

# Primary Nasal Tuberculosis

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## Abstract

Tuberculosis can involve any part of body. Tubercular bacteria rarely involve nose as a primary site for infection. This site of involvement of *Mycobacterium tuberculosis* (MTB) is rarer even in endemic country like India. Here we are presenting a case of primary nasal TB.

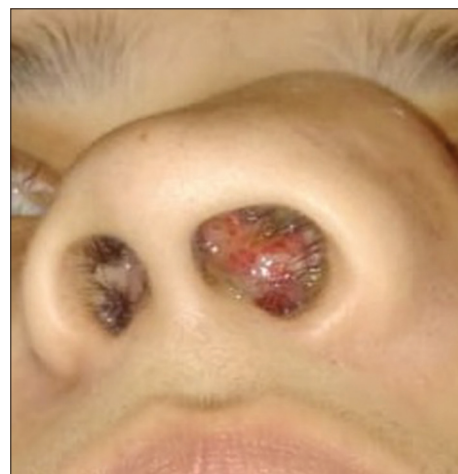
**Keywords:** Antitubercular therapy, extrapulmonary tuberculosis, histopathology

## INTRODUCTION

Nasal tuberculosis (TB) is a less common manifestation of extrapulmonary TB (EPTB), constituting only 2%–6% of all cases of EPTB.<sup>[1,2]</sup> Less than 50 cases have been reported worldwide till date.<sup>[3]</sup> It was first described by Giovanni Battista Morgagni in 1761.<sup>[4]</sup> Primary involvement of the nose is rare. The protective action of the nasal mucosa makes it relatively resistant to tubercle bacilli. However, trauma, atrophic changes, and immunocompromised status may facilitate successful lodging of bacilli within the nasal lining.<sup>[5]</sup> Nasal TB is twice as common in females as in males and is more common in people living in unhygienic conditions.<sup>[6]</sup> Here, we present a case report of primary nasal TB.

## CASE REPORT

A 32-year-old woman presented to our outpatient department with a 5-month history of progressive nasal swelling, pain, and blockage. Along with the local symptoms, constitutional symptoms such as fever, weakness, anorexia, and weight loss were also present. She had been administered several courses of antibiotics and antihistamines by a local general practitioner without relief. External examination revealed the presence of swelling predominantly involving the left side on the nose and nasal bridge [Figure 1]. Internal examination revealed a reddish indurated soft-tissue mass in the left nasal cavity which was noncompressible and bled on touch. The mucosa over the mass and adjacent area was thickened and inflamed [Figure 2].



**Figure 1:** External nasal examination shows the presence of swelling predominantly involving the left side and nasal bridge. Left nasal cavity is almost filled with pinkish growth

Complete blood cell count revealed hemoglobin – 9.0 g%, total leukocyte count – 9700 cell/mm<sup>3</sup> (polymorphs – 60%, lymphocytes – 32%, eosinophils – 3%, and monocytes – 5%), and erythrocyte sedimentation rate – 43 mm/h in the 1<sup>st</sup> h. ELISA test for HIV was negative. Her Mantoux test elicited

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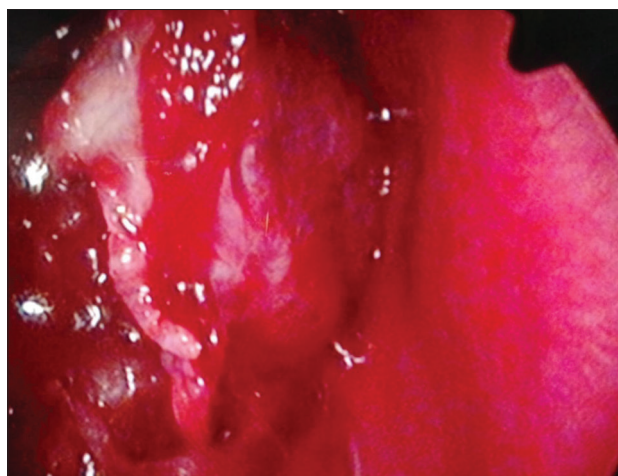
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a 17-mm induration at 72 h. Two consecutive sputum smear examinations for acid-fast bacilli (AFB) were negative. The nasal swab and the throat swab were negative for AFB and fungal element on 10% KOH mount. Renal function test and liver function tests were within the normal limits. The X-ray of the paranasal sinuses and chest showed no lesion. No clinical evidence of any systemic diseases were found.

Nasal endoscopic biopsy sample was taken from the representative area, and tissue was sent for histopathological examination (HPE) and Ziehl–Neelsen (ZN) staining for AFB detection. HPE from the biopsied tissue revealed confluent well-formed granulomas comprising epithelioid histiocytes, lymphocytes, plasma cells, and Langhans giant cells with areas of caseating necrosis [Figure 3]. The adjoining skin was uninvolved. No other pathological finding was detected. ZN staining done on tissue sections was negative for AFB. Although AFB was not detected in the biopsied tissue, we still made a diagnosis of nasal TB on HPE and clinical grounds. The treatment was started under the Revised National Tuberculosis Control Program as a case of EPTB. She was treated with antitubercular therapy for drug-sensitive TB.

## DISCUSSION

Nasal TB is a rare disease even in TB endemic country such as India where the incidence of TB is high.<sup>[7]</sup> It is usually secondary either to pulmonary TB or facial TB. Secondary infection of the nose can occur through the blood and lymph vessels. Although rare, primary infection of the nose can occur through the droplet nuclei produced by sneezing and coughing by the TB patients, direct inoculation by finger-borne infections, or by instrumentation. The patients of nasal TB may present with nasal obstruction, nasal discharge, epistaxis, crusting, recurrent nasal polyps, and nonhealing ulcer. Lesions may be ulcerative, infiltrative, or proliferative, and most cases are unilateral.<sup>[8,9]</sup> Our case was a unilaterally involved proliferative nasal TB lesion.



**Figure 2:** Endoscopic picture showing reddish indurated soft-tissue mass in the left nasal cavity along with inflamed overlying mucosa

The most common presenting symptom of the disease is nasal obstruction that is followed by nasal discharge, nasal discomfort, epistaxis, crusting, eye watering, postnasal discharge, recurrent nasal polyps, and ulceration.<sup>[10]</sup> Our case had the presenting symptoms of nasal obstruction and tenderness.

Differential diagnosis includes sarcoidosis, fungal infection, leprosy, rhinoscleroma, rhinosporidiosis, foreign bodies, carcinoma, natural killer-T-cell lymphoma, and Wegener's granulomatosis.<sup>[11]</sup> Microcaseation in HPE substantiated the diagnosis of TB ruling out other granulomatous lesions. Tuberculin skin test in our case was strongly positive in the absence of immunocompromised state such as HIV infection, favoring tubercular pathology. The nasal lesion in our patient was diagnosed as nasal TB on the basis of histopathological examination, tuberculin skin test, and clinical ground.

## CONCLUSION

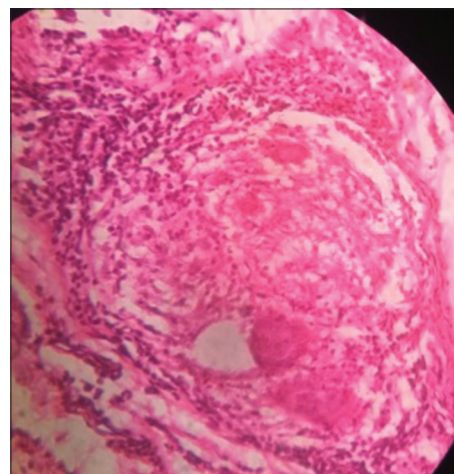
In TB endemic country such as India, nasal TB should be kept in mind while encountering an unusual lesion in the nasal cavity. Its complications can be avoided by timely made correct diagnosis by demonstrating caseating granulomas in histopathological examination of biopsy or AFB detection by either phenotypic (culture) or genotypic methods (GeneXpert). Prompt diagnosis and treatment of EPTB at unusual sites such as nasal cavity is required to minimize the possibility of resistance.

## Patient consent

All appropriate informed and written consent were obtained from the patient.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be



**Figure 3:** Histopathological examination from the biopsied tissue revealed confluent well-formed granuloma comprising epithelioid histiocytes, lymphocytes, plasma cells, and Langhans giant cells with areas of microcaseations

reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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