

Case Report

Primary nasal tuberculosis of maxillary sinus leading to otitis media: a rare presentation

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ABSTRACT

Tuberculosis is one of the most common treatable infectious disease in India. Most common presentation being pulmonary tuberculosis. Primary tuberculosis of maxillary sinus leading to chronic otitis media is an extremely rare entity, diagnosis of which is often delayed and resulting in delay in start of actual treatment. The following report highlight a case of 63 years male patient presented with bilateral ear discharge, not responding to the routine antibiotic therapy. CT scan imaging denoted left pansinusitis with osteomyelitic changes in left maxillary sinus with otitis media. The diagnosis was confirmed by histopathological biopsy report. The patient was treated with Anti-tubercular regimen for 9 months and following which bilateral tympano-mastoidectomy was done.

Keywords: Tuberculosis, Maxillary sinus, Middle ear, Eustachian tube, Otitis media

INTRODUCTION

Tuberculosis is one of the most common treatable infectious disease in India. Primary tuberculosis of maxillary sinus leading to Otitis media with effusion is a very rare presentation and can be often misdiagnosed.¹ Usually, patients have a history of pulmonary tuberculosis or have an active focus of infection which may pass via the Eustachian tube.

CASE REPORT

A 63 years old male patient presented to the out patient clinic with history of bilateral ear discharge and bilateral reduced hearing since 6 months. Patient has history of bilateral recurrent middle ear effusion, for which he underwent a bilateral myringotomy with grommet insertion. The ear discharge did not stop after the myringotomy and routine antibiotics and the grommet

were extruded, resulting in bilateral subtotal perforation of the tympanic membrane.

On examination, patient had bilateral subtotal perforation and bilateral persistent ear discharge. Discharge was slightly mucoid, non-foul smelling and continuous. Ear swab taken for culture sensitivity, which did not denote any organism growth.

Routine blood examination showed reduced hemoglobin level, red blood cell count and platelet count whereas erythrocyte sedimentation rate and white blood cell count was increased. Chest X-ray PA view shows normal study.

CT scan of temporal bone showed bilateral opacification with soft tissue in the mastoid air cells and in the aditus-ad-antrum region.

Pure tone audiogram showed bilateral moderate conductive hearing loss.

CT scan para-nasal sinus showed left sided pansinusitis with osteomyelitic changes in left maxillary sinus.

Patient was operated for functional endoscopic sinus surgery. Uncinectomy with type III maxillary anrostomy was done, necrotic tissue with purulent secretion in left maxillary sinus was removed. Osteomyelitic changes was seen in antero-inferior bony wall of the maxillary antrum.

On completion of surgery on left side, nasal washing of all the sinuses were done.

Incidentally, patient had a maxillary sinus polyp in right maxillary sinus which was removed.

Tissue from left maxillary sinus sent for histopathological evaluation which revealed inflammatory granulation tissue and necrotizing epithelioid granulomas with large area of caseous type of necrosis with entrapped bone spicules suggestive of tuberculous infection. Pus from left maxillary sinus taken and send for Ziehl-Neelson staining which showed presence of *Mycobacterium tuberculosis*.

Patient started on standard anti-tubercular medications comprising of 4 drugs isoniazid 5 mg/kg/day, rifampin 10 mg/kg/day, ethambutol 15 mg/kg/day, pyrazinamide 25 mg/kg/day starting with an intensive phase of 2 months, followed by a continuation phase of 7 months.



Figure 1: CT scan para-nasal sinus showed left sided pansinusitis with osteomyelitic changes in left maxillary sinus.

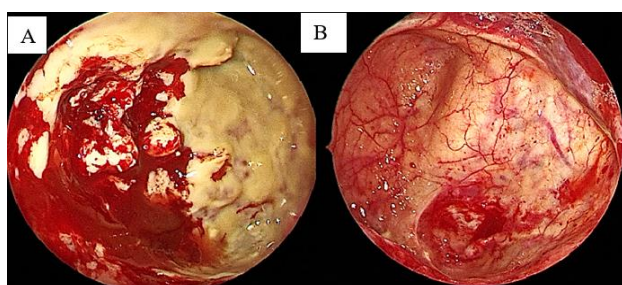


Figure 2: (A) Intraoperative picture of functional endoscopic sinus surgery showing necrotic material in left maxillary sinus, (B) clear left maxillary sinus seen post op 3 months follow up.

Within 6-8 weeks of anti-tubercular treatment bilateral ear discharge subsided. Patient completed the standard

anti-tubercular treatment for 9 months. The patient was operated for right tympano-mastoidectomy 5 months after commencement of the anti-tubercular drugs. During ear surgery the middle ear mucosa was slightly pale. Aditus patency was achieved, ossicular assembly checked and tympanic membrane grafting done by 270 degree cuff technique using temporalis fascia. Biopsy of the mucosa from the mastoid antrum did not reveal any active infection.

Similar operation done on the left ear 8 months after commencement of the anti-tubercular drugs. Post-operative pure tone audiogram done 6 months following surgery which showed air bone gap between 10 to 20 dB.

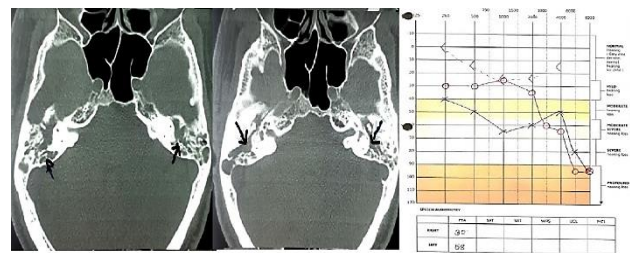


Figure 3: CT scan of temporal bone showed bilateral opacification of mastoid air cells and aditus-ad-antrum and pure tone audiogram showed bilateral moderate conductive hearing loss.

Regular follow up and diagnostic nasal endoscopy done every 3 months for 1 year then every 6 months for 2 years did not show any evidence of disease. There was good mucosalization of the paranasal sinus cavity with bilateral tympanic membrane graft uptake with hearing improvement.

DISCUSSION

Incidence of tuberculosis reduced significantly in the twentieth century, but drug-resistant anti-tubercular strains and immunodeficient host has lead to a re-emergence of tuberculosis.^{2,3} Extra-pulmonary tuberculosis amounts to 20 percent of total tuberculosis cases.^{3,4} Giovanni Morgani first reported nasal tuberculosis in the year 1761. He classified nasal tuberculosis as spontaneous nasal tuberculosis (occurs secondarily after pulmonary tuberculosis) and primary nasal tuberculosis (occurs without primary pulmonary tuberculosis).⁵ Infection of the middle ear occurs by passage of infected material from nasal cavity and nasopharynx via eustachian tube while coughing or sneezing or by hematogenous spread.⁶

Nasal tuberculosis may present with nasal obstruction, nasal discharge, epistaxis and crust formation of middle ear.⁷ Tuberculosis of middle ear leads to painless persistent otorrhoea, often multiple tympanic membrane perforations, bone erosion, granulation of middle ear and mastoid and if no treatment given then there is rapid extensive destruction of middle ear and its

surroundings.^{8,9} Pure tone audiogram shows conductive hearing loss, nevertheless sensorineural hearing loss occurs when labyrinth is involved. Definitive diagnosis is made by taking nasal discharge and tissue for acid fast bacilli or presence of typical tuberculous nodule. Now-a-days polymerase chain reaction (PCR) is used to make diagnosis of tuberculosis. But in some cases PCR may give negative value, while tissue biopsy is positive. Hence PCR and tissue biopsy should complement each other to make final diagnosis.³

The primary treatment of tuberculosis is anti-tubercular medication, till patient gets free of symptoms of tuberculosis, followed by secondary treatment if required.¹⁰

In our case an elderly male patient presented with bilateral ear discharge as the presenting symptom without any nasal symptoms. Nasal involvement was suspected as ear discharge was not responding to the routine course of medical therapy. On investigation of CT scan para-nasal sinus and culture of pus concluded that patient had an isolated tuberculosis of the left maxillary sinus with pansinusitis.

Though the organisms could not be isolated on the ear swab culture, the possibility of the middle ear effusion having tubercular infection is likely as the patient immediately responded to the anti-tubercular drug regimen. Surgery for the ear was done 5 months after commencement of the anti-tubercular drug treatment and clinical improvement.

This patient had a post-operative hearing improvement and no recurrence was seen in 2 years follow up.

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REFERENCES

1. Odetoynbo O. Early diagnosis of tuberculous otitis media. J Laryngol Otol. 1988;102(2):133-5.
2. Slutsker L, Castro KG, Ward JW, Dooley SW Jr. Epidemiology of extrapulmonary tuberculosis among persons with AIDS in the United States. Clin Infect Dis. 1993;16(4):513-8.
3. Kim YM, Kim AY, Park YH, Kim DH, Rha K. Eight cases of nasal tuberculosis. Otolaryngol Head Neck Surg. 2007;137(3):500-4.
4. Al-Serhani AM. Mycobacterial infection of the head and neck: presentation and diagnosis, Laryngoscope. 2001;111:2012-6.
5. Waldman SR, Levine HL, Sebek BA, Parker W, Tucker HM. Nasal tuberculosis: a forgotten entity, Laryngoscope. 1981;91:11-6.
6. McKibben BG, Sheehy JL. Tuberculosis of the middle ear and nasal passages. AMA Arch. Otolaryngol. 1956;63(3):286-9.
7. Butt AA. Nasal tuberculosis in the 20th century, Am J Med Sci. 1997;313:332-5.
8. Vital V, Printza A, Zaraboukas T. Tuberculous otitis media: a difficult diagnosis and report of four cases. Pathol Res Pract. 2002;198:31-5.
9. Sierra C, Fortun J, Barros C, Ruiz-Caliana J, Martínez-Vidal A, Alvarez F, et al. Extra-laryngeal head and neck tuberculosis. Clin Microbiol Infect. 2000;6:644-8.
10. Duclos JY, Darrouzet V, Ballester M. Tuberculose de l'oreille moyenne. Encycl Méd Chir, Oto-rhino-laryngologie, 20-235-A-10. Paris: Editions Scientifiques et Médicales Elsevier SAS; 1999.

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