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Case Report

Nasopharyngeal tuberculosis

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A 33 years old male patient, presented with bilateral nasal obstruction for the duration of 3 months. It was insidious in onset and gradually progressive. He complained of dryness of mouth due to persistent mouth breathing. He denied any history of anosmia, rhinorrhoea, epistaxis, facial pain, otalgia or hearing loss.

On examination, his external nasal pyramid was normal and anterior rhinoscopy did not reveal any abnormality. Cold spatula test showed bilateral minimal misting. Posterior rhinoscopy showed a nasopharyngeal mass occluding posterior choanae.

Nasal endoscopy showed a globular mass with smooth surface covered by pink mucosa, occupying 3/4th of the nasopharyngeal space (Fig. 1). The mass was soft but solid, sensitive to touch and did not bleed on touch. It was attached to postero-superior wall of nasopharynx with a broad pedicle. Eustachian tubes on both sides were partially compressed by the mass. There was no cervical or generalized lymphadenopathy. Systemic examination was within normal limits.

Investigations revealed normal haematological and biochemical parameters, positive hepatitis B viral status and a raised ESR of 19 mm in the first hour (Wintrobe's method). CT scan of base of skull showed a mass in the nasopharynx arising from postero-superior wall with no intracranial communication (Fig. 2). His Mantoux test showed 15 mm induration. CT scan of chest ruled out any evidence of pulmonary TB. USG of the abdomen was normal.

Histopathological examination report of two punch biopsies, taken from the growth showed a necrotizing granulomatous lesion, likely tuberculosis. Tissue was lined by stratified squamous epithelium. The underlying stroma shows lymphoid cells along with numerous coalescing

Introduction

Primary nasopharyngeal tuberculosis is defined as an isolated tubercular infection of nasopharynx in absence of pulmonary or systemic tuberculosis.¹ Majority of patients of nasopharyngeal tuberculosis present with neck mass, nasal obstruction, rhinorrhoea, epistaxis, otalgia and hearing loss. Constitutional symptoms occur in 12–30% of cases of nasopharyngeal tuberculosis.² The diagnosis of nasopharyngeal tuberculosis is often difficult because nasal endoscopic evaluation and radio-imaging can only offer a differential diagnosis. It is only confirmed by histological and bacteriological studies. Antitubercular drugs for at least six months is the recommended treatment.

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Fig. 1 – Endoscopic view of the nasopharyngeal mass.

granulomas of varying sizes composed of plump histiocytes and epithelioid cells. Scattered Langhans giant cells and the areas of central breakdown in granuloma were also seen. No atypia/evidence of malignancy was noted (Fig. 3).

The patient was started on Anti Tubercular Therapy consisting of Isoniazid, Rifampicin, Pyrazinamide, and Ethambutol for two months during initial phase (2HRZE) and on Isoniazid and Rifampicin for four months of continuous phase (4HR). The mass was excised (Fig. 4) under ATT cover of two weeks. HPE of the tissue again confirmed a necrotizing

Fig. 3 – Excised specimen of nasopharyngeal mass.

granulomatous lesion, likely to be tuberculosis. Polymerase chain reaction for tuberculosis (TB PCR) was positive. Patient is in regular follow-up and is symptom free. Repeat nasal endoscopy did not show any evidence of recurrence.

Discussion

During past few years there has been a rise in the incidence of extra-pulmonary tuberculosis. High defaulter rate, malnutrition, emergence of drug resistance and increased population

Fig. 2 – CECT scan of base of skull, sagittal section, showing mass in the nasopharynx.

Fig. 4 – Photomicrograph showing well formed granuloma composed of epithelioid cells, Langhan's giant cells surrounded by collar of lymphocytes beneath pseudostratified columnar epithelium (H & E stain $\times 100$).

of immune-compromised people might all be contributing factors behind this resurgence. Conversely, primary nasopharyngeal tuberculosis is exceedingly rare even in endemic tuberculosis areas. In a large historical series of 843 cases of tuberculosis, only 1.8% of cases showed upper respiratory tract involvement, with only one case of nasopharyngeal involvement.³

The more common sites involved are nasal septum near mucocutaneous junction and posterior end of nasal septum. Nasopharynx is the least common site in the upper respiratory tract to be afflicted by tuberculosis.⁴

Primary nasopharyngeal TB may develop by three modes of contamination: (i) directly through nasal ventilation, (ii) haematogenous or lymphatic spread from a primary site and (iii) from a focus of infection harbored in the adenoid. This adenoid theory proposes that dormant TB in young patients becomes active by some unknown factors.⁴ Adenoid theory is supported in a series of 67 cases of tuberculosis cervical lymphadenitis, in which adenotonsillectomy was performed and 18 cases of primary tuberculosis infection were found in the adenoids.⁵

Direct visualization of nasopharynx may show three main patterns of involvement: (a) normal nasopharynx, (b) diffuse inflammation and ulceration of respiratory mucosa and (c) polypoidal mass lesion arising at the site of adenoids.⁶ Rarely nasopharyngeal tuberculosis can invade directly to cavernous sinus or skull base, resulting in third or sixth cranial nerve palsy. Extension outside the nasopharynx involving adjacent prevertebral muscle has also been reported.⁶

Radiologically, nasopharyngeal tuberculosis can exhibit two patterns as defined by magnetic resonance imaging: (i) polypoidal mass and (ii) diffuse mucosal thickening. Hence, differential diagnosis can vary according to abovementioned patterns. For the polypoidal presentation, it includes lymphoid hyperplasia, nasopharyngeal carcinoma, lymphoma, and Castleman's disease. Diffuse mucosal thickening includes early local stage of nasopharyngeal carcinoma, lymphoma, minor salivary gland tumours, Wegener's granuloma, syphilis, fungal infection, and leprosy.⁶ Obtaining a pathological and bacteriological diagnosis is hence of paramount importance.

Pathologic examination reveals granulomatous inflammation which shows epithelioid giant cells and caseous necrosis. Nasopharyngeal carcinoma may harbor foci of granulomatous reaction in the tissue adjacent to the carcinoma, similar to that of tuberculosis, causing diagnostic confusion if a biopsy is obtained from peri-tumoral tissue. In regions where both nasopharyngeal tuberculosis and nasopharyngeal carcinoma co exist, the clinical picture is further complicated. Both diseases may have a similar clinical presentation and also a granulomatous inflammatory reaction. However, a more specific and faster investigation like PCR carries the advantage to detect the DNA of *Mycobacterium tuberculosis* before its growth on culture.⁷

Antituberculosis treatment is the main stay in the management of extra-pulmonary tuberculosis. Treatment of extra-pulmonary and pulmonary tuberculosis is the same unless organisms are known and strongly suspected to be resistant to the first line of drugs, or if the patient is diagnosed with tuberculous meningitis.⁸ The minimum period of

instituting the treatment in this extra-pulmonary tuberculosis is 6 months.⁹ Six month regimen consisting of Isoniazid, Rifampicin, Pyrazinamide and Ethambutol for two months on the initial phase followed by Isoniazid and Rifampicin for 4 months as the continuation phase has been advocated.¹⁰ While the six-month treatment may be sufficient for many patients, each patient has to be individually assessed and, where relevant, treatment duration may have to be extended for a given patient.¹¹ Prognosis of nasopharyngeal tuberculosis is good with a well conducted anti-tubercular treatment.

Conclusion

Nasopharynx is a relatively silent area hence clinical symptoms appear late. Nasopharyngeal tuberculosis is seldom suspected and often under-diagnosed due to absence of respiratory and constitutional symptoms, non-specific clinical presentation and low index of suspicion. Since adenoids are suspected portal of entry for tuberculosis, histological examination after adenoidectomy in adult is recommended, especially in regions with a high prevalence of tuberculosis.

Conflicts of interest

All authors have none to declare.

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