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Auris Nasus Larynx 37 (2010) 636–639

AURIS NASUS LARYNX
INTERNATIONAL JOURNAL OF ORL & HNS

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A case of chronic otitis media caused by *Mycobacterium abscessus*☆

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Received 4 August 2009; accepted 29 January 2010
Available online 4 March 2010

Abstract

Although it appears very uncommon in adult COM, *Mycobacterium abscessus* should be considered as a possible cause of a chronically draining ear. Multi-antibiotic chemotherapy including high-dose clarithromycin can effectively treat adult COM cased by *M. abscessus*. The first case report of adult chronic otitis media (COM) caused by *M. abscessus* is described here. A 61-year-old woman presented persistent otorrhea for 2 months, despite treatment with standard antimicrobial drugs. Physical examination revealed a small perforation of the tympanic membrane and edematous middle ear mucosa. Mycobacterial cultures and PCR yielded non-tuberculous mycobacteria (NTM); *M. abscessus*. Intravenous panipenem/betamipron and amikacin and oral clarithromycin were administered for 36 days. Computed tomography of the temporal bone showed improved aeration in the tympanic cavity, but soft tissue shadow remained unchanged in the mastoid 31 days after starting medication. She therefore underwent tympano-mastoidectomy at 36 days. At surgery, inflammation remained in the middle ear, and edematous pale mucosal tissue was noted around the stapes and ossicular chain. Histopathologic examination showed inflammation and granulation tissue, but no caseating necrosis or acid-fast bacilli. After surgery the symptoms resolved and remained well without evidence of infection recurrence 12 months after the operation.

Keywords: Non-tuberculous mycobacteria; *Mycobacterium abscessus*; Chronic otitis media; Multi-antibiotic chemotherapy; Surgery

1. Introduction

Most cases of infectious diseases caused by non-tuberculous mycobacteria (NTM) are resistant to antibiotic therapy. Among NTM, *Mycobacterium abscessus* (*M. abscessus*) is the most pathogenic and chemotherapy-resistant, and the most rapidly growing [12]. It is therefore a problematic infection requiring specific diagnosis and treatment. Ear, nose, and throat (ENT) infections caused by *M. abscessus* are very infrequent now, and most are cervico-facial lymphadenitis [14–16]. Only 10 cases of chronic otitis media (COM) caused by *M. abscessus* have been reported in the literature and all of them were intractable cases in children [5–8,10]. To the best of our knowledge, we present here the first case report of adult COM caused by *M. abscessus*. Multi-antibiotic chemotherapy including high-dose clarithromycin is potentially effective for adult *M. abscessus* otitis media.

2. Case report

A 61-year-old woman presented with recurrent right-sided otorrhea for seven years, and perforation of the tympanic membrane was diagnosed. In the episode in which she presented she had experienced right ear fullness and persistent otorrhea for 2 months, despite treatment with standard antimicrobial drugs. She did not have undue

☆ This paper was published in the Journal of Japan Society for Infectious Diseases in Otolaryngology 27: 27–30, 2009, entitled "An Adult Case of Non Tuberculous Mycobacterial Otitis Media".

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doi:10.1016/j.anl.2010.01.010

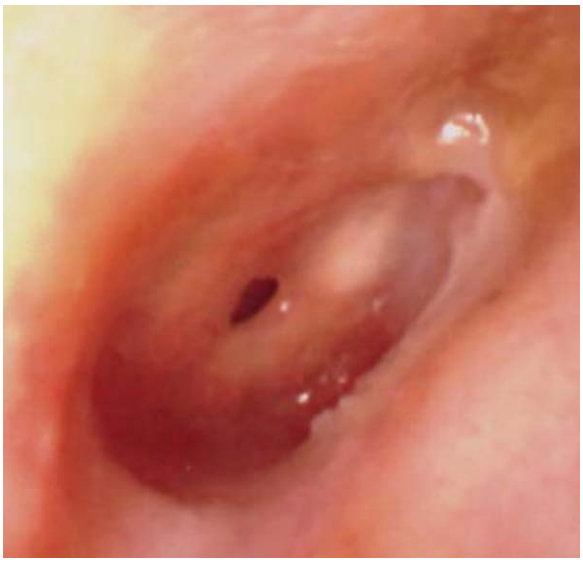

Fig. 1. The tympanic membrane showed a small perforation with copious, serous otorrhea.

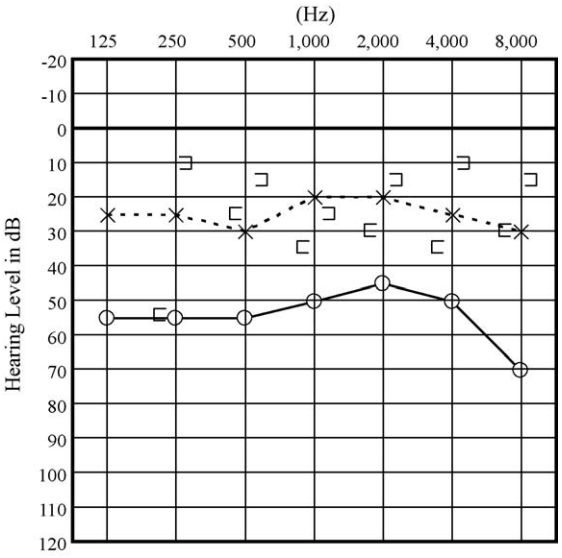

Fig. 3. Audiometry on March 3, 2008 revealed right conductive healing loss.

susceptibility to infections other than otitis media. Otoscopy revealed a small perforation of tympanic membrane with copious, serous otorrhea. The tympanic membrane and mucosa of the tympanic cavity showed edematous swelling (Fig. 1). Initial cultures did not yield any bacteria. Computed tomography (CT) showed a soft tissue shadow occupying the middle ear and the mastoid cavity but no bone destruction (Fig. 2). Laboratory studies revealed a normal white blood cell count and CRP. We suspected middle ear tuberculosis, and acid-fast bacillus stains revealed mycobacteria (Gaffky 3). However, polymerase chain reaction (PCR) for *M. tuberculosis* was negative. Eventually mycobacterial cultures and PCR yielded *M. abscessus*, a type of NTM. Chest CT revealed no evidence of lung mycobacterial infection. Audiometry revealed right conductive hearing loss (Fig. 3).

She received treatment with multiple antibiotics (600 mg/day oral clarithromycin, 200 mg/day intravenous amikacin, and 0.5 g/day intravenous panipenem/betamipron) for 36 days. The otorrhea stopped after 25 days of chemotherapy. CT of the temporal bone showed improved aeration in the tympanic cavity, but the soft tissue shadow remained unchanged in the attic and mastoid cavity 31 days after starting medication. Hence tympano-mastoidectomy was performed 36 days after starting medication. At operation, although serous otorrhea had already stopped, inflamed tissue remained in the middle ear cavity, and edematous pale mucosal tissue was noted around the stapes and ossicular chain. Histopathologic examination showed inflammation and granulation tissue, but no caseating necrosis or acid-fast bacilli.

After surgery the symptoms resolved and the right ear remained dry. She remained well without evidence of infection recurrence 12 months after the operation. Follow-

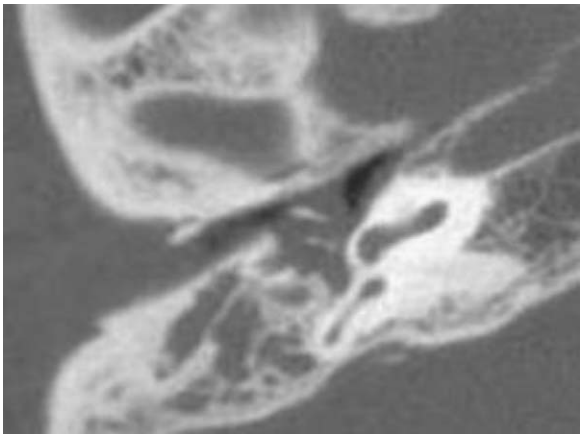

Fig. 2. Computed tomography on April 17, 2008 showed a soft tissue shadow occupying the middle ear and mastoid cavity.

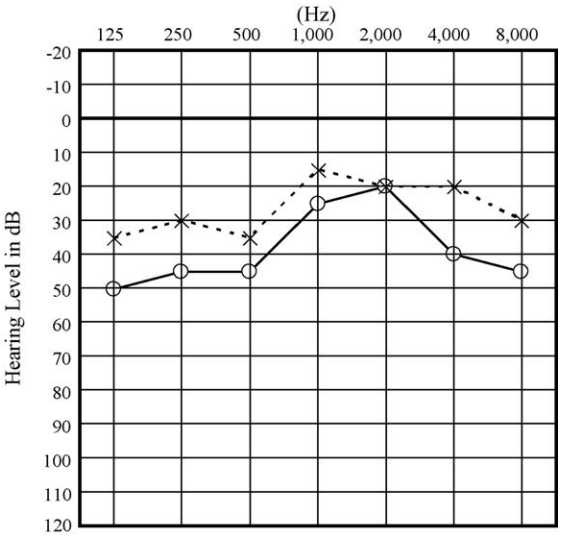

Fig. 4. Audiometry on July 11, 2008 showed improvement of the conductive healing loss.