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Extrapulmonary Tuberculosis Manifests as Middle Ear Tuberculosis: A Rare Case Report from Secondary Health Care Center at Sub-Himalayan Region

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ABSTRACT

Tuberculosis of ear is a rare entity. Early diagnosis and prompt treatment can prevent many serious complications. Here we report a case of 45 year old female with middle ear tuberculosis which was cured with mastoid exploration followed by anti tubercular treatment.

Keywords: Tuberculosis, TB, Extrapulmonary Tuberculosis, Middle Ear Tuberculosis, Sub-Himalayan Region

INTRODUCTION

Tuberculosis (TB) is a potentially serious and contagious infectious disease which could affect various organs and tissues. Involvement of skull bones with tuberculosis is rare presentation.

Tuberculous otitis media (TOM) is one of the rarest extrapulmonary involvement of tuberculosis. 0.05-0.9% of infections of the middle ear have been reported for Mycobacterium tuberculosis [1]. Proper investigation and timely treatment can prevent its major life-threatening complications. Surgery alone is not sure treatment without anti tubercular treatment. Here we report a case of female with tuberculous otitis media was cured with mastoid exploration followed by anti-tubercular treatment.

CASE REPORT

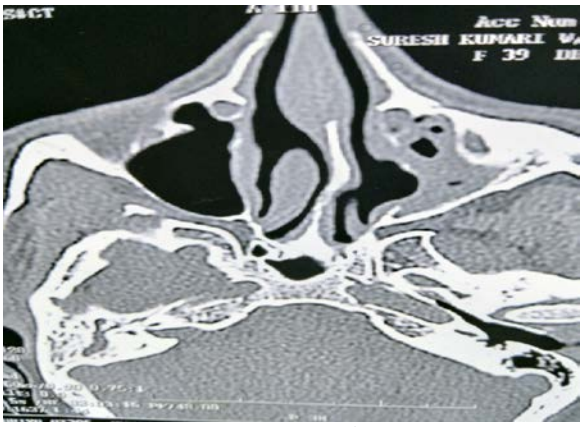

Fig 1: Pre operative HRCT picture of temporal boneaxial cut section showing soft tissue mass in the right middle ear cavity

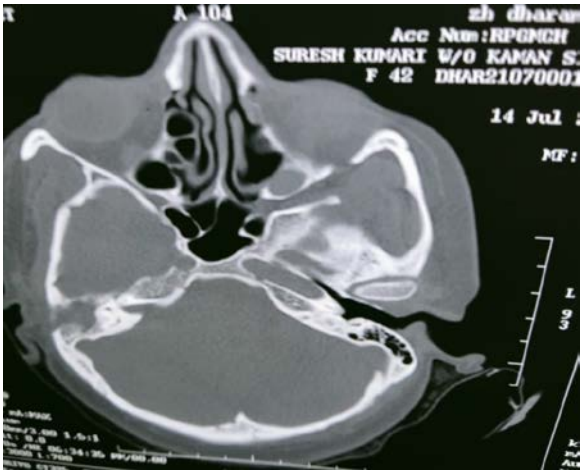

Fig 2: Post operative HRCT picture of temporal bone axial cut section of same patient after 4 months of surgery showing again soft tissue mass in the right mastoid cavity.

42 year old female presented in ENT OPD at a secondary health care center with chief complaints of ear discharge from right

ear with associated decreased hearing since 4 months. This was not associated with pain, vertigo, tinnitus or any other associated complication with no history of trauma. No past history of any medical illness and had not been treated for tuberculosis in past. There was no history of prolong cough, fever and any other constitutional symptoms or no history of contact with TB patient. On examination with head lamp, external auditory canal was normal. On autos copy, there was bulging tympanic membrane with polypoidal mass hanging from roof of external auditory canal. Patient was initially treated with oral and topical antibiotics. On follow up, she was not relieved from symptoms and was referred to tertiary level health care center. There the HRCT of bilateral temporal was planned. CT findings were suggestive of soft tissue in middle ear cavity involving epitympanum, mesotympanum and hypotympanum extending to mastoid antrum (fig1). On pure tone audiometry there was moderately severe conductive hearing loss on the affected side with normal hearing on the non affected ear.

Based upon clinical and radiological findings, a diagnosis of chronic otitis media (COM) unsafe type was established and She was planned for mastoid exploration. Canal wall down mastoidectomy was done, intra operative finding consist of cholesteatoma look alike soft tissue with erosion of malleus and incus. After 7th post operative day she was sent home. After four months she again developed same symptoms and again HRCT was planned and again there was soft tissue mass in the whole middle ear cavity and the mastoid cavity (fig2). A second mastoid exploration was done and then adequate soft tissue sample was sent for histopathology examination, ZN stain and culture. Surprisingly HPE findings were of necrotising granulomatosis infection possibly extra pulmonary tuberculosis of the middle ear. ZN stain showed few acid fast bacilli. Patient was then evaluated for tuberculosis. Sputum for AFB done and chest X-ray was done. Her chest X-ray was normal and sputum was negative for AFB. She was then started with anti tubercular treatment 6 months therapy (HRZE daily regimen for 2 months followed by HR for 4 months). After one month of the ATT her symptoms were relieved.

DISCUSSION

Tuberculosis is caused by Mycobacterium tuberculosis and it is a chronic bacterial infection. Extra-pulmonary tuberculosis of TOM is extremely rare although cases has been reported [1].

In 1853, Tuberculosis Otitis Media (TOM) was first reported [2].There are various pathogenesis of spread of infection which may include[3] (1) new-born/children who have shorter and large-bored Eustachian tube; during coughing up sputum having tubercle bacilli spread to middle ear through eustachian tube (2) Perforated tympanic membrane leads to direct implantation from the external auditory canal contracted via infected sputum (3) via haematogenous spread from other tuberculous foci like pulmonary one.

In 1953, Wallner described classic clinical features of TOM[4] painless ear discharge, multiple tympanic membrane perforations, pale granulation tissue, ipsilateral facial nerve paralysis, early severe hearing loss and bone necrosis, including sequestrum formation. However combination of all these symptoms is rare. Facial nerve paralysis is not uncommon and has been reported in 30-45% of cases [5]. Atypical presentation can be present like earache, hearing loss, a single large tympanic membrane perforation and absence of facial palsy. The hearing loss can be either conductive (90% of patients), sensorineural (~8%), or mixed (~2%) [6].

If TOM not treated with ATT timely then it can lead to serious major complications which includes osteomyelitis, labyrinthitis, petrositis, lateral sinus thrombophlebitis and thrombosis, subperiosteal abscess, meningitis, brain abscess and tuberculoma of the brain [7].

The HRCT scan of temporal bone shows ossicle resorption, sclerosis of the mastoid cortex, middle ear cavity filled with soft tissue and bone resorption[8].

The gold standard method of diagnosis is the identification of acid fast bacilli of Mycobacterium tuberculosis bacteria via microscopy and culture method [9]. Acid-fast staining with auramine and Ziehl-Neelsen stain of ear discharge is strongly suggestive for TOM [8].

Early treatment is necessary for prevention of complications. As per World Health Organization's guidelines [10], both pulmonary and extrapulmonary disease should be treated with the same regimens of antitubercular therapy: a four-drug daily regimen with isoniazid, rifampicin, pyrazinamide and ethambutol (HRZE scheme) for the first 2 months, followed by three drug daily regimen with isoniazid and rifampicin (HRE scheme) for 4 months.

The role of surgery is still debated [6]. If mastoid exploration done without antitubercular therapy then it would not be curative and relapse can occur.

CONCLUSION

In conclusion, this paper has detailed a rare case of tuberculosis of middle ear cavity and mastoid bone mimicking cholesteatoma and leading to misdiagnosis therefore TB of temporal bone may be kept in mind in refractory cases of the COM relapsing even after mastoid exploration.

Declaration of Patient Consent: The authors certify that we have obtained all appropriate patient consent on forms regarding clinical information to be reported in the journal.

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Conflict of Interest: None

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