Tuberculous Otitis Media and Lupus Vulgaris of Face: An Unusual Association

Parvinderjit Singh Kohli · Vipin Kumar ·
Sarita Nibhoria

Received: 22 September 2008 / Accepted: 5 November 2008 / Published online: 5 April 2011
© Association of Otolaryngologists of India 2011

Abstract Tuberculous otitis media is a rare extra-pulmonary presentation of tuberculosis. Tuberculous otitis media is usually associated with pulmonary tuberculosis or tuberculosis involving nasopharynx and oropharynx. Lupus vulgaris is the most common morphological variant of cutaneous tuberculosis. The disease often affects the face and may be associated with nasal or nasopharyngeal tuberculosis. Lupus vulgaris associated with tuberculous otitis media is not reported in English literature. We report a case of 40 year old female patient who presented with symptoms of chronic suppurative otitis media and non-healing skin lesion of face. The biopsy of skin lesion showed granulomatous pathology and helped us to reach a diagnosis of tuberculous otitis media.

Keywords Chronic suppurative otitis media · Cutaneous tuberculosis · Tuberculous otitis media · Lupus vulgaris

Abbreviations

ATT Antitubercular therapy
ZN Zeihl Neihlesen
PTA Pure tone audiometry
AFB Acid fast bacilli

Introduction

With improvement in economic and social conditions and the use of effective anti-tubercular therapy, it is now seen

that extra-pulmonary presentations form a major proportion of new cases of tuberculosis. In addition to cervical lymphadenitis, tuberculosis in the head and neck region can produce isolated disease in the oral cavity, ear, salivary glands, temporo-mandibular joint, nose, larynx and skin [1]. Tubercular otitis media (TOM) is rarely seen these days. The middle ear is secondarily infected, either hematogenously or via the Eustachian tube from a focus in the adjacent areas, such as the adenoids [2]. Cutaneous tuberculosis accounts for about 1% of cases of extra-pulmonary tuberculosis. Lupus vulgaris (LV) is the most common morphological variant of cutaneous tuberculosis. The pathogen may reach the skin by exogenous inoculation, via the blood or lymph from a tuberculous internal organ, or by direct extension from underlying infected glands or joints [3]. The disease often affects the face leading to disfigurement due to the destructive skin lesions.

TOM can be associated with pulmonary tuberculosis or tuberculosis involving nasopharynx and oropharynx. TOM in association with cutaneous tuberculosis has not been reported so far. We report a first ever case in world literature of TOM associated with LV of face.

Case Report

A 40 year old female patient presented to the outdoor facility of our department with the history of right ear discharge for approximately 3 months. The discharge was purulent, scanty, non-foul smelling and sometimes blood tinged. The patient complained of aural fullness and somewhat decreased hearing as compared to left ear. There was no history of otalgia, vertigo and facial weakness. The patient had been taking treatment for the last 3 months with no significant improvement in symptoms. The patient also

P. S. Kohli (✉) · V. Kumar · S. Nibhoria
Adesh Institute of Medical Sciences and Research, Bathinda,
India
e-mail: parrykohli@yahoo.com

gave history of non-itchy lesion over right side of face which had been progressively increasing in size for the last 3 months. Otoendoscopic examination of the ear showed sero-sanguineous discharge in the external auditory canal. The tympanic membrane was dull looking and granulations were present in anterior and central part of tympanic membrane (Fig. 1), which bled on touch. Tuning fork tests revealed Rinne to be positive in both ears and Weber lateralized to right ear. Nasal and throat examinations were unremarkable. X-ray mastoids showed well pneumatized right mastoid with minimal haziness in antrum. Pure tone audiometry showed 35 dB air-bone gap on right side. Dermatologist opinion was sought for skin lesion on face (Fig. 2). Biopsy taken from the skin lesion showed non-caseating granulomatous pathology suggestive of LV. On basis of these findings and keeping tuberculous otitis media as a differential diagnosis, patient was further investigated. Gram's and ZN staining of the discharge from ear canal showed no microorganism. Culture of the discharge showed no growth after 48 h of incubation. Under local anesthesia, biopsy was taken from granulation tissue over tympanic membrane. Histopathological examination showed caseating granulomatous pathology suggestive of tuberculosis (Fig. 3). Culture after 8 weeks of incubation showed no growth of *Mycobacterium tuberculosis*. Montoux test was negative and X-ray chest was unremarkable. The patient was started on 6-month Antitubercular therapy (ATT) course. Ear discharge subsided within 1 month of starting ATT. After completion of course, tympanic membrane lesions had completely healed but skin lesion was persisting; so course was extended to 9 months. Skin lesion eventually completely healed after 9 months of ATT.

Fig. 1 Oto-endoscopic view of the right tympanic membrane showing dull looking tympanic membrane (*arrowhead*), granulations in central and anterior quadrants (*arrow*) and serosanguineous discharge in the floor of external auditory canal

Fig. 2 Photograph of the right side of face of the patient showing reddish-brown plaque with central scaling (*arrow*)

Fig. 3 Histopathological slide of the biopsy taken from granulation tissue over tympanic membrane showing ill-defined granuloma composed of epithelioid cells (*arrowhead*) and Langhans type of giant cells (*arrow*) (H&E stain-10×)

Discussion

The true incidence of TOM is unknown; current incidence is estimated to be between 0.04 and 0.9% [4]. The prevalence of active or inactive pulmonary tuberculosis in patients with TOM ranges from 14 to 93% [5, 6]. The pathogenesis of TOM involves three major mechanisms. The first mechanism is aspiration of mucus through the Eustachian tube, second is the blood borne dissemination from other tuberculous foci and third is direct implantation through the external auditory canal and a tympanic membrane perforation [7]. LV is a chronic, progressive and the commonest form of secondary cutaneous tuberculosis [8]. It develops in a previously sensitized host having a high degree of tuberculin sensitivity. LV usually occurs through hematogenous or lymphatic spread from an underlying infective focus [3]. Tuberculosis of pharynx and larynx occurs in 10–20% of the patients with lupus of the skin (involving nose and face) [9]. Association of TOM with

LV of skin has not been mentioned in English literature. The patient we have reported had simultaneous occurrence of LV of face and TOM. There were no findings pertaining to pulmonary tuberculosis in this patient.

The classical clinical features of TOM were described by Wallmer in 1953, as painless otorrhea, multiple tympanic perforations, pale granulation tissue, ipsilateral facial nerve paralysis, early severe hearing loss, and bone necrosis [10]. However, these classic features are rarely observed today. The current literature indicates most patients actually present with a single perforation [11–13]. Indications of TOM include hearing loss out of proportion to clinical findings, failure to respond to the usual medical therapy, post-mastoidectomy recurrence of granulation tissue, slow wound healing, persistent otorrhea and the formation of bony sequestra. Our patient had presented with aural discharge for 3 months which was not responding to any of the medical therapy administered till date. Examination findings revealed dull looking tympanic membrane, with granulation tissue in anterior and central quadrants of tympanic membrane which bled on touch and no evidence of perforation (Fig. 1). PTA revealed 35 dB air-bone gap.

The lesion of LV is clinically characterized by soft reddish-brown plaques with apple-jelly nodules on diascopy. The lesions pursue a chronic course over several years and grow by peripheral extension and central scarring [8]. Our patient on presentation had all these typical features on presentation (Fig. 2).

The evaluation of patients with suspected TOM should include a history of contact to active tuberculosis, placement of a PPD skin test with control, culture and stain of ear discharge for AFB, biopsy of granulation tissue for histology and culture, and evaluation of the immune system if indicated. All patients should be evaluated with chest X-ray, sputum for AFB culture and smear, gastric aspirates in children and lumbar puncture if CNS involvement is suspected. The diagnosis of TOM in our patient was facilitated by the positive biopsy for granulomatous disease from the skin lesion of the face. Discharge from ear was negative for AFB on smear and culture showed no growth after 8 weeks of incubation. Biopsy taken from granulation tissue over tympanic membrane showed caseous granulomas suggestive of tuberculosis (Fig. 3). Montoux test was negative and X-ray chest was unremarkable.

In diagnosing TOM, it is important to consider it as a differential diagnosis of chronic suppurative otitis media. The diagnosis of TOM is often missed in the early stages or is made only after surgical treatment for otitis media [6, 7, 14]. Patients who have known or suspected extra auricular tuberculosis and chronic suppurative otitis media should be evaluated for TOM. The prevalence of active or inactive pulmonary tuberculosis in patients with TOM

ranges from 14 to 93% [14–16] and 40 to 50% of patients with TOM have no evidence of tuberculosis elsewhere [10, 16].

Even after extensive pre-operative evaluation, TOM might still be detected in only 26% of patients. Mastoid X-rays usually show surprisingly little abnormality except for an increased density of the soft tissues in antrum [7]. Mastoid X-rays in our patient showed well pneumatized mastoid with no evidence of any haziness or destruction of mastoid air cells. Recent studies have shown that high resolution computed tomography (HRCT) is the best imaging modality for planning therapy by accurately displaying the involvement of the various structures of the middle and inner ear [17].

After proper diagnosis, the initial management of TOM should be medical. Antituberculosis drugs dramatically improve the prognosis in most patients. Four drug therapy (2HRZE + 4HR) taken for 6 months gives complete cure. Our patient responded well to ATT; both skin and aural lesions healed completely. During serial follow-up examination, the physician should look at otic discharge as the benchmark for defining the response to treatment. Surgical intervention should be added to drug therapy in cases of complications of TOM.

References

1. Prasad KC, Sreedharan S, Chakravarthy Y et al (2007) Tuberculosis in the head and neck: experience in India. *J Laryngol Otol* 121(10):979–985
2. Lee PYC, Drysdale AJ (1993) Tuberculous otitis media: a difficult diagnosis. *J Laryngol Otol* 107:339–341
3. Khandpur S, Reddy BS (2003) Lupus vulgaris: unusual presentations over the face. *J Eur Acad Dermatol Venerol* 17:706–710
4. Bhalla RK, Jones TM, Rothburn MM et al (2001) Tuberculous otitis media—a diagnostic dilemma. *Auris Nasus Larynx* 28:241–243
5. Kirsch CM, Wehner JH, Jensen WA et al (1995) Tuberculous otitis media. *South Med J* 88:363–366
6. Singh B (1991) Role of surgery in tuberculous mastoiditis. *J Laryngol Otol* 105:907–915
7. Windle-Taylor PC, Bailey CM (1980) Tuberculous otitis media: a series of 22 patients. *Laryngoscope* 90:1039–1044
8. Kumar B, Muralidhar S (1999) Cutaneous tuberculosis: a twenty year prospective study. *Int J Tubercu Lung Dis* 3:494–500
9. Ballenger WL, Ballenger HC (1943) Diseases of the nose, throat and ear. Medical and surgical, 8th edn. Lea and Febiger, Philadelphia, p 447
10. Wallmer LJ (1953) Tuberculous otitis media. *Laryngoscope* 63:1058–1077
11. Mjoen S, Grontred A, Holth V et al (1992) Tuberculous otomastoiditis. *Otorhinolaryngology* 54:57–59
12. Nishiike S, Irifume M, Doi K et al (2003) Tubercular otitis media: clinical aspects of 12 cases. *Ann Otol Rhinol Laryngol* 12:935–938
13. Hoca NT, Ogretensory M, Dayioglu D (2008) Tubercular otitis media—a case report. *Turkish Res J* 9:48–50

14. Weiner GM, O'Connell JE, Pahor AL (1977) The role of surgery in tubercular mastoiditis: appropriate chemotherapy is not always enough. *J Laryngol Otol* 111:752–753
15. Schuknecht HF (1993) *Pathology of the ear*, 2nd edn. Lea and Febiger, Philadelphia, pp 206–208
16. Ramages LJ, Gertler R (1985) Aural tuberculosis: a series of 25 patients. *J Laryngol Otol* 99:1073–1080
17. Hoshino T, Miyashita H, Asai Y (1994) Computed tomography of the temporal bone in tuberculous otitis media. *J Laryngol Otol* 108:702–705