

Primary Tuberculous Otitis Media: A Case Report

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Abstract : Tuberculosis is a chronic granulomatous disease that can affect any part of temporal bone. Primary tuberculous otitis media is a rare disease that is clinically variable and non-specific. Tuberculous otitis media may be diagnosed late, mainly because it is often not suspected.

We present a case of a 23-year-old female with history of chronic tuberculous otitis media who underwent type I tympanoplasty 5 years back and presented with history of persistent painless ear discharge since 6 months. Patient was taken up for revision tympanoplasty along with cortical mastoidectomy. Intraoperative extensive granulations were found in mastoid region. Histopathological examination of granulation tissue suggested tuberculous otitis media. Patient did not have any other infective tuberculous foci in the body.

Keywords: Otitis media, revision tympanoplasty, tuberculosis.

I. Introduction

Tuberculosis is a chronic granulomatous disease that can infect any part of temporal bone. Although Mycobacterium tuberculosis is the most frequently encountered aetiological agent, other atypical agents such as Mycobacterium bovis, Mycobacterium avium and Mycobacterium fortuitum can also cause tuberculous otomastoiditis.^[1] India is the highest TB burden country accounting for one fifth (21%) of the global incidence (Global annual incidence estimate is 9.4 million cases out of which it is estimated that 2 million cases are from India). India is 17th among 22 High Burden Countries in terms of TB incidence rate.^[2,3]

Tuberculous mastoiditis was first described by Jean Louis Petit in the 18th century; Wilde in 1853 presented the classical picture of tuberculous otitis media as a disease characterized by painless, insidious onset of ear discharge, multiple perforations in the tympanic membrane, and pale granulations in middle ear cleft. Politzer discussed the destructive nature of this disease in 1882. In 1892, Koch demonstrated the tubercle bacilli. The incidence of tuberculous otitis media has been reported to be 0.04% to 0.9% of all Chronic Suppurative Otitis Media (CSOM) in the developed countries.^[4,5]

Primary tuberculosis of the ear is extremely rare. Tuberculosis involving tympanic membrane is usually secondary to pulmonary tuberculosis, spreading through the eustachian tube, most often by the forceful expulsion of haemoptysis and infected blood into the tympanum. The condition usually begins as an apparent serous otitis media.^[6]

II. Case Report

23-year-old female was presented with persistent painless ear discharge on left side since last 6 months which was intermittent, moderate in amount, serous, mucopurulent, non-foul smelling, non blood stained. It was occasionally associated with earache which was dull in nature and intermittent. There was history of type I tympanoplasty which was done 5 years back. Post operative graft uptake was successful and patient was asymptomatic for 4 years. Her personal and family history was not significant. She did not have any history suggestive of tuberculosis.

On examination, the patient was of average built and nutrition with all vitals under normal range. Right ear examination revealed no abnormality. On left side pre auricular region was normal and scar of previous surgery was noted on post auricular region. Tympanic membrane had large central perforation with pinkish colour granulation present all along the remnant of tympanic membrane. Middle ear mucosa was oedematous. Tuning fork test with 512 Hz tuning fork suggested Rinne test was negative on the diseased side and Weber test was lateralised to the diseased side. There was no sign suggestive of facial nerve palsy and there was no nystagmus. Nose examination revealed mild deviated nasal septum to left side. Throat examination was not suggestive of any pathology. Her systemic examination revealed no abnormality.

Considering acute stage of the disease patient was put on oral antibiotics according to antibiotic sensitivity test, oral anti-inflammatory, antihistaminic drugs and antibiotic ear drops. Despite of repeated courses with antibiotics and after changing the antibiotics too, signs and symptoms of the CSOM did not get

relieved. X-Ray mastoids Schuller's view showed mild sclerosis in pneumatic bone on both sides. Pure Tone Audiometry revealed air bone gap of 26dBs on left side. X-Ray chest was not suggestive of tuberculosis. Routine blood investigations were under normal range.

Patient was posted for mastoid exploration under general anaesthesia. Post aural incision was taken and temporalis fascia was harvested. Meatotomy was done. Myringitic rim of tympanic membrane was removed. Tympanomeatal flap was raised. Oedematous mucosa was seen in middle ear. Handle of malleus along with incudo-stapedial joint were covered with oedematous mucosa which was removed. Cortical mastoidectomy was done. Extensive granulation tissue was seen filling the mastoid bone, antrum and the aditus along with oedematous air cells. All granulations were completely removed and attico-antral patency was achieved. Granulation was sent for histopathological examination. Type I tympanoplasty was done with graft placed underlay and wound was closed in two layers. Mastoid dressing was given for seven days. Sutures were removed on post operative eighth day. Histopathological report suggested that the granulation tissue was composed of capillary sized blood vessels, abundant mixed inflammatory infiltrate comprising of lymphocytes, neutrophils, plasma cells, and eosinophils. Few ill defined epitheloid cell granulomas were seen in background of granular necrotic material suggestive of tuberculosis.

Patient was put on DOTS CAT I as anti Koch's therapy. Patient has improved symptomatically post operatively and post anti Koch's therapy. Till the last follow-up left ear is dry and the graft appears intact and healthy.

III. Discussion

Tuberculosis of the middle ear is characterised by painless otorrhoea. Otosopic examination reveals presence of a tympanic perforation through which a watery discharge oozes from middle ear.^[7,8,9,10,11,12] Multiple tympanic membrane perforations are considered hallmark of the disease and may later coalesce to form single perforation.^[11] The middle ear mucosa may appear pale.^[13] Abundant pale granulations appear to be characteristic of tuberculous otitis media. These granulations may be seen filling the middle ear during otoscopy and the mastoid during surgery.^[7,8,13,14,15,16,17] Involvement of the middle ear by tuberculosis has been described in all age groups, though more commonly in children. In the pre-antibiotic era, 2.8% of all the cases of chronic suppurative otitis media were tuberculous in nature and infants below one year of age comprised 50% of these.^[18] In a significant proportion of cases, the typical picture is not seen. There maybe otalgia with otorrhoea and there may not be any evidence of tuberculosis elsewhere.^[19] A facial palsy may develop but appears to be more common in those cases of acute mastoiditis caused by mycobacterium tuberculosis occurring in 40% in one series.^[19] Conductive hearing loss results from tympanic membrane perforation^[13,14], although hearing disability is disproportionately severe because of progressive disease. Demonstration of chronic caseation necrosis and granuloma formation with epitheloid cells and Langerhan's giant cells

In our case, patient presented with painless ear discharge with history of surgery for similar complaints in past. The, patient was not responding to routine antibiotic treatment. By keeping tuberculous otitis media as a differential in mind, we did revision surgery. We found pale granulations in mastoid region and histopathological examination of granulations confirm the diagnosis of tuberculous otitis media. This patient did not have any other focus of tuberculosis anywhere else in body we confirmed it as a primary tuberculous otitis media.

It is our impression that even in a country like India with the highest TB burden in the world; primary tuberculous otitis media is highly under diagnosed. It should always be kept in mind in cases of painless chronic otitis media which is refractory to antibiotic treatment

IV. Figures

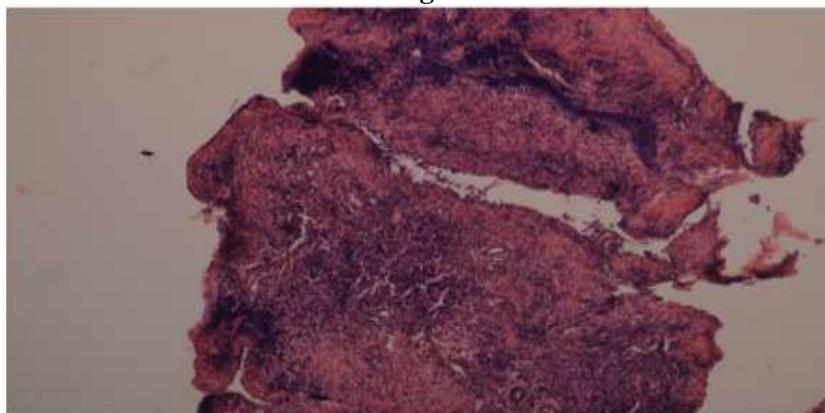


Figure 1 (Hematoxylin and Eosinophil staining at 10x): Microphotograph of currettings showing fibrous tissue, densely infiltrated by chronic inflammatory cells. A granuloma is also noted in the section.

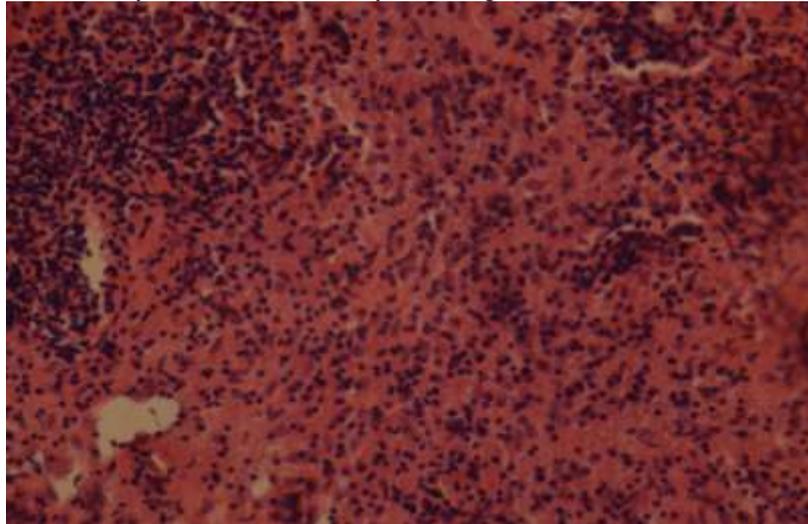


Figure 2 (Hematoxylin and Eosinophil staining at 10x): Microphotograph of currettings showing clusters of epithelioid cells and mixed inflammatory infiltrate composed of plasma cells and lymphocytes

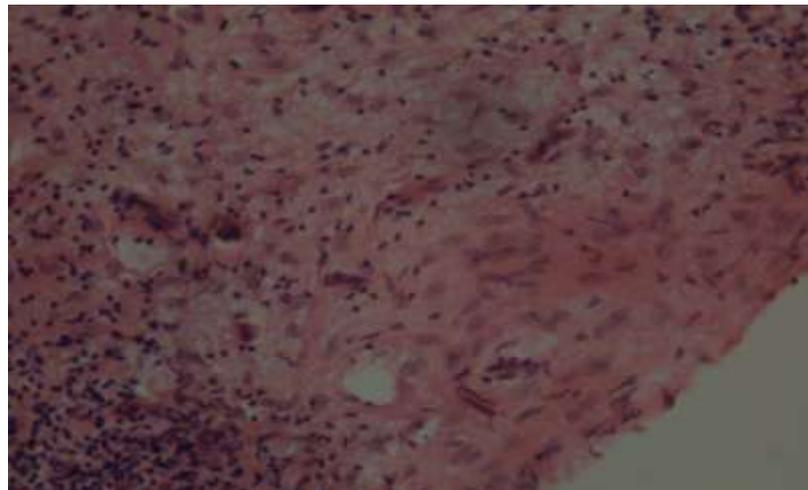


Figure 3 (Hematoxylin and Eosinophil staining at 40x): Microphotograph of currettings showing classical granuloma composed of epithelioid cells (Langhan's giant cells)

V. Conclusion

The present case with previous history of tympanoplasty presented with tympanic membrane perforation with painless ear discharge. As patient was not responding to any medical management, she was re-operated with suspicion of tuberculous otitis media. The histopathological examination of mastoid granulations confirmed our diagnosis. We feel that the take home message from this case report is to keep a high degree of suspicion about tuberculous otitis media in every case of CSOM which is not responding to routine antibiotic treatment and always get histopathology examination done for granulation tissue.

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