Primary Tuberculosis of Upper Airway: Case Report of 3 Rare Presentation

Surajit Barman · Gautam Khaund

Received: 23 February 2012 / Accepted: 29 February 2012 / Published online: 15 March 2012
© Association of Otolaryngologists of India 2012

Abstract Tuberculosis of the upper airway is usually seen in conjunction with primary pulmonary tuberculosis. Primary tuberculosis of this area without involvement of the lung is very rare and often mistaken for malignancies. We report here three patients (2 male & 1 female) who presented with different symptoms and on investigations revealed to be suffering from tuberculosis of the upper airway (nasopharynx, tonsil & epiglottis). Further investigations revealed that no other area was involved. All the patients were started on standard anti tubercular therapy and showed complete cure on completion of therapy.

Keywords Primary · Tuberculosis · Nasopharynx · Tonsil · Epiglottis

Introduction

Tuberculosis has long been considered the disease of the developing or under developed nations. However it has now slowly crept into the developed nations, mainly due to the large scale invasion of HIV, increase in geriatric population and also emergence of multi-drug resistance in this species.

Tuberculosis of upper airway has often been reported along with primary pulmonary tuberculosis. Isolated primary tuberculosis of this region is a much rarer entity. At first glance it can easily be mistaken for malignancies. What the present study endeavours is to bring to limelight the diagnosis of primary tuberculosis of the upper airway

as a alternate differential diagnosis in patient with upper airway mass, particularly granulomatous mass.

Case report I

A 48 year-old male presented with history of sore throat, occasional fever, malaise for 1 year duration. He had been taking treatment in form of various courses of antibiotics, analgesics, antihistamines since then without any relief. He had no previous history of any serious illness, chronic cough and other chest symptoms.

While the general physical examination revealed normal findings, oral examination showed enlarged right tonsil which was granular and ulcerated. (Fig. 1a). It was firm on palpitation and did not bleed on touch. There were no palpable neck nodes. Routine hematological evaluation revealed a raised erythrocyte sedimentation rate (ESR) of 40 mm in first hour. Chest radiography was normal (Fig. 1b).

Biopsy was taken from ulcerated area of right tonsils and sent for histopathological examination. Histology revealed granulomatous dense sub-mucosal lymphoid infiltrate with multiple epithelioid histiocyte granulomas, including multinucleate giant cells and caseous necrosis consistent with the diagnosis of tuberculosis. Serological tests for acquired immunodeficiency syndrome (AIDS) and syphilis were negative.

Patient was managed with anti-tubercular treatment, with Rifampicin 450 mg, ethambutol 800 mg, isoniazid 300 mg and pyrazinamide 1,500 mg for 2 months and then a 4 month continuation phase of rifampicin 450 mg and isoniazid 300 mg. The patient had a good symptomatic response within the first month of treatment (Fig. 1c) with total disappearance of ulcers and granular areas after

S. Barman (✉) · G. Khaund
Nightingale Hospital, Guwahati, India
e-mail: surajit92@yahoo.co.in

completion of treatment (Fig. 1d). On 1 year follow-up, he is free of disease.

Case report II

A 22 year old female presented with a history of odynophagia, haemoptysis, occasional fever and general malaise for 6 months. No history of cough, previous chest infection or any other significant past illness was given. Various empirical treatments consisting of antibiotics, antihistaminics, analgesics etc. were tried at peripheral institutes but not to her satisfaction.

On general physical examination, the patient was thin built and mildly anaemic. There was no lymphadenopathy. Laboratory investigations revealed Hb-8g% and ESR 50 mm in first hour, with rest of the parameters being within normal limit. Chest X-ray shows no abnormality (Fig. 2b).

Local examinations revealed congested and granular posterior pharyngeal wall. Indirect laryngoscopy revealed a moth eaten epiglottis with rest of the region congested. A telescopic laryngoscopy was done (Fig. 2a). Biopsy was taken from the remnant of the epiglottis and sent for histopathological examination which revealed it to be an inflammatory mass of tissue with large infiltrations of histiocytes and lymphocytes and containing epithelioid

granulomas, a feature suggestive of granulomatous lesion (kochs).

Patient was put on antitubercular therapy, (4 drugs-rifampicin 450 mg, isoniazid 300 mg, ethambutol 800 mg and pyrazinamide 1500 mg for next 2 months followed by rifampicin 450 mg and isoniazid 300 mg for 4 months). The symptomatic relief to the patient was dramatic and she became symptom free by the end of the first phase of treatment i.e. 2 months. Regular follow up at 2, 4, 6, 12 and 18 months shows no relapse of disease.

Case report III

A 24 year old male student presented in the OPD with history of nasal block for the past 6 month. He has no other difficulties. He had consulted a number of times previously, and was treated as allergic rhinitis with steroid sprays, anti histamines, antibiotics, analgesics etc., however with no improvement.

On examinations, he was found to have no gross abnormalities within the nasal cavities. Routine investigations revealed an abnormally high ESR of 86, with rest of the parameters within normal limit. Nasal endoscopy revealed a smooth mass in the nasopharynx (Fig. 3a). A ct scan of the nose and PNS was asked for, whereby a report of a mass in nasopharynx with no extensions was given.

Fig. 1 a Granular tonsils, b chest X-ray (PA view) showing no abnormality, c after 1 month of ATT, d. after 6 month of ATT

Fig. 2 a Moth eaten appearance of Epiglottis, b X-ray (PA view) showing no abnormality

Fig. 3 **a** smooth mass in nasopharynx, **b** C T features of a mass in nasopharynx, **c** normal chest X-ray, **d** mass after 1 month of ATT, **e** mass after 2 months of ATT, **f** mass after 4 months of ATT

The mass was not vascular. (Fig. 3b). Punch biopsy was taken from the lesion and sent for HPE. histopathological diagnosis was given to be granulomatous lesion, probably tubercular. A repeat biopsy was done and chest x-ray was also done. Chest x-ray came to be normal. (Fig. 3c). Repeat HPE report came as “*fragments of tissue lined with squamous and respiratory epithelium. The subepithelial tissue shows lymphoid tissue with many epitheloid cell granuloma. Some of the granulomas are confluent. Some show central necrosis. Stain for acid fast bacilli are positive. Features consistent with tuberculosis.*”

With all the above mentioned investigations, a diagnosis of primary tuberculosis of nasopharynx was reached and he was started on standard dose of ATT. (4 drugs-rifampicin 450 mg, isoniazid 300 mg, ethambutol 800 mg and pyrazinamide 1,500 mg for next 2 months followed by rifampicin 450 mg and Isoniazid 300 mg for 4 months). He showed remarkable regression of disease on follow-up at 1,

2 and 4 months. (Fig. 3d, e, f). At 6 months the mass completely regressed.

The patient is under regular 6 monthly follow-up.

Discussion

M. tuberculosis, the causative organism for tuberculosis belongs to the Mycobacterium family. They are so named as they are slender rods that sometimes show branching filamentous form resembling fungal mycelium, hence the name ‘mycobacteria’ or fungus like bacteria.

The first member of this genus was identified by Hansen, the *M. laprae* in 1868. Koch in 1882 identified the tubercle bacilli and also proved its causative role in Tuberculosis by satisfying the Koch’s postulate.

Morphologically, tubercle bacilli are a straight or slightly curved rod, occurring singly, in pairs or in clumps.

The size depends on the conditions of the growth, and long filamentous, club shaped and branching forms may sometimes be seen.

Tuberculosis is an ancient disease, with evidence of it found in Egyptian mummies. For centuries it has been the most important of human diseases, earning the name “the captain of all the men of death”. With rapid industrialization its influence has spread, depending mainly on the social development of the society. It has been many-a-times called “a barometer of social welfare”.

High incidence and prevalence of this disease can be attributed to the open human case shedding of the bacilli in the sputum. However upper respiratory tract (URT) is generally considered to be resistant to the TB infection due to a number of causes.

- Saprophytes in saliva prove to be inhibitory to the growth of the bacilli.
- Striated musculatures of the URT are antagonistic of the bacterial invasion.
- The protective function of the thick oropharyngeal mucosa.

The few cases of tuberculosis of the upper respiratory tract are usually secondary to pulmonary tuberculosis. Primary tuberculosis of the upper airway has been rarely reported. A Chakravarti et al. [1], have reported a case of primary tuberculosis of tonsil and posterior pharyngeal wall in 2007.

Reports of TB epiglottitis are even rarer. A case was reported by Celil et al. [2] in 2007 from Turkey. Another case was reported by Ednizer et al. in 2009 [3].

TB Nasopharynx is comparatively commoner, usually secondary to pulmonary TB. Savic et al. [4] found 4 cases in review of world literature from 1950 to 1960. Martinson [5] reported another case in 1967.

Secondary Nasopharyngeal TB relatively common. Graff [6] in a survey of 118 pts with pulmonary TB found 36 % had macroscopic and 82 % had microscopic lesion in the nasopharynx. Hollender [7] had this at 75 % in 24 cases.(1946).

Isolated lesions affecting the upper respiratory tracts are usually due to inhaled.

Bacteria harbouring in the waldeyer ring. Primary TB of URT is usually seen in immuno-compromised patients as in HIV infection, chronic alcoholism etc. However our patients showed none of these conditions.

Conditions like poor orodental hygiene, dental extraction, peritonsillitis, leukoplakia, etc. can predispose to primary TB but our patient did not give an immediate history of any such event.

Conclusion

Commonly URT primary TB can be misdiagnosed as traumatic or aphthous ulcer, haematological disorder, other granulomatous disease, lymphoma or carcinoma. Diagnosis however must be based on high degree of clinical suspicion backed by histopathological and cytological identification of the bacilli. Hence, though uncommon, primary tuberculosis of the upper respiratory tract should be borne in mind, especially in a country like ours.

References

1. Chakravarti A, Pal S, Sahni JK (2008) Primary tuberculosis of tonsil and posterior oropharyngeal wall. *Indian J Tuberc* 55(1):48–50
2. Usulu C, Oysu C, Ukluman B (2008) Tuberculosis of the epiglottitis, a case report. *Eur Arch Otolaryngol* 265(5):599–601
3. Edizer DT, Karaman E, Mercan H, Alimoglu Y, Esen T, Cansiz H (2010) Primary tuberculosis involving epiglottitis, a rare case report. *Dysphagia* 25(3):258–260
4. Savic D, Kosanovic H, Crejia D (1961) Isolated tuberculosis of the nasopharynx. *Srp Arh Celok Lek* 89:99
5. Martison FD (1967) Primary tuberculosis of the nasopharynx in a nigerian. *J Laryngol Otol* 81:229–234
6. Graff S (1936) Die Bedeutung des epipharynx fur die menschliche. *Pathologie Klin Wschr* 27:953
7. Hollander AR (1946) The nasopharynx: a study of 140 autopsy findings. *Laryngoscope* 56(6):282–304