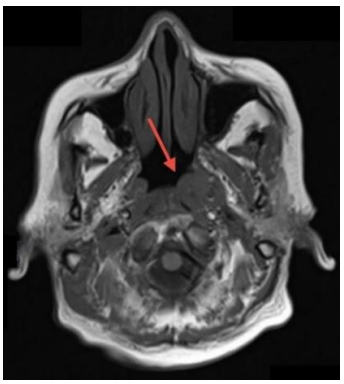


Figure 1. MRI results showed a left nasopharyngeal mass (red arrow) with obliteration of the torus tubarius and Rosenmüller's fossa, with suspected parapharyngeal lymphadenopathy.

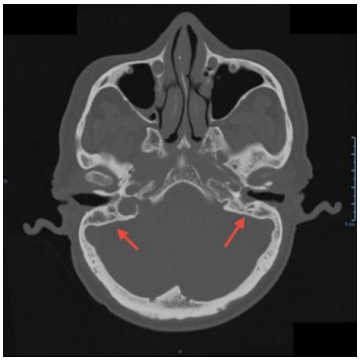


Figure 2. MSCT of the mastoid showed opacification of the bilateral mastoid air cells and tympanic cavities (red arrows), consistent with bilateral otomastoiditis.

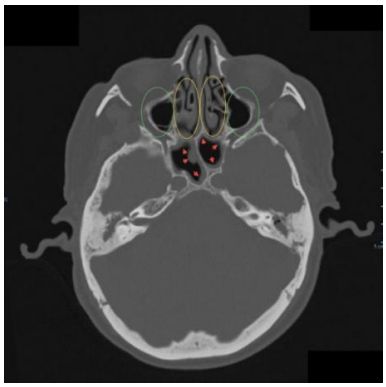


Figure 3. Mucosal thickening is shown in the sphenoidal sinus (red arrow), ethmoidal (yellow circle) and right and left maxillary (green circle).

Based on the history, physical examination, and supporting tests, a diagnosis of suspected malignant nasopharyngeal tumor with multiple cranial nerve palsy, accompanied by duplex chronic rhinosinusitis and active bilateral otitis media with suppuration, was established.

The treatment administered consisted of 0.9% NaCl solution via IV infusion, Esomeprazole 40 mg injection 1x1, Carbamazepine 200 mg 1x1, Amitriptyline 10 mg 2 x 1/2 tablet, Tramadol 50 mg/ml injection 2 x 1 ampoule, Paracetamol 1000 mg IV 3 x 1. Therapy was then continued with Cardioaspirin 100 mg 1x1, Ramipril 0-0-2.5 mg, Gabapentin 100 mg 3x1, Megabal 500 mg 1x1, Oxcarbazepine 300 mg 2x1. The patient also underwent NGT (nasal tube) placement and was administered Ofloxacin 0.3% 2x5 drops, Cefixime 200mg 2x1, Mometasone Furoate 0.05% 2x2 sprays, and Levofloxacin 500mg 1x1. The patient is scheduled for a biopsy by an ENT specialist.

RESULTS

The literature search identified 22 relevant articles. Facial nerve palsy was reported as a rare presentation of nasopharyngeal malignancy, additional cranial neuropathies and persistent head and neck symptoms were identified as clinical features suggesting underlying nasopharyngeal malignancy and warranting further imaging and histopathological evaluation.

DISCUSSION

We report a case of a nasopharyngeal tumor suggestive of malignancy. Histopathological examination is required as the gold standard for diagnosing nasopharyngeal carcinoma, however approximately 10% of nasopharyngeal cancers are not detected on endoscopy due to their small size and submucosal location. MRI can be used as an accurate alternative diagnostic tool with high sensitivity and a positive-negative likelihood ratio (LR) for the diagnosis of nasopharyngeal carcinoma, with good specificity (Gorolay et al, 2022; King et al, 2011). In

this case, the mass was located in the fossa of Rosenmüller, which, as seen on MRI, the primary predilection site for nasopharyngeal carcinoma. Furthermore, the presence of parapharyngeal lymphadenopathy and progressive clinical symptoms such as headache, dysphagia, dysphonia, and pain on chewing further strengthens the suspicion of malignant process. Radiologically, involvement of surrounding structures in the nasopharynx also supports the possibility of extensive local invasion.

Anatomically, the nasopharynx is the most superior part of the pharynx, located behind the nasal cavity and adjacent to important structures such as the cranial base. Therefore, tumors in this area can easily spread to surrounding tissues and cranial nerves. One of the major complications of advanced-stage nasopharyngeal tumors is cranial nerve involvement. This involvement occurs due to tumor spread toward the skull base through various foramina, such as the jugular foramen and hypoglossal canal. This spread causes compression or infiltration of the cranial nerves, which then leads to MCNP(Denton et al, 2021; Schifter et al, 2008). Epidemiologically, cranial nerve palsy is found in approximately 8–20% of nasopharyngeal carcinoma cases and is often serves as a sign of advanced disease. Cranial nerve palsy can prompt physicians to investigate the possibility of a locally invasive NPC diagnosis. The common combination of nerve dysfunction and paralysis also depends on the direction of tumor spread within the cranial cavity (Huang et al, 2017; Chang, 2021). If the tumor has invaded anteriorly into the cavernous sinus and middle cerebral fossa, significant visual, oculomotor, and facial sensation disturbances may occur due to possible impaction of CN II, III, IV, V, or VI. Posterior invasion to the skull base through extension to the nerves traversing the jugular foramen and hypoglossal canal can cause impairment of CN IX, X, XI, and XII, characterized by vocal cord dysfunction, dysphagia, tongue deviation, and weakness of the trapezius and sternocleidomastoid muscles (Holan et al, 2013).

In this case, involvement of several cranial nerves was observed, including CN V, VII, IX, X, and XII. The patient complained of pain in the jaw and mouth, particularly when chewing. A neurological examination revealed involvement of the trigeminal nerve (CN V) in the mandibular branch of the trigeminal nerve (V3). The involvement of the mandibular branch of the trigeminal nerve (V3) in this case is likely related to tumour extension into the foramen ovale and the masticatory space (Denton et al, 2021, Kristiyanto et al, 2023).The patient initially presented with the primary manifestation of right facial nerve (CN VII) paralysis, clinically resembling Bell's palsy, characterized by inability to raise the eyebrows, close the eyes, smile, puff out the cheeks, and purse the lips, with facial muscle strength of 0/5 in all tested muscle groups. Facial nerve (CN VII) involvement in nasopharyngeal tumors is a rare finding, with a reported incidence of less than 1%, making this presentation even more unusual, potentially leading to misdiagnosis and potentially cause diagnosis delay. Anatomically, the facial nerve does not directly connected to the nasopharynx, therefore it’s involvement typically occurs through extensive tumor spread (Denton et al, 2021, Albiali et al, 2025). In this case, the likely route of spread was lateral spread from the nasopharynx through the fossa of Rosenmüller to the parapharyngeal space, which then extended to the temporal bone, particularly the region traversed by the facial canal. Further extension into the Eustachian tube, middle ear, or even into the internal auditory meatus and cerebellopontine angle in advanced stages could also contribute to this nerve dysfunction. Thus, the manifestations in this patient are consistent with involvement of the peripheral pathways of CN VII and are inconsistent with idiopathic Bell's palsy, particularly given the progression of the symptoms and other neurologic deficits. In addition to facial nerve involvement, the presence of otological and chronic sinonasal symptoms in this patient also provides clinical evidence that an abnormality in the nasopharynx is the underlying cause of the nerve dysfunction. The finding of bilateral chronic suppurative otitis media and chronic rhinosinusitis can be explained by secondary

Eustachian tube dysfunction resulting from nasopharyngeal mass obstruction (Denton et al, 2021; Schifter et al, 2008; Kristiyanto et al, 2023; Dulak et al, 2026).

As the disease progresses, the emergence of additional cranial neuropathies shifts the diagnostic focus from a localized process to more extensive involvement of skull base. The patient exhibits dysfunction of CN IX, X, and XII, with clinical manifestations of dysphagia, dysphonia, and dysarthria. The patient also experienced tongue deviation to the left side, indicating left hypoglossal nerve (CN XII) paresis. Anatomically, these nerves exit through the jugular foramen (CN IX–X) and hypoglossal canal (CN XII), which are adjacent to the posterior cranial base. Tumor spread laterally through the parapharyngeal space, followed by extension to the cranial base, allows for compression or invasion of these structures (Kristiyanto et al, 2023; Patel et al, 2015).The pattern of cranial nerve deficits involving kontralateral sides (right CN VII and left CN XII) further reinforce the presence of a widespread infiltrative lesion at the cranial base. This condition indicates the occurrence of MCNP, which in nasopharyngeal tumors is typically a manifestation of advanced disease and is associated with extensive local invasion (Denton et al, 2021; Schifter et al, 2008; Holan R et al, 2013; Yin et al, 2021). Therefore, the combination of clinical and radiological findings in this patient strongly supports tumor invasion as the primary cause of MCNP, while also explaining the clinical transformation from an initial presentation resembling Bell's palsy to a more complex neurological picture of a neoplastic process. This case underscores that facial nerve palsy in elderly patients should not be considered idiopathic, as it may be an early manifestation of a nasopharyngeal tumor infiltrating the skull base, requiring prompt radiological investigation and histopathological confirmation.

Management in this case was primarily focused on symptom relief and stabilization, including analgesics, neuropathic agents, nutritional support via a nasogastric tube, and antibiotics for an accompanying chronic ear infection (Liu et al, 2021; Mo et al, 2012). A histopathological examination via biopsy was also planned for the patient to confirm the diagnosis of nasopharyngeal tumor. However, this procedure was postponed due to the patient's general condition, leaving the diagnosis presumptive based on clinical and radiological findings. This highlights a common clinical challenge in advanced cases, where patient-related factors can delay definitive diagnostic procedures, thereby hindering appropriate oncological management.

CONCLUSIONS

In conclusion, this is a unique case with atypical manifestations of a nasopharyngeal tumor that initially resembled Bell’s palsy but progressed to multiple cranial nerve palsies due to invasion of the cranial base. The rare involvement of the facial nerve, accompanied by neuropathies of other cranial nerves, including CN V, IX, X, and XII, is an important indicator of a more extensive and progressive pathological process. The atypical clinical findings, combined with MRI findings showing a nasopharyngeal mass at a predilection site, raised suspicion for malignancy despite the lack of histopathologic confirmation. This case vigilance regarding the possibility of a nasopharyngeal tumor in elderly patients with atypical facial nerve palsy or other neurologic deficits. The involvement of this cranial nerve is associated with poor prognosis for the progression of NPC, therefore, comprehensive evaluation, including radiological investigation and early histopathologic confirmation, is crucial for establishing a definitive diagnosis and determining appropriate management.

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