

## Tuberculous Otitis Media - A Case Report

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### Abstract

**Objective:** To publish a rare case of tuberculous otitis media in an 18 year old male patient.

**Methods:** An 18-year old male presenting with bilateral hard of hearing since 9 months was evaluated thoroughly by clinical examination, hematological, radiological and histopathological evaluation.

**Results:** Clinical examination revealed a single pinkish polypoidal mass with granulations occupying the right external auditory canal. Hematological investigations were within normal limits. Sputum for AFB was positive for *Mycobacterium tuberculosis*. Radiological evaluation with computed tomography showed soft tissue density in the bilateral prussack's space and the epitympanum with erosion of the scutum. Biopsy was taken from the right aural polyp and the patient was managed conservatively. Histopathological examination showed squamous epithelium lining with sub-epithelium, showing areas of caseous necrosis surrounded by epithelioid cell clusters, lymphocytes and plasma cells along with dense neutrophil collection, karyorrhectic debris and areas of hemorrhage with few multinucleate giant cells. With all the above evaluations, diagnosis was concluded as tuberculous otitis media.

**Conclusion:** It is a rare case presentation of Tuberculous otitis media.

**Keywords:** Tuberculosis; Otitis media; Histopathological Diagnosis.

### Introduction

Tuberculosis (TB) is a major health problem in the developing world and India accounts for 1/4<sup>th</sup> of the Global TB burden. Tuberculous otitis media (TOM) is a relatively rare disease and accounts for 4% of Head and neck TB and is characterized by heterogeneous presentations. It often presents as otitis media not responding to conventional management. Lack of suspicion of tuberculosis leads to delay in diagnosis, treatment and resultant complications.

### Case Presentation

#### History

An 18-yr male patient presented to OPD with chief complaints of

- 1) Discharge from right ear for the past 9 months which was insidious in onset, gradually progressive, scanty in amount,

yellowish in colour, purulent in nature, foul smelling, occasionally blood stained with no aggravating and relieving factors.

- 2) Right ear hard of hearing since 9 months which was insidious in onset, gradually progressive, non-fluctuating, severe in degree (not able to hear normal conversation), not associated with ringing sensation in the ear, giddiness, nausea or vomitings and no aggravating and relieving factors.
- 3) Left ear hard of hearing since 4 months which was insidious in onset, gradually progressive, non-fluctuating, severe in degree (not able to hear normal conversation), not associated with ringing sensation in the ear, giddiness, nausea or vomiting and no aggravating and relieving factors.

Not associated with facial weakness, deviation of angle of mouth or incomplete closure of eye.

No past and family history of tuberculosis.

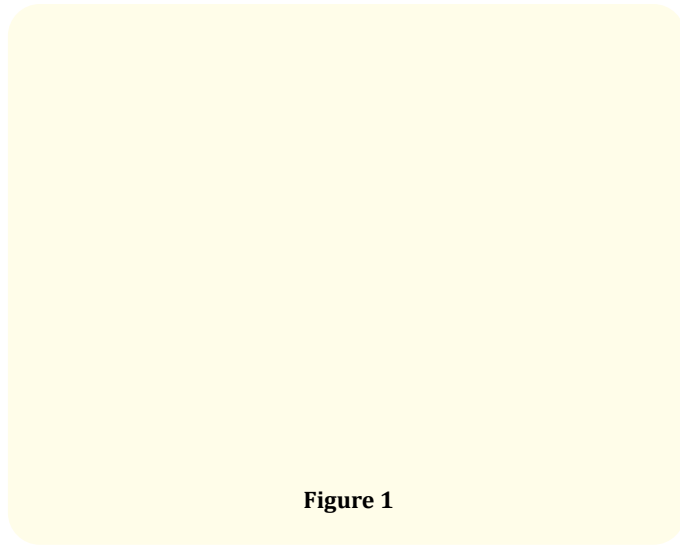


Figure 1

**Clinical examination**

**Right ear:** A single pale polypoidal mass with the pale granulations is seen occupying the external auditory canal, insensitive to touch and bleeding on touch. The probe can be passed all around the polyp. Tympanic Membrane (TM) couldn't be visualised.

**Left ear:** Grade 2 pars tensa retraction with posterosuperior granulations.

**Investigations**

**Otoendoscopy findings**

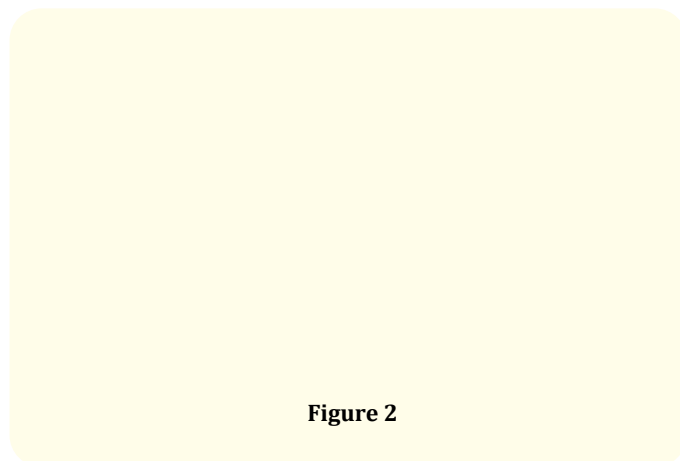


Figure 2

**Right ear:** A single pale polypoidal mass with pale granulations is seen occupying the external auditory canal, insensitive to touch and bleeding on touch. The probe can be passed all around the polyp. TM couldn't be visualised. Biopsy was taken and sent for HPE.

**Left ear:** Grade 2 pars tensa retraction with posterosuperior perforation and attic granulations.

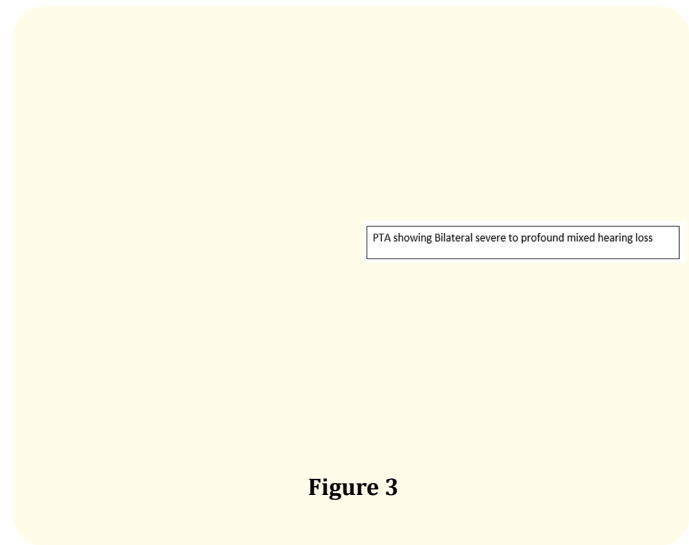


Figure 3

**Pure tone audiometry**

- Right ear - 75dBHLsevere mixed hearing loss.
- Left ear - 76.6dBHLsevere mixed hearing loss.

Routine hematological investigations were found to be within normal limits.

Chest Xray showed left upper lobe consolidation.

Sputum for AFB showed *Mycobacterium tuberculosis* with Auramine Rhodamine stain on Fluorescent microscopy.

Computed tomography of temporal bones showed soft tissue density within the bilateral prussack's space and the epitympanum was noted causing erosion of the scutum and to a lesser extent, the bony ossicles, more on the right side than left.

**Histopathology**

Sections studied showed multiple tiny bits of tissue with one bit showing squamous epithelium lining with sub-epithelium showing areas of caseous necrosis surrounded by epithelioid cell clusters,

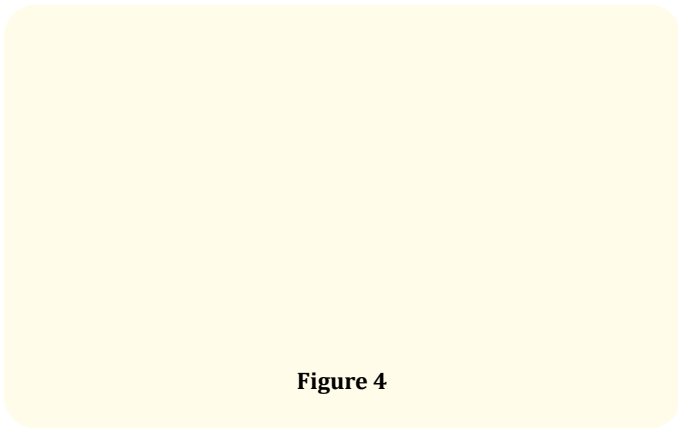


Figure 4

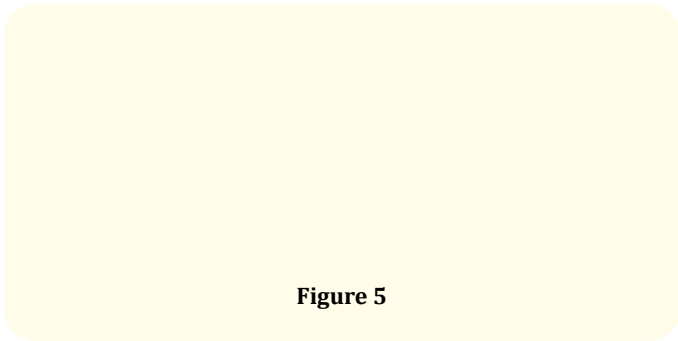


Figure 5

lymphocytes and plasma cells along with dense neutrophil collection, karyorrhectic debris and areas of hemorrhage with few multinucleate giant cells.

Histopathology is suggestive of chronic granulomatous inflammatory lesion possibly of “tuberculous etiology”.

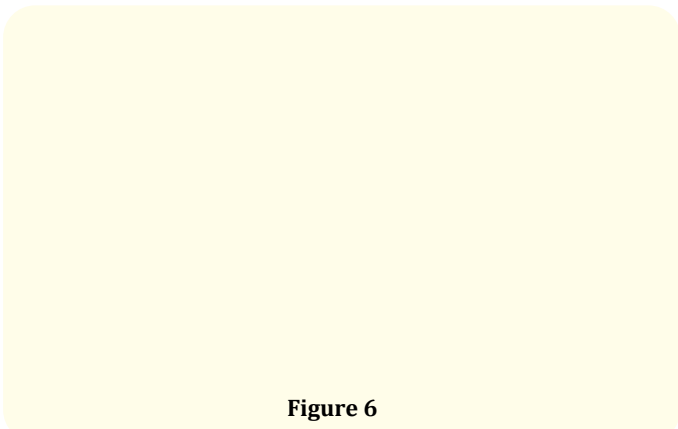


Figure 6

**Treatment**

Conservative management along with the commencement of anti tubercular therapy.

**Discussion**

Tuberculous otitis media is uncommon and accounts for only 0.05 - 0.9% of all cases of chronic otitis media. It is usually secondary to infection in the lungs, larynx, pharynx or nose. The routes of entry of tubercular bacilli into the temporal bone can be via aspiration through eustachian tube, haematogenous spread from distant sites or direct implantation through the external auditory canal and tympanic membrane perforation. In the literature, the incidence of facial paralysis is reported to range from 1 - 3.5% in non-tuberculous chronic otitis media and is frequently associated with cholesteatoma. In TOM, facial palsy can occur in approximately 20% of cases and it seems to occur at the acute stage of the disease.

Tuberculous otitis media remains a diagnostic challenge because of its non-specific clinical features and the difficulty in confirming diagnosis by microbiological tests of ear discharge. Classical features of TOM like painless otorrhoea and multiple tympanic membrane perforations are not constant features. The appearance of tympanic membrane can be varied. It can have single or multiple perforations or may even be intact. Moderate to severe hearing loss which is out of proportion to the apparent involvement of the ear is often described in TOM. Radiological features of TB mastoiditis are also not diagnostic, but it is valuable in assessing the extent of involvement of various parts of the temporal bone. CT findings can vary from non-specific clouding of the mastoid to extensive soft tissue densities with fluid levels in the middle ear, mastoid and petrous air cells and multifocal bone erosions with destruction of Facial bony canal.

Histopathology of the tissue reveals more definitive features of tuberculosis. Well-formed epithelioid granulomas with langerhans giant cells, histiocytes and epithelioid cells and focal areas of necrosis suggestive of tuberculous etiology. Histopathology along with AFB staining of tissue removed from the middle ear cleft confirms the diagnosis of TB Otitis Media (TOM) [1-11].

**Conclusion**

This study highlights the importance of suspecting tuberculosis in all cases of chronic otitis media that do not respond to conventional antibacterial therapy particularly in endemic areas. Severe conductive hearing loss and an increased incidence of otogenic complications are often present. As mixed infections are often present, microbiological diagnosis is difficult. But AFB staining and histopathological examination of tissue removed from external auditory canal or middle ear cleft are reliable diagnostic modalities. Treatment with Anti Tubercular Treatment (ATT) combined with Surgery gives good disease control even in advanced cases.

As India is having many cases of TB, it can present in any forms and may involve ENT, head and neck regions. In cases of any suspicion, smear for AFB and any tissue from any region of ENT head and neck should be sent for HPE and culture to confirm or rule out tuberculosis, which is a must. Every ENT and head and neck specialist should know thoroughly about tuberculosis and its management including the revised national tuberculosis control programme (RNTCP) and its treatment regimen followed in India as per the latest guidelines. Awareness programmes for the common public, CME programmes to the ENT, head and neck specialists and other allied branches of medical and dental specialists should be arranged for prevention, control and early management of tuberculosis.

### Acknowledgements

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