

MIDDLE EAR MUCOSA TUBERCULOSIS: A RARE CASE**Dr. Sunita Singh¹, Dr. Sakshi Dahiya², Dr. Bharti Sharma^{*3}, Dr. Rajeev Sen⁴**¹Senior Professor, Department of Pathology, PGIMS, Rohtak.^{2,3}Junior Resident, Department of Pathology, PGIMS, Rohtak.⁴Head and Senior Professor, Department of Pathology, PGIMS, Rohtak.***Corresponding Author: Dr. Bharti Sharma**

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ABSTRACT

Tuberculosis is a widely prevalent disease in developing countries. Tuberculous otitis media is a rare form of presentation of chronic otitis media and extrapulmonary Tuberculosis. Middle ear mucosa tuberculous infection can be acquired by hematogenous route and rarely by infection through middle ear perforation. The typical symptoms and signs which the patient presents with, include multiple perforations of the tympanic membrane, painful ear discharge, preauricular lymphadenopathy, sensorineural hearing loss and associated constitutional symptoms. Diagnosis is tricky because the cultures are usually negative and positive acid-fast bacilli smears are uncommon too. Also, histopathological examination rarely shows tubercular granulomas but more frequently indicate necrotising granulomas, if any. A case of 20 year old male, who presented with the complaint of on and off bilateral ear discharge since childhood, who clinically diagnosed as having bilateral chronic suppurative otitis media and his middle ear mucosa biopsy was taken and processed, microscopic examination done and biopsy comprised of mature cartilaginous tissue and soft tissue which was infiltrated by mononuclear cells along with epithelioid cell granulomas, revealing focal necrosis. This was suggestive for tuberculosis. Tuberculosis is the most common infection worldwide. Fortunately, TB of the middle ear and temporal bone are rare. Disease is usually unilateral but this patient had bilateral ear involvement. Treatment includes surgical options like tympanoplasty and radical mastoidectomy. Tuberculosis of the ear is difficult to diagnose on biopsy but once established, it responds well to therapy. Hence treatment should be early and prompt so as to avoid other complications.

KEY WORDS: Tuberculosis, Middle ear mucosa, chronic suppurative otitis media.**INTRODUCTION**

Tuberculosis (TB) is a widely prevalent disease in developing countries and constitutes a major cause of morbidity and mortality. Various factors have led to an increase in cases worldwide like immunodeficiency states particularly HIV infection, increased number of people living in poor socio-economic conditions, increased resistance to Anti-tubercular therapy, diabetes and alcoholism.^[1]

Tuberculous otitis media (TOM) is a rare form of presentation of chronic otitis media and extrapulmonary TB. Middle ear mucosa tuberculous infection can be acquired by hematogenous route and rarely by infection through middle ear perforation. It can even spread through the eustachian tube while the child feeds on breast milk or less commonly as a congenital infection. The typical symptoms and signs which the patient presents with, include multiple perforations of the tympanic membrane, painful ear discharge, preauricular lymphadenopathy, sensorineural hearing loss and other associated constitutional symptoms. These are often

absent in patients these days, making the diagnosis difficult which in turn delays the treatment and worsens prognosis. Some recently included signs include large perforation, conductive hearing loss that suddenly becomes sensorineural, pale granulation tissue and dense secretion. Diagnosis is tricky because the cultures are usually negative and positive AFB (acid fast bacilli) smears are uncommon too. Also, histopathological examination rarely shows TB granulomas but more frequently indicate necrotising granulomas, if any.

MATERIAL AND METHODS

We are presenting the case of a 20 year old male who presented with the complaint of on and off bilateral ear discharge since childhood. He was clinically diagnosed as having bilateral CSOM (chronic suppurative otitis media) and his middle ear mucosa biopsy was sent for confirmation. Grossly, the specimen consisted of multiple, grey white to grey brown soft tissue pieces measuring together 0.3x0.2x0.1 cm. On microscopic examination, the biopsy comprised of mature cartilaginous tissue and soft tissue which was infiltrated

by mononuclear cell infiltrate along with epithelioid cell granulomas, revealing focal necrosis. This was suggestive for tuberculosis. Though, Ziehl neelson

staining for acid fast bacilli using 20% H₂SO₄ was non-contributory.

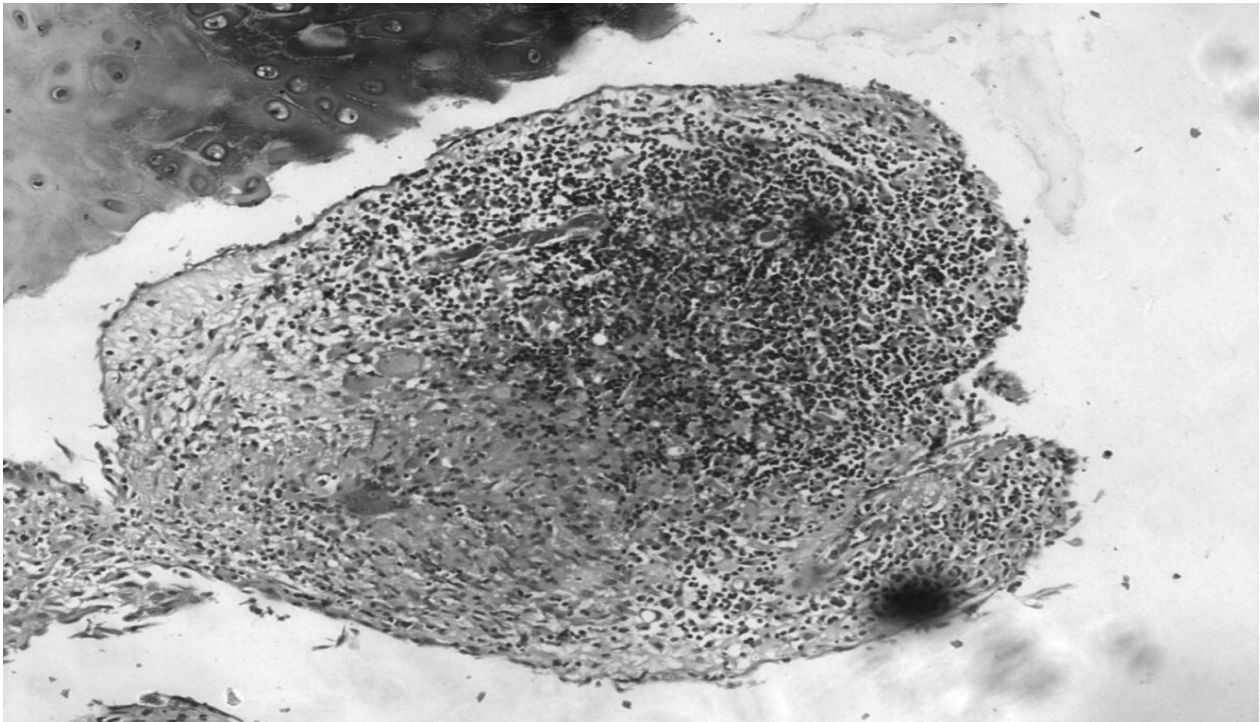


Fig 1: 100X photomicrograph of biopsy of middle ear TB showing necrosis and inflammation.

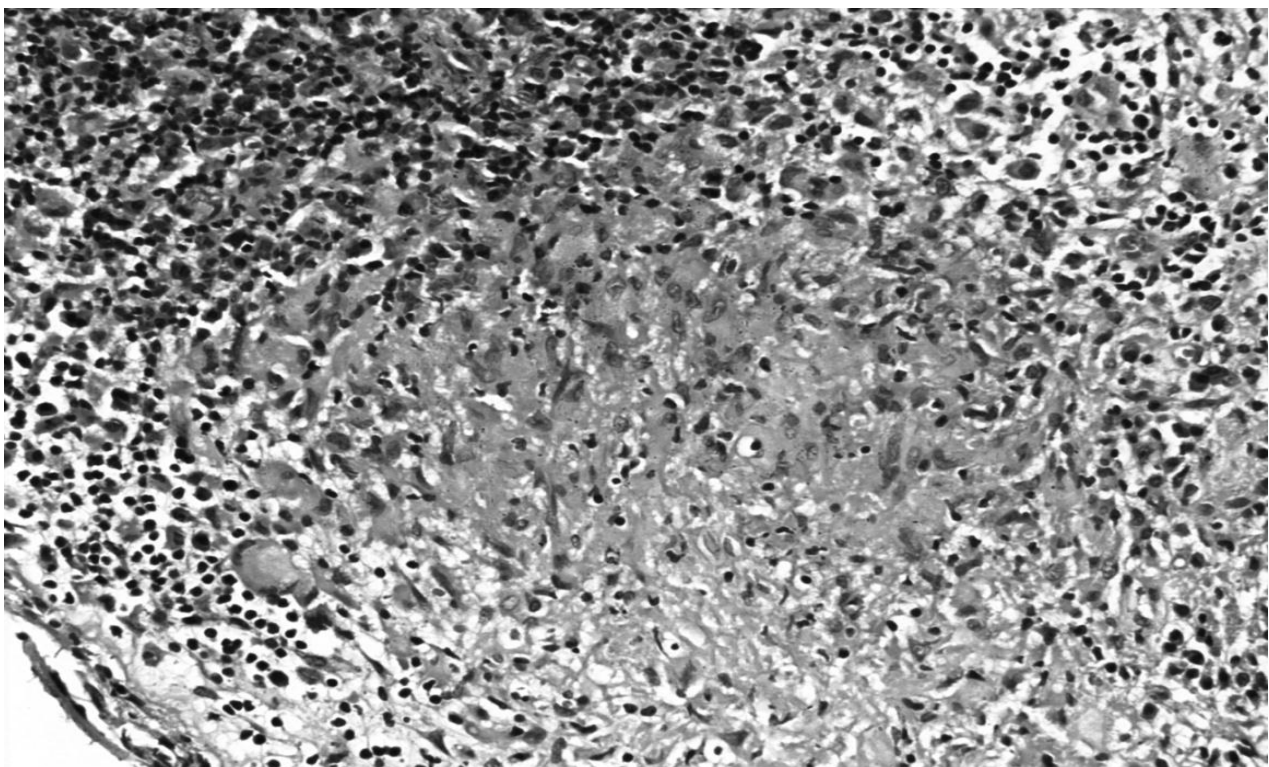


Fig 2: 200X photomicrograph of middle ear biopsy: shows giant cell granulomas.

RESULTS AND DISCUSSION

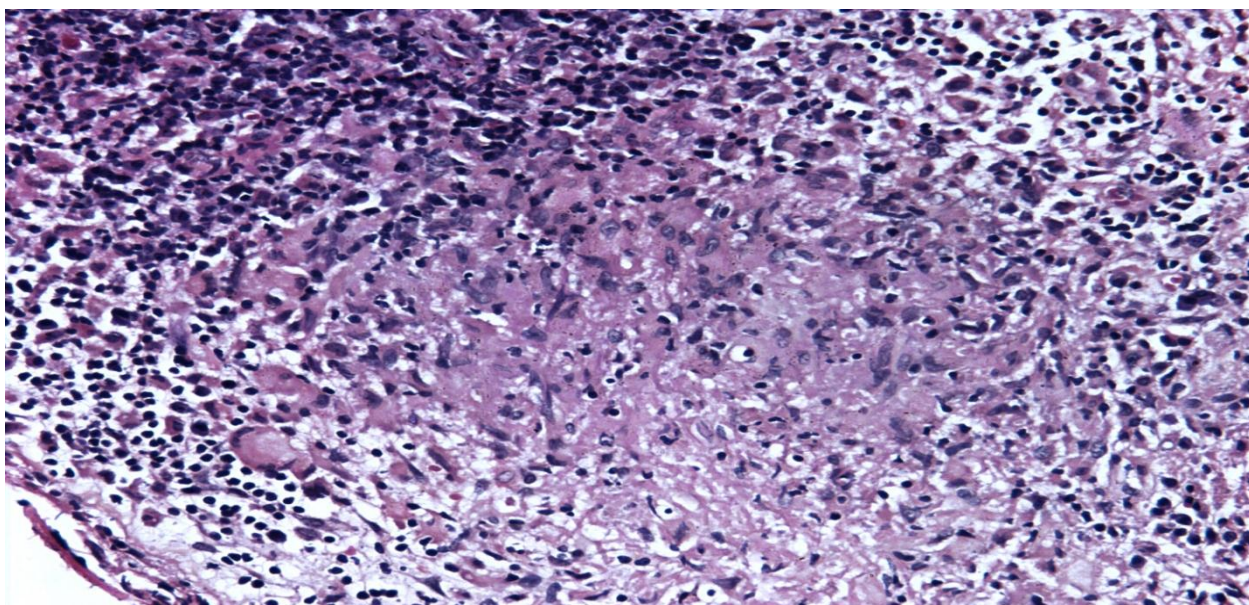
Tuberculosis is the most common infection worldwide with almost about 8 million people having an active disease. Fortunately, TB of the middle ear and temporal

bone are rare and localised forms of the disease.^[2] Tubercular otitis media is caused by mycobacterium tuberculosis, of which bovis and hominis are the usually associated pathogens. It is usually due to ingestion of

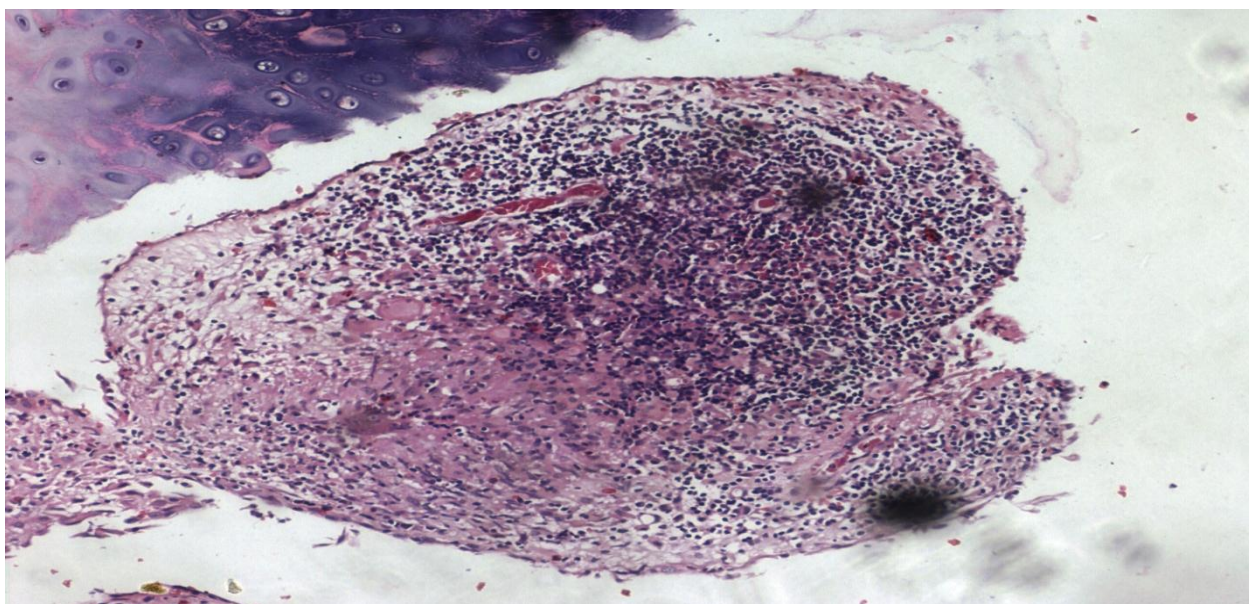
infected cow's milk if it occurs as a primary source infection. Many say that it's most common route of infection is via the pharyngo-tympanic tube but others insist on the fact that it's mostly a hematogenous spread, if there is a primary focus elsewhere. A congenital form of the disease has also been found where infection occurs via aspiration of amniotic fluid or by contact with infected genital mucosa.

Disease is usually unilateral but this patient had bilateral ear involvement. On otoscopy, initially the tympanic membrane looks dull with subsequent thickening and obliteration landmarks of the middle ear get obliterated.^[3] A lot of complications like facial nerve palsy, retroauricular fistulae, labyrinthitis, meningitis, etc can occur. Pure tone audiogram shows deafness out of proportion to the disease. Radiologic findings are non-

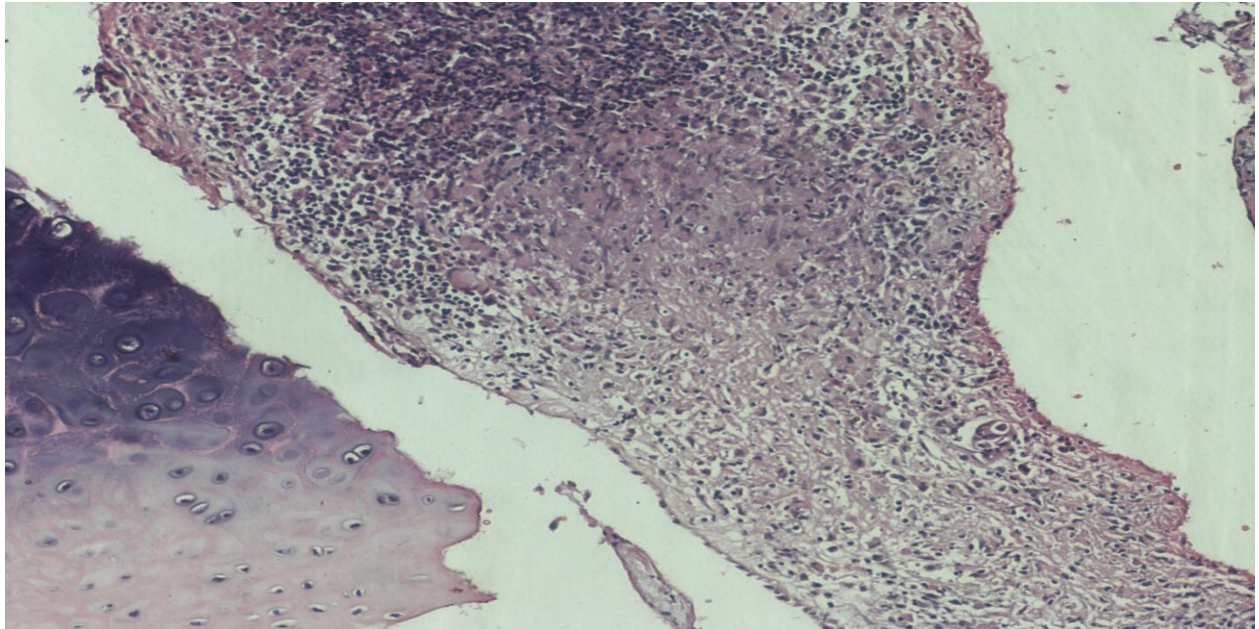
specific and include well pneumatized bone with some soft tissue. Bony erosion is uncommon. Histopathology of granulation tissue when abundant is most reliable diagnostic method. However, biopsies need to be frequently repeated for confirmation.^[4] Biopsy report shows granulation tissue with epithelioid cell granulomas and multinucleated giant cells (Langhans giant cells), areas of central necrosis, lymphocytic infiltration, ulceration and signs of bone resorption. Polymerase chain reaction of the ear discharge can also be done.^[3] It is very difficult to demonstrate AFB by staining and to culture the discharge. Also superadded infection can obscure our findings. Treatment includes surgical options like tympanoplasty and radical mastoidectomy according to the degree of damage. Medically, concomitant anti tubercular therapy is also advised.



Photomicrograph showing giant cell granuloma (H&E stained sections 200X).



Photomicrograph showing necrosis and inflammation (H&E stained section 100X).



Photomicrograph showing necrosis and inflammation along with cartilagenous tissue (H&E stained section 100X).

CONCLUSION

Basic principles of diagnosis of tuberculous otitis media include positive illness history in patient, history of contact with TB patient or if patient is living in endemic areas and having a poor sense of hygiene. After the main otoscopic examination, other pathological, radiological, and microbiological investigations are to be prescribed. Tuberculosis of the ear is difficult to diagnose on biopsy but once established, it responds well to therapy. Hence treatment should be early and prompt so as to avoid other complications.

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