



# Conservative Management of Petrositis due to *Mycobacterium abscessus*

John Behnke\*

Department of Allergy/Immunology, Otolaryngology (Head and Neck), University of Mississippi Medical Center, West Columbia, USA

## Abstract

*Mycobacterium abscessus* is a rare, but increasingly frequent cause of petrositis and otomastoiditis. Over the last 40 years, the therapeutic focus of petrositis has shifted from surgical to medical modalities; however, *M. abscessus* infections provide a distinct challenge to the medical management of petrositis due to the species' predilection for extensive drug resistance. We describe a case in which petrositis due to *M. abscessus* is effectively managed in a patient with significant comorbidities through conservative medical therapy.

**Keywords:** *Mycobacterium abscessus*; Medical therapy; Petrositis; Therapeutic

## Introduction

Petrositis is an infrequent, potentially fatal complication of otitis media in which suppurative infection of the middle ear extends into the air cells of the petrous apex of the temporal bone [1]. Rapid diagnostic techniques and effective antibiotics have made petrositis increasingly rare and manageable, although extensively-drug resistant organisms complicate the clinical picture.

## Case Report

An 88-year-old female with a 3-day history of otorrhea and occasional pruritic otalgia was referred to our institution for evaluation. Initial otoscopic examination revealed otorrhea in the left ear with a 40% anterior tympanic membrane perforation. The remainder of the physical exam was normal. The otorrhea was cultured, and ciprofloxacin/dexamethasone drops were prescribed empirically. At one-week follow up, the patient reported minimal drainage and resolution of otalgia. Cultures yielded extensively drug-resistant *Mycobacterium abscessus* by MALDI-TOF. The infectious disease service was consulted and repeat culture approximately one month later confirmed the results. Computed tomography of the temporal bone revealed patchy opacification of the mastoid air cells extending into the petrous apex with marginal erosive changes characteristic of petrositis and otomastoiditis. Due to the involvement of the petrous apex and the atypical microbiology, the neurotology service was consulted. The results of repeated cultures confirmed *M. abscessus*, and additionally revealed an acute co-infection with coagulase negative *Staphylococcus* and *Actinomyces*. The patient was started on ciprofloxacin/dexamethasone drops and amoxicillin/clavulanic. Due to the patient's age, the extensively drug-resistant nature of *M. abscessus*, slow progression of the disease, and toxicity of therapy, it was decided to manage the patient conservatively. The patient is currently being monitored every six months and maintaining a high index of suspicion for Gradenigo's syndrome. At the patient's most recent evaluation one year later, there was no otalgia or otorrhea.

## Discussion

*Mycobacterium abscessus* is an atypical pathogen that infrequently infects the middle ear. Until 2008, few cases were described. A recently published retrospective study found that the majority of studied cases of petrositis between 1971 and 2010 were caused by *Pseudomonas aeruginosa*, while none of the 44 participants had cultures positive for nontuberculous mycobacterium (NTM) [2]. Since then, a study published in 2014 attributed four cases of petrositis to NTM between 2008 and 2012 [3] and diagnoses of NTM petrositis and otomastoiditis

have continued to surface [4,5]. Over the last 40 years, the therapeutic focus of petrositis has shifted from surgical to medical modalities [2] however, *Mycobacterium abscessus* infections provide a distinct challenge to the medical management of petrositis due to the species' predilection for extensive drug resistance. Centers for Disease Control and Prevention recommend treating *M. abscessus* with prolonged antibacterial drug therapy, most commonly involving intravenous amikacin [6]. Regardless, drug toxicity, including nausea and vomiting, skin changes, and nephrotoxicity, led to discontinuation or modulation of therapy in 51% of patients in the CDC study [6]. In geriatric patients the toxicity of therapy is particularly problematic, as they are infrequently good candidates for extended regimens of intravenous antibiotics and are more susceptible to dose-dependent side effects [7].

## Conclusion

In light of our patient's advanced age, the treatment team concluded that the risks and possible side effects of aggressive medical and surgical treatment were too great. In this case, the patient has only had one additional episode of otorrhea that also resolved with otological antibiotics and steroids.

## References

- Gadre AK, Chole RA (2018) The changing face of petrous apicitis: A 40-year experience. *Laryngoscope* 128: 195-201.
- Lundman L, Edvardsson H, Ångeby K (2015) Otomastoiditis caused by nontuberculous mycobacteria: report of 16 cases, 3 with infection intracranially. *J Laryngol Otol* 129: 644-655.
- Chen PY, Wu CC, Yang TL, Hsu CJ, Lin YT, et al. (2014) Gradenigo syndrome caused by nontuberculous mycobacteria. *Audiol Neurootol* 19: 275-282.
- Lee MR, Tsai HY, Cheng A, Liu CY, Huang YT, et al. (2012) Otitis media and otomastoiditis caused by *Mycobacterium massiliense* (*Mycobacterium abscessus* subsp. *bolletii*). *J Clin Microbiol* 50: 3754-3756.
- Van Ingen J, Looijmans F, Mirck P, Dekhuijzen R, Boeree M, et al. (2010) Otomastoiditis caused by *Mycobacterium abscessus*, The Netherlands. *Emerg Infect Dis* 16: 166-168.
- Novosad SA, Beekmann SE, Polgreen PM, Mackey K, Winthrop KL, et al.

\*Corresponding author: John Behnke, Department of Allergy/Immunology, Otolaryngology (Head and Neck), University of Mississippi Medical Center, West Columbia, USA, Tel: + 8038078669; E-mail: [john.behnke@uscmcd.sc.edu](mailto:john.behnke@uscmcd.sc.edu)

Received September 10, 2019; Accepted September 21, 2019; Published September 28, 2019

Citation: Behnke J (2019) Conservative Management of Petrositis due to *Mycobacterium abscessus*. *J Clin Case Rep* 9: 1276.

Copyright: © 2019 Behnke J. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

(2016) Treatment of *Mycobacterium abscessus* infection. Emerg Infect Dis 22: 511-514.

7. Giarratano A, Green SE, Nicolau DP (2018) Review of antimicrobial use and considerations in the elderly population. Clin Interv Aging 13: 657-667.