Head and Neck Lesions

NASOPHARYNGEAL TUBERCULOSIS:

A Rare Clinical Presentation and Literature Review

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Received: *October 05, 2025 —* ***Accepted:****December 24, 2025 —* ***Published:*** *January 30, 2026*
Citation : *HANDIS Fatiha, SALEMI Mustapha, ABU NADJA Mahmoud , BENYAHIA Samir ,NASOPHARYNGEAL TUBERCULOSIS: A Rare Clinical Presentation and Literature Review,* ***OLCIAS Vol.3, Issue 1***

ABSTRACT:

Background: Nasopharyngeal tuberculosis (NT) is an extremely rare form of tuberculosis, which can clinically and radiologically mimic undifferentiated nasopharyngeal carcinoma (UCNT).
Case Report: We report the case of a woman with no significant medical history, presenting with a six-month history of nasal obstruction and clear rhinorrhea. Endoscopic examination revealed a budding mass occupying the posterior wall of the nasopharynx. Virological testing (negative EBV viral load) and immunological evaluation (negative tuberculin skin test) were non-contributory. Histopathology of a biopsy specimen confirmed tuberculosis, showing caseofollicular granulomas. First-line antituberculous therapy (2RHZ/4RH) was initiated. A suspicion of drug resistance led to a multidisciplinary discussion regarding potential second-line treatment.

Conclusion: This case highlights the diagnostic challenges of NT, especially in differentiating it from UCNT, and underscores the importance of histopathological confirmation. A brief literature review is provided to aid clinicians in managing this rare localization.
Keywords: *Nasopharyngeal tuberculosis; Cavum; Undifferentiated nasopharyngeal carcinoma (UCNT); Differential diagnosis; Drug resistance; Case report*

1 .INTRODUCTION :

Tuberculosis (TB) remains a major public health problem worldwide. While the pulmonary form is predominant, extrapulmonary locations account for approximately 15 to 20% of cases, occurring more frequently in immunocompromised patients [1]. Otorhinolaryngologic (ENT) tuberculosis mainly involves cervical lymph nodes, the larynx, and the ear. Nasopharyngeal tuberculosis (NT) is extremely rare, representing less than 0.5% of extrapulmonary TB cases [2, 3].

Its significance lies in its potential to mimic a malignant tumor, particularly undifferentiated nasopharyngeal carcinoma (UCNT), which sometimes shares the same preferred anatomical site (Rosenmüller's fossa) and can therefore present with a similar clinical picture [4]. This mimicry may lead to delayed diagnosis and treatment if histological confirmation is not promptly obtained. We present an illustrative case of pseudo-tumoral NT, followed by a literature review focusing on diagnostic pitfalls and therapeutic challenges, especially regarding resistant forms and the emergence of shortened oral treatment regimens.

2 . CASE REPORT

A 48-year-old woman with no significant medical history, including no known immunodeficiency or prior tuberculosis exposure, presented with a six-month history of unilateral nasal obstruction and persistent clear rhinorrhea. On clinical examination, her general condition was preserved, she was afebrile, and no cervical lymphadenopathy was palpable.

Flexible nasofibroscopy revealed a pseudo-tumoral, budding mass filling the left Rosenmüller fossa, which did not bleed upon contact.

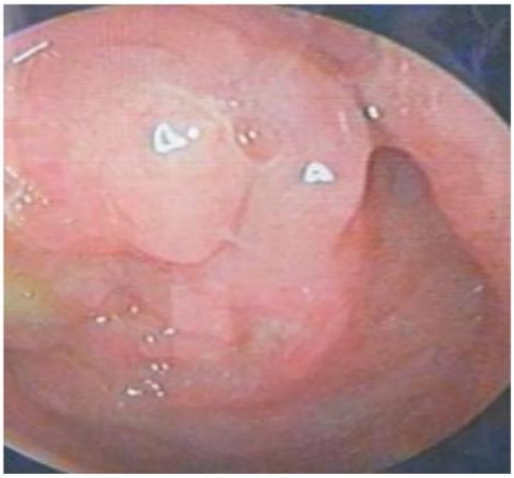

Figure 1: Pseudo-tumoral nasopharyngeal mass observed on nasal endoscopy.

Initial laboratory investigations were unremarkable. Epstein-Barr virus (EBV) serology was negative, and the tuberculin skin test (TST) also yielded a negative result. Chest radiography was performed and showed no abnormalities.

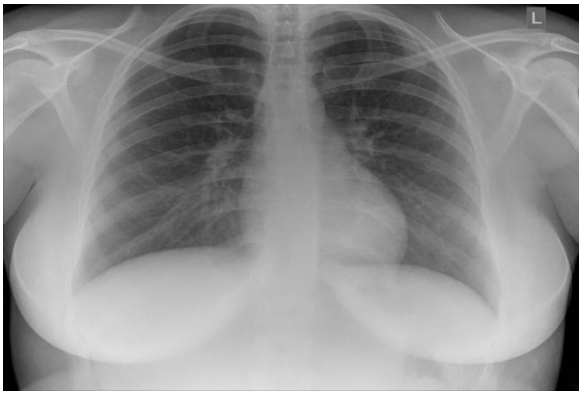

Figure 2: Chest radiograph showing no abnormalities.

Cervicofacial computed tomography (CT) and magnetic resonance imaging (MRI) revealed a soft tissue lesion in the left Rosenmüller's fossa, without obvious bone erosion or significant parapharyngeal extension.

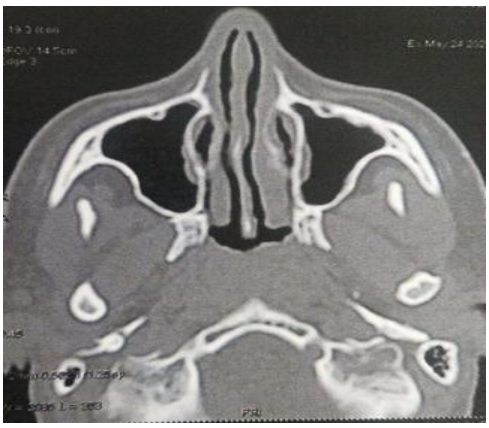

Figure 3: Cervicofacial computed tomography (CT) showing a soft tissue lesion in the left Rosenmüller's fossa.

An endoscopy-guided biopsy of the lesion was performed. Histopathological examination revealed a granulomatous inflammation with multinucleated giant cells and caseous necrosis, highly suggestive of tuberculosis. Direct examination for acid-fast bacilli (AFB) was negative

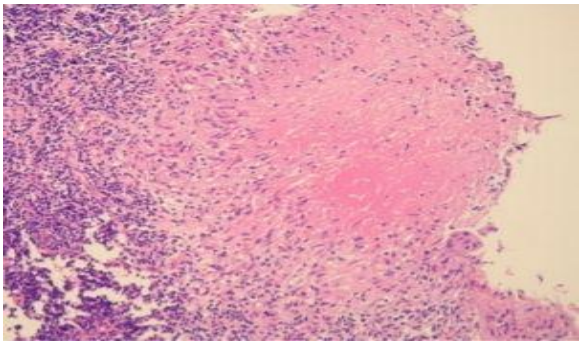

Figure 4: Histopathological examination of the thickened nasopharyngeal mucosa showing granuloma formation with caseous necrosis.

First-line antituberculous therapy (2RHZ/4RH) was initiated. Given the local epidemiological context of drug resistance and the negative direct smear, a multidisciplinary discussion involving ENT, infectious diseases, pulmonology, and internal medicine was conducted to assess the potential need for a second-line, fully oral regimen (2RHZE/4RH). Under this adapted therapy, the patient showed a marked clinical and endoscopic improvement, with progressive symptom relief and regression of the lesions.

3 . Literature Review and Discussion

Epidemiology and Clinical Presentation:

Nasopharyngeal tuberculosis (NT) is a rare entity, often reported in case reports or small series [2, 3, 5]. As illustrated by our case, it occurs predominantly in young adults but can affect any age group. Symptoms are nonspecific and mainly include nasal obstruction, rhinorrhea, odynophagia, unilateral serous otitis due to eustachian tube obstruction, or cervical lymphadenopathy [3, 5]. General condition is often preserved, and constitutional signs (fever, weight loss) are inconsistent.

Differential Diagnosis and Pitfalls:

The main differential diagnosis is UCNT, especially in regions endemic for both conditions [4, 6]. Our case highlights several pitfalls:

1. Location: Rosenmüller's fossa is the preferred site for UCNT. A mass in this area therefore primarily suggests this diagnosis.

2. Negative Tests: A negative tuberculin skin test (TST) does not rule out TB, particularly in extrapulmonary forms or in certain anergic patients [1]. Similarly, a negative EBV viral load, although rare, can occur in UCNT, and conversely, NT is not associated with EBV.

3. Imaging: CT and MRI may show mucosal thickening or a discrete mass, but the absence of aggressive bone erosion or invasion of the parapharyngeal spaces supports a diagnosis of NT, although this is not absolute [7].

Diagnostic Confirmation:

As demonstrated, biopsy is essential. Typical histology reveals epithelioid and multinucleated giant cell granulomas with caseous necrosis. Identification of the bacillus by Ziehl-Neelsen staining (AFB), culture (the gold standard), or M. tuberculosis PCR on biopsy tissue confirms the diagnosis [1, 2]. A negative direct smear, as in our case, is common in paucibacillary forms.

Treatment and Challenges of Drug Resistance

Standard treatment for drug-susceptible TB consists of an initial four-drug regimen (Rifampicin, Isoniazid, Pyrazinamide, Ethambutol) for 2 months, followed by a two-drug regimen (Rifampicin, Isoniazid) for 4 months (2RHZE/4RH) [1, 9]. The response is generally excellent.

Suspected primary or secondary resistance, as in the present case, alters management. It requires:

1. Microbiological confirmation through culture and drug susceptibility testing.

2. Adjustment to a personalized regimen based on the recommendations of the Algerian National Tuberculosis Control Program (PNAT).

3. Close multidisciplinary collaboration (ENT, infectious disease specialist, pulmonologist) for clinical and endoscopic follow-up, including assessment of treatment response and management of adverse effects from second-line therapies. This approach is particularly important in rare localizations such as nasopharyngeal TB, where cultures may be negative and drug resistance is exceptionally uncommon [2, 3].

Conclusion

Nasopharyngeal tuberculosis, although rare, should always be considered in the differential diagnosis of nasopharyngeal masses, particularly in regions endemic for tuberculosis. Its ability to mimic UCNT necessitates mandatory histological and microbiological confirmation. Negative tuberculin skin tests or EBV assays do not exclude either condition. Standard therapeutic management is effective, but the emergence of drug resistance requires heightened vigilance, bacteriological confirmation, and early adaptation to personalized treatment regimens, ideally within a multidisciplinary team.

Ethics and Consent

Written informed consent was obtained from the patient for the publication of this case report and any accompanying images.

The study was conducted in accordance with the ethical standards of the institutional Ethics Committee of Mustapha University Hospital, Algiers, Algeria, and with the 1964 Helsinki Declaration and its later amendments.

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