



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

International Journal of Current Research
Vol. 15, Issue, 07, pp.25262-25264, July, 2023
DOI: <https://doi.org/10.24941/ijcr.45620.07.2023>

**INTERNATIONAL JOURNAL
OF CURRENT RESEARCH**

RESEARCH ARTICLE

TUBERCULOUS OTITIS MEDIA WITH MASTOIDITIS – AN UNUSUAL PRESENTATION OF EXTRAPULMONARY TUBERCULOSIS

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ARTICLE INFO

Article History:

Received 20th April, 2023
Received in revised form
18th May, 2023
Accepted 19th June, 2023
Published online 20th July, 2023

Key words:

Impaction, Odontome, Supernumerary
Tooth

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Citation: Dr. Avinash Kumar, Dr. Manjari Kishore, Dr. Shubham Mittal, Dr. Garima Sinha, Tanisha Jain and Sonali Chauhan. 2023. "Tuberculous otitis media with mastoiditis – an unusual presentation of extra pulmonary tuberculosis.". *International Journal of Current Research*, 15, (07), 25262-25264.

ABSTRACT

Tuberculosis otitis media complicated with mastoiditis is a rare infection of middle ear which is mostly secondary to pulmonary tuberculosis. The primary form of infection is rarely encountered. Even though pulmonary tuberculosis is very common in India, tubercular otitis media is a rare manifestation. Herein, we present a case of 27-year-old male patient who presented with symptoms of ear discharge and reduced hearing in the right ear. On examination, multiple perforations were seen in the tympanic membrane leading to suspicion of tubercular otitis media. Right modified radical mastoidectomy was done and on histopathology, a diagnosis of tuberculosis was confirmed.

INTRODUCTION

Tuberculosis (TB) is a major health problem in developing world. India accounts for approximately one-fourth of the global TB burden. Tuberculous otitis media is a relatively rare manifestation accounting for 4% of TB in the head & neck region. It has an indolent & variable presentation. The diagnosis of TB otitis media is generally delayed because its signs and symptoms are indistinguishable from that of non-tubercular otitis media, particularly chronic suppurative otitis media. Awareness of this entity and early diagnosis can avoid complications like sensorineural hearing loss or facial nerve palsy. The treatment should invariably include Mastoidectomy and along with full course of anti-tubercular drugs. We are reporting a case of Tuberculosis otitis media complicated with mastoiditis which was suspected in its initial phase because of the presence of one classical sign that is multiple perforations of the Tympanic membrane.

A Mantoux test was immediately advised which showed an induration of 18mm which further strengthened our suspicion.

Case Report

A 27-years-old male presented to ENT OPD with symptoms of ear discharge, decreased hearing and mastoid tenderness in the right ear for last 6 months.

The ear discharge was sudden in onset, gradually progressive with no foul smell. The discharge was mucopurulent with no blood stains and was not associated with any pain. Also the discharge was profuse in quantity. The hearing loss was present only in right ear, insidious in onset and gradually progressive. The patient did not present with symptoms such as tinnitus and vertigo. There was no history of fever, chronic cough, weight loss, night sweats or any contact history with individuals having any contagious disease. There were no

other significant coexisting manifestations of any chronic disease or any history of surgeries in the past. On examination, external auditory canal was full of discharge despite patient having taken conventional treatment for 6 months. Examination under microscope and suction clearance of discharge was done, following which tympanic membrane was visualised. Two central perforations were found in poster superior and anteroinferior quadrant. Since multiple perforations were observed, a differential diagnosis of TB otitis media was suspected. Pure tone audiometry revealed moderate conductive hearing loss. HRCT scan was done which showed opacification of right mastoid air cells, mastoid antrum and middle ear cavity. A Mantoux test was advised which showed an induration of 18mm. The patient was posted for Right modified radical mastoidectomy. Intraoperatively it was seen that tympanic cavity and mastoid antrum was full of granulation tissues, debris and secretions. Debris and secretions were sent for histopathological examination. On histopathological examination, chronic inflammatory cells, epithelioid cells along with Langhans giant cells were observed.



Figure 1. Tympanic membrane with multiple perforations

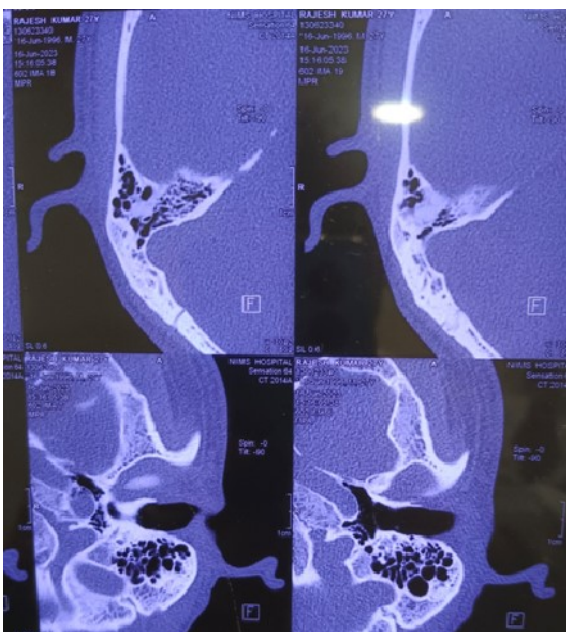


Figure 2. Right sided otomastoiditis showing opacification of middle ear cleft

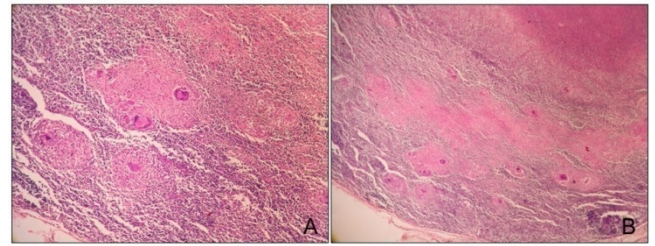


Figure 3A-B. Epithelioid cell granulomas [a: h&e, 40x]with multinucleate giant cells and caseous necrosis [b: h&e, 20 x]

Areas of Caseous necrosis were also observed in histopathology. These features confirmed the diagnosis of TB otitis media. The patient was started on 6 months course of Anti tubercular drugs including Isoniazid, Pyrazinamide, Rifampin and Ethambutol with regular monitoring and follow-up. Our patient is doing fine till the last follow up of 3 months and is now asymptomatic and in good health.

DISCUSSION

Tubercular infection of middle ear cleft is not so common and accounts for 0.04% of all cases of chronic infection of middle ear¹. Infection is predominantly seen in children and young adults. According to all the cases reported so far, in around 84% of the cases, individuals below 15 years of age are more commonly affected². Tubercular otitis media is generally secondary to the infections in lungs, larynx or nasopharynx. The probable routes of entry of Mycobacterium into the middle ear can be via aspiration through the Eustachian tube, hematogenous spread from far off sites, direct implantation through external auditory canal, tympanic membrane perforations, consuming unpasteurised milk of the infected cows, blood-borne diseases in those suffering from miliary Tuberculosis³. The disease is insidious in onset. Tubercular bacilli appear in the submucosal layer of tympanic cavity. There is painless necrosis of ear drum leading to multiple perforations which may merge sometimes and present as single large perforation. In 90% of the cases, the infection causes necrosis of ear ossicles which in turn leads to hearing loss more than 40db⁴. The clinical features of Tubercular otitis media include profuse discharge, pale granulations, multiple perforations in tympanic membrane and pre-auricular adenopathy⁵. The patient may sometimes present with complications like facial nerve palsy if the infection is misdiagnosed with non – tubercular infections in its initial phase and if not treated timely.

Otoscopic examination reveals pale white granulation tissue on tympanic membrane, mucosal thickening and perforations of tympanic membrane. On further examination, pale white granulation in middle ear and eroded ossicles can be appreciated. For diagnostic evaluation of Tubercular otitis media, high resolution computed tomography (HRCT) scans are preferred over radiographs and Magnetic Resonance Imaging for demonstrating the extent of the disease and excluding complications⁶. Destruction of ossicular chain, induration of mastoid cortex and opacification of middle ear along with mastoid are well appreciated radiographically. Mantoux test or tuberculin skin test can also be performed for diagnostic purpose. A positive induration more than 15 mm is indicative of Tuberculosis. On histopathological findings such as epithelioid cells, langhans giant cells and caseous necrosis along with biomolecular inspection (Polymerase chain Reaction) constitutes the fundamental diagnostic elements of Tubercular otitis media.

Acid fast staining is not a reliable test because of low concentration of Mycobacterium in the smears of ear discharge as the presence of other micro-organisms like staphylococcus, Pseudomonas, Klebsiella, Proteus, Streptococcus etc may interfere with the growth of mycobacterium. Therefore, in order to increase the diagnostic accuracy PCR amplification is preferred over ZN staining. In order to completely resolve and prevent further recurrence of symptoms like otorrhoea, ATT regimen should be followed for 6 months post operatively.

CONCLUSION

Though the cardinal signs of TB otitis media are not always seen still even if one sign is present one should always keep the differential of TB otitis media in mind. The cases of recurrent otitis media not responding to conventional antibiotics should always be investigated properly keeping the rare causes in mind. Multiple perforations of tympanic membrane and Mantoux test though not confirmatory for TB otitis media, aided us in the diagnosis of this case. The diagnosis of TB otitis media is mostly confirmed post-operatively when histopathological examination and Ziehl-Neelsen staining of excised tissues and secretions (during surgery) is performed.

The complications can be avoided if timely intervention is taken that includes anti-tubercular regimen along with mastoidectomy. Hence, proper investigation becomes crucial in cases of recurring otitis media and histopathological examination of secretions and debris should always be done postoperatively.

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