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A Rare Case of Primary Tuberculous Mastoiditis with Meningitis

Dr. Soma Dey[1*], Dr. Jyothirlata Bangera[2], Sheela Naicker[3]
[1]Associate Professor, Microbiology, K J Somaiya Medical College, Mumbai, India
[2]Professor, Microbiology, KJ Somaiya Medical College, Mumbai India
[3]Tutor, Microbiology, K J Somaiya Medical College, Mumbai, India

Case Report

***Corresponding author**
Dr. Soma Dey

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Abstract: Tuberculosis of middle ear is a comparatively rare entity seen in association with or secondary to pulmonary tuberculosis. Primary tuberculous otitis media is a rare disease and constitutes 0.05% to 0.09% of chronic otitis media. The diagnosis of tuberculous mastioditis is difficult due to wide range of symptoms & usually fails to respond to usual antibiotics. Otological investigations showed destruction of mastoid air cells with bony sequestrum, then mastoiditis should be suspected .Anti tubercular drugs are the main stay of treatment. Surgery aims to provide samples required for bacteriological and histological examinations allowing subsequent diagnosis. Here we represent a case report of 13 year old girl of tuberculous mastoiditis with meningitis.
Keywords: Tuberculous mastoiditis, meningitis, otitis media.

INTRODUCTION

The incidence of tuberculous otitis media ranges from 0.05% to 0.9% of all cases of chronic otitis media[1]. This is one of the rarest from of extra pulmonary tuberculosis & results in silent mastoiditis. The diagnosis of tuberculous otitis media may be difficult and delayed due to low index of suspicion or nonspecific clinical signs mimicking chronic mastoiditis such as painless otorrhoea refractory to standard antibiotics, tympanic membrane perforation and unilateral hearing loss [2]. The pathogenesis of tuberculous otitis media is controversial .Mycobacterium can reach the middle ear via haematogenous route or via mucus aspiration through eustachian tube or by direct implantation through external auditory canal and tympanic membrane perforation [3].

In all cases imaging is mandatory in order to study the extent of disease & possible complications. But identification of Mycobacterium *tuberculosis* remains a gold standard of diagnosis. Early diagnosis & treatment are very important to avoid severe complications such as early destruction of middle ear conductive mechanism, facial paralysis, sensorineural deafness, cochlear involvement with labyrinthitis [4]. Here we report a case of tubercular mastoiditis with meningitis.

CASE REPORT

A 13 year old female presented to our institution with complains of fever, headache, neck stiffness, vomiting for the past 15 days. Patient had H/O unilateral painless, scanty, intermittent otorrhoea for3-4 years for which she had already received treatment by the physician with no improvement. Patient had also contact H/O tuberculosis, congenital cataract & mental retardation .O/E patient was febrile, neck rigidity with positive Kerning's sign but no mastoid tenderness.

Otoscopic examination revealed a postero-superior retraction pocket of the left tympanic membrane. MRI scan of brain (Plain & contrast) features are suggestive of left mastoiditis with small associated epidural abscess along the posterior wall of left petrous bone with diffuse meningitis [Fig 4]. HRCT of Temporal Bone (Plain +contrast) suggested bilateral cholesteatoma (Left > Right). CSF study for routine cell count following lumber puncture showed plenty of Lymphocytes but bacteriological culture was negative. Left sided Mastoidectomy done [Fig 1]with toileting & pus send for culture sensitivity was negative for aerobic bacterial culture but ZN staining positive for acid fast bacilli [Fig 2].Considering the history that meningitis which didn't respond to high dose of antibiotics we suspected the disease to be non-pyogenic one. Mastoidectomy pus send for gene X pert was positive for *Mycobacterium tuberculosis* but no resistance to Rifampicin or Isoniazid. Histopathological examination showed tubercular granuloma with caseous necrosis

[Fig 3]. Inj Monocef & antitubercular therapy with Isoniazid, Rifampicin, and Pyrazinamide started & patient improved gradually. Routine blood investigations and chest x-ray was normal.

DISCUSSION

Tuberculous otitis media in adults most commonly occurs in association with advanced pulmonary or extra pulmonary tuberculosis but in children it may occur in isolation [4]. With the introduction of antitubercular therapy its incidence has been dramatically reduced. Latest incidence report by Michael *et al*. 0.37% amongst all pulmonary & extra pulmonary cases.

Like any other disease, complications of tubercular otitis media may be intracranial or extra cranial if there is delay in diagnosis. Intracranial complications subdural or epidural abscess, through erosion of tegmen tympani or hematogenous spread along sigmoid sinus [7].

It is stated that most common mode of spread of tuberculosis to CNS is by haematogenous route. Primary site may be lung or infected middle ear. Other mode of spread may be through mastoid invading sigmoid sinus, close proximity of these structures helps in rapid spread [4].

Clinical onset of tuberculous otitis media is insidious & variable. Prompt diagnosis is not easy because of equivocal clinical signs & false negative culture. Although may present with wide variety of symptoms but most significant findings painless otorrhoea not responding to standard antibiotic therapy. The pattern of hearing loss is inordinate with the extent of disease. A characteristic clinical finding is granulomatous middle ear mucosa which is pale and vascular. Multiple perforations of the tympanic membrane cannot be substantiated as a hallmark of tuberculous otitis media Cholesteatoma in middle ear is not uncommon but presence of tubercle bacilli makes it a rare presentation [7]. As the pathologic process advances inexorably, the granulation tissue lead to attico-antral blockage and destruction of nearby structure such as skull base or the tegmen tympani, leading to tuberculous meningitis or skull base osteomyelitis. High resolution computerised tomography of temporal bone provides best treatment modality. Histological study reveals presence of tuberculous granuloma with caseous necrosis. A definitive diagnosis requires demonstration of acid fast bacilli in staining or in culture. Antitubercular therapy is the main stay of treatment. Our case has satisfied with histological as well as direct smear findings. Surgery indicated if there are complications like CNS extension of infection, subperiosteal abscess of mastoid, facial palsy or to provide samples for bacteriological & histological examinations [5]. When surgery is combined with adequate chemotherapy then chance of healing with good prognosis [6].

Fig 1 Showing Left mastoidectomy scar

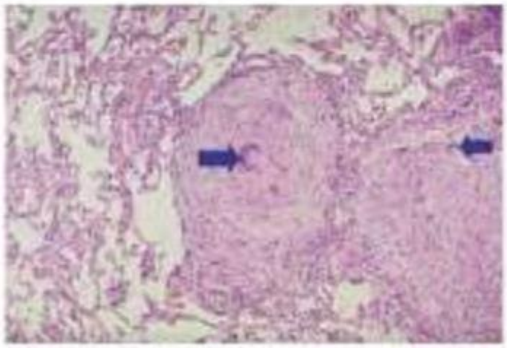

Fig-2: Showing tubercular granuloma withcaseous necrosis in mastoidectomy pus sample

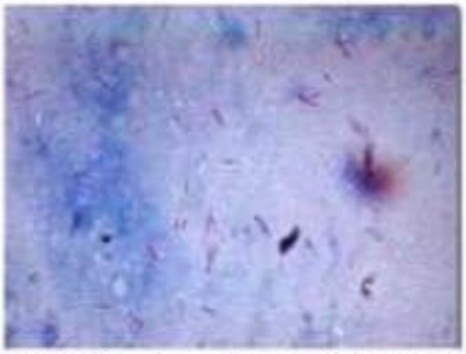

Fig 3 : Showing acid fast bacilli in pus sample

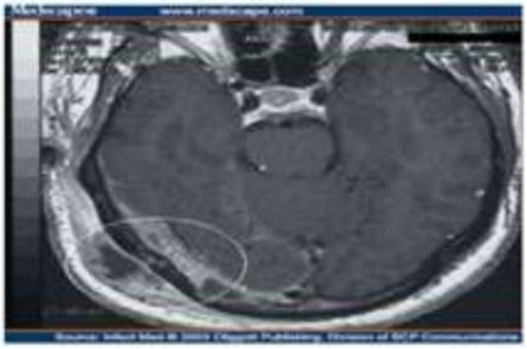

Fig-4: HRCT showing left sided epidural abscess in posterior wall of left petrous bone due to mastoiditis

CONCLUSION

The main objective behind this article is to make ENT surgeon vigilant about this manifestation of very rare disease tuberculous otitis media. Tuberculosis should be included in the differential diagnosis of chronic otitis media not responding to routine therapy or when presenting with intra cranial complication .Early diagnosis and timely initiation of anti-tubercular therapy can prevent life threatening complications.

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