

Case Report

Nasopharyngeal Tuberculosis: A Case Report and Review of Literature

NA Shofoluwe, IY Shuaibu, IB Mohammed, D Chitumu, MA Usman, HO Aliyu.¹

Department of Surgery, Division of ORL and ¹Department of Pathology, Ahmadu Bello University and Ahmadu Bello University Teaching Hospital, Zaria.

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^{*}Correspondence: NA Shofoluwe, Department Of Surgery, Division of Otorhinolaryngology, Ahmadu Bello University, Zaria.

Email: shofoisma@gmail.com

Tel: +2348035638705

ABSTRACT

Nasopharyngeal tuberculosis (NTB) is an extrapulmonary tubercular infection of the nasopharynx. It is a rare entity, even in endemic tuberculosis areas. Two potential pathways to infection have been described and these can either be primary or secondary. We present a case of Nasopharyngeal tuberculosis in an 18-year-old Nigerian student. The Clinical presentation, diagnosis and successful treatment of tuberculosis in the Nasopharynx is discussed.

Keywords: Nasopharynx, Tuberculosis, Case report

INTRODUCTION

Tuberculosis (TB) is the leading cause of mortality from infectious diseases and continues to be a major challenge to global health.¹ With the most frequent site being lungs, however nasopharyngeal tuberculosis is a rare type of extrapulmonary tuberculosis comprising only less than 1% of tuberculosis found in the upper respiratory tract.² Nasopharyngeal tuberculosis (NTB) is a rare entity, even in endemic tuberculosis areas.³⁻⁵ Two potential pathway to infection have been described and these can either be primary or secondary. Primary nasopharyngeal tuberculosis is defined as an isolated tubercular infection of nasopharynx in the absence of pulmonary or systemic tuberculosis and the infection occurs via nasal ventilation.⁶ In secondary NTB, infection spreads from site, which is mostly lungs, via haematogenous or lymphogenous spread.⁷ We present a case of primary nasopharyngeal tuberculosis seen in our centre.

CASE REPORT

An 18-year-old female patient, presented with bilateral neck swelling of one-year duration. The swelling was insidious in onset and progressively increasing in size, initially the swelling was more on the left than the right until about four months prior to presentation when it increased till the present size. There was history of low-grade intermittent fever but patient denied history of cough, nose bleeding, diplopia or hearing loss. The patient had no underlying disease, no history of pulmonary TB or contact with TB patients.

On examination, there were bilateral matted multiple lymph nodes (Fig.1), firm to hard in consistency, extending from levels II-IV cervical group of lymph nodes and not attached to underlying structures or overlying skin. Anterior rhinoscopy showed normal findings with patent nasal cavities. Rigid nasal

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Figure 1: Before commencement of treatment

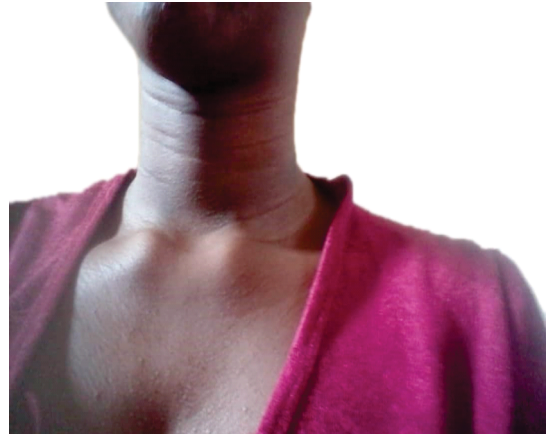


Figure 2 : Nine months after commencement of anti TB drugs

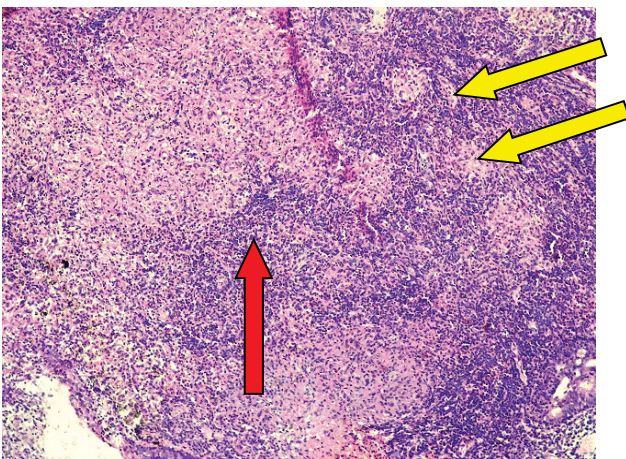


Fig 3: Nasopharyngeal tissue [H&E, magnification x 40]: red arrow- coalesced granulomata

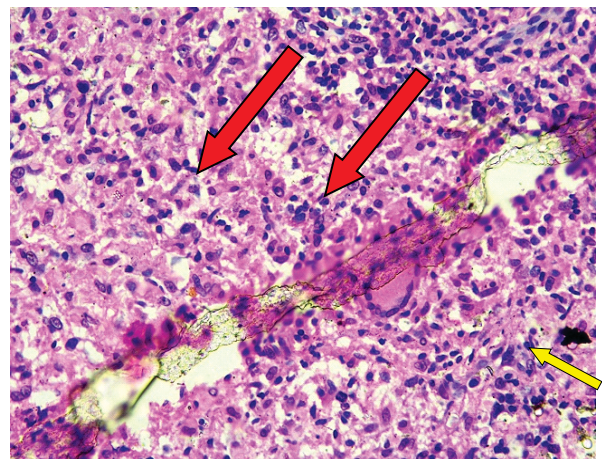


Fig 4.Nasopharyngeal tissue [H&E, magnification x 40]: red arrow – Epithelioid histiocytes; yellow arrow – multinucleated giant cell

endoscopy with a 0 degree 2.7mm Hopkins endoscope revealed an exophytic mass in the posterior-superior wall of nasopharynx with smooth surface and covered by pink mucosa. The fossa of was free with yellowish discharge and the exophytic mass was seen lateral to it. There was no contact bleeding and Eustachian tubes were patent. After adequate nasal packing with gauze soaked 1% xylocaine with adrenaline, per nasal biopsy of the mass in the nasopharynx was taken using lucs forceps with minimal bleeding following the procedure. A provisional diagnosis of Nasopharyngeal tumour to

rule out Non Hodgkins Lymphoma was made.

Other ancillary investigations revealed normal full blood count and differential, adequate platelet and target cells seen, serum urea and electrolyte and chest radiograph were normal, retroviral screening was negative, erythrocyte sedimentation rate was raised.

Histopathological examinations of nasopharyngeal mass biopsy revealed chronic necrotizing granulomatous inflammations likely tuberculosis. Tissue was lined by ulcerated squamous

epithelium overlying a lesion composed of nodular and diffuse confluent granulomata composed of epithelioid histiocytes including scattered Langerhans-type giant cells, lymphocytes and plasma cells.

The patient was treated on outpatient basis with anti-tuberculosis regimen which consist of Isoniazid, Rifampicin, Pyrazinamide, and Ethambutol for six months during initial phase (6HRZE) and on Isoniazid and Rifampicin for three months of continuous phase (3HR). HPE of the tissue again confirmed a necrotizing granulomatous lesion, likely to be tuberculosis. Polymerase chain reaction for tuberculosis (Gene Xpert) was positive. Patient has been on regular follow-up for one - year and is symptom free (Fig 2).. She has had a repeat of the nasal endoscopy with 0-degree endoscope on two different occasions with no evidence of growth recurrence.

DISCUSSION

Primary nasopharyngeal tuberculosis is a rare presentation especially at an early stage of the disease, because its presentations are nonspecific.⁸ The common symptoms of nasopharyngeal tuberculosis are cervical lymphadenopathy, otologic symptoms such as ear fullness, hearing impairment, and otitis media, and nasal symptoms like nasal obstruction epistaxis, and postnasal drip.⁹ As seen in the index case presented the primary presentation was bilateral cervical swelling with low grade fever, however no nasal or other otological symptoms.

Previous literature has shown direct endoscopic visualization of nasopharynx has three main patterns of involvement: (a) normal nasopharynx, (b) diffuse inflammation and ulceration of respiratory mucosa and (c) proliferative or exfoliative or polypoidal mass lesion in the nasopharynx.¹⁰

Radiologically, nasopharyngeal tuberculosis can exhibit two patterns as defined by magnetic resonance imaging as described by Kings et al¹⁰: (i) polypoidal mass and (ii) diffuse mucosal thickening. Hence, differential diagnosis can vary according to above mentioned patterns and may vary from lymphoid hyperplasia, nasopharyngeal carcinoma, lymphoma, and Castleman's disease.¹⁰

In the case presented above, nasopharyngoscopic findings show an exophytic mass in the posterior-superior wall of nasopharynx with smooth surface and covered by pink mucosa similar to description

by previous report.¹⁰ There was no contact bleeding and eustachian tubes were patent. This nasopharyngoscopic finding seen in this case is that equivalent to the exfoliative phase of the disease.¹¹

Pathologic examination revealed granulomatous inflammation with epithelioid giant cells and caseous necrosis. Acid-fast bacilli could be found and the culture isolates of *Mycobacterium tuberculosis*.¹¹ Although a granulomatous reaction is frequently observed, the isolation of acid- fast bacilli and a culture of M tuberculosis can be extremely difficult.³ However, PCR amplification with tissue specimens is useful for detecting M. tuberculosis DNA and can be used to increase the diagnostic accuracy in patients who have perplexing diagnostic difficulties associated with a granulomatous tissue response.

The histopathologic findings of the index case revealed granulomatous inflammation which shows epithelioid giant cells and caseous necrosis in the punch biopsy taken in the clinic is consistent with diagnosis of Tuberculosis as seen in Fig.3 and 4.

Based on the above the final diagnosis of primary nasopharyngeal tuberculosis was concluded on the basis of clinical, nasal endoscopic, microbiology and histopathologic examination.

Recently, tuberculosis has become a global public health challenge due to an increasing number of drug-resistant cases and immunosuppression especially in developing countries.¹³ Therefore, early effective treatment is important to prevent the emergence of drug-resistant strains. This requires a fast and reliable diagnostic method for effective case management.¹² The methods commonly used to screen and diagnose tuberculosis are clinical presentation based on the history and examination findings, microscopy and culture then radiography.¹¹ In addition, molecular diagnostic methods to diagnose and characterize tuberculosis, including M tuberculosis and drug resistance plus (MTBDR), GeneXpert, and whole-genome sequencing have recently been developed and are now available for the simultaneous identification of *Mycobacterium tuberculosis* and mutation(s) associated with routinely used antituberculosis drug.¹¹

In making the confirmation of diagnosis and treatment in this index case GeneXpert and histopathological diagnosis were used

and patient was on anti-Koch's therapy for 9 months. Clinically, other differential diagnosis considered were Non Hodgkins Lymphoma and Nasopharyngeal cancer.

Primary nasopharyngeal tuberculosis has good prognosis with adequate treatment for at least 6-9 months.²

CONCLUSION

Nasopharynx is a relatively silent area hence clinical symptoms appear late. Nasopharyngeal tuberculosis is rarely 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 endemic regions with a high prevalence of tuberculosis and in patients with immunosuppression. Overall, nasopharyngeal TB infection should be considered in polypoid masses with regional mucosal lesions, centered on the posterior nasopharyngeal wall, with bilateral cervical lymphadenopathy especially in endemic areas.

Conflict of Interest: The authors declare no competing interests

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