

Case report:

A Case of Chronic Otitis Media Complicated with Cerebellar Abscess

Nazli Z¹, Mohd Shukry MK²

Abstract:

Introduction: Intracranial complications are a known sequale of chronic otitis media. Meningitis is the most common intracranial complication, followed by otogenic brain abscess. Temporal lobe abscesses are more frequently reported in the literature as compared to cerebellar abscesses.

Case Report: We present a case of chronic otitis media with cerebellar abscess that need drainage of the abscess twice. The mastoidectomy was done few days later once the patient stable. **Conclusion:** The case report highlights the increasing incidence of cerebellar abscess as an intracranial complication with literatures review. Besides that, we also discuss about the appropriate timing of ear surgery and neurosurgical drainage, as well as its outcome.

Keywords: Cerebellar Abscess; Chronic Otitis Media

DOI: <http://dx.doi.org/10.3329/bjms.v17i1.35296>

Bangladesh Journal of Medical Science Vol. 17 No. 01 January'18. Page : 149-151

Introduction:

Chronic suppurative otitis media (CSOM) is a very common disease and can leads to serious complications. Complications of CSOM can be divided into intracranial and extracranial.¹Intracranial complications include intracranial abscess, for instance epidural, subdural, extradural, brain abscess and perisigmoid sinus. In the preantibiotic era, the incidence of otogenic intracranial complications accounts for 2.3-6.4% of the cases. The mortality rate increased to 75%.² With introduction of antibiotics and modern imaging, the incidence has reduced to 0.04-0.15%.³

Case Report:

A 56 year-old lady presented with right ear pain for 2 weeks, associated with right ear discharge. She came to private practitioner twice to seek for treatment, ear discharge resolved but ear pain persisted despite medications. She also had mild grade fever on and off for 2 weeks. She had headache 4 days prior to admission and was seen in emergency, she was discharged with medications. The headache persisted despite medications and 2 days prior to admission, she developed vomiting and reduced oral intake.

The next day she had decreased consciousness, which brought her to the hospital. No other neurological signs. Previously she had history of recurrent ear discharge for 2 years, treated and improved temporarily.

On examination, her right ear was filled by pus with granulation tissue in the external auditory canal. Computed tomography (CT) scan was done for her and showed right mastoiditis with cerebellar abscess. She was started with intravenous ceftriaxone and metronidazole. She underwent posterior fossa burrhole, aspiration of the abscess and right frontal extra ventricular drainage by the neurosurgeon. After she was stabilised from initial surgery, the otolaryngologist planned for modified radical mastoidectomy (MRM) approximately one week after that.

However, two days before she went for MRM she developed vomiting few times. CT scan was repeated and showed residual cerebellar abscess. She underwent drainage of the cerebellar abscess for the second times and followed by MRM two days later. Intraoperatively there was cholesteatoma seen in the mastoid cavity and antrum. Short process of incus,

1. Nazli **Zainuddin**, Faculty of Medicine, Universiti Teknologi MARA, Jalan Hospital, 47000 Sungai Buloh, Selangor, Email: nazlizainuddin@yahoo.com
2. Mohd Shukry **Mohd Khalid**, Faculty of Medicine, Universiti Teknologi, MARA, Jalan Hospital, 47000 Sungai Buloh, Selangor.

Correspondence to: Nazli **Zainuddin**, Faculty of Medicine, Universiti Teknologi MARA, Jalan Hospital, 47000 Sungai Buloh, Selangor, Email: nazlizainuddin@yahoo.com



Figure 1: Coronal (a) and Axial (b) images from high resolution CT of Temporal bone of this patient. The arrows are showing sigmoid plate erosion secondary to otomastoiditis causing intracranial spread and brain abscess.

bone over the attic, antrum and posterior wall of ear canal were eroded. Post operatively symptoms were improved. She was discharged soon and has been well till recent follow up approximately six months after discharge from hospital.

Discussion:

Common clinical features of CSOM with intracranial complications include foul-smelling ear discharge, headache, fever and neurological signs attributable to formation of abscess. However since most of the patients were treated with antibiotic prior to the development of intracranial complications, they do not present with typical symptoms and signs. Most of the patients will present with malodorous otorrhea (94.1%) and headache (64.7%).⁴ In our case, she presented with headache 4 days and vomiting and loss of consciousness about 2 days before she came to the hospital to seek treatment. However she had non-resolving otalgia despite medications that could be the positive sign of complication. Her ear discharge resolved after treated with antibiotic. CT scan has confirmed the presence of cerebellar abscess as a complication to her ear infection.

Several old literatures have reported that brain abscess more commonly located in the cerebrum, i.e temporal lobe than in the cerebellum. The recent one

for instance reported by Dubey and Larawin found that otogenic brain abscess located in the cerebellum.⁵ Spread of the middle ear infection to the cerebellum usually occurs through trautmanns triangle, retrograde venous thrombophlebitis, and the periarterial space of Virchow-Robbins.⁴ CT scan is very helpful in diagnosing intracranial complications of CSOM, with diagnostic rate of 92.75%, and brain abscess can be demonstrated by CT scan alone.⁶ Single lesion is more commonly encountered than multiple abscesses. Cholesteatoma is the usual cause of intracranial complications, and patients with CSOM and cholesteatoma usually strongly associated with brain abscess.⁴

Another important issue that need to be emphasizes is type of ear surgery that should be done for intracranial complications of CSOM. Preferrable, it should be determined by the type of ear disease rather than the type of neurologic complication, and it can range from myringotomy, tympanomastoidectomy, modified radical mastoidectomy with or without tympanoplasty and radical mastoidectomy.⁷ Myringotomy is performs in acute otitis media. We did modified radical mastoidectomy since imaging and intraoperative and imaging findings showed involvement of the mastoid and middle ear cavity with erosion of the ossicles and bone.

There are controversies regarding timing of neurosurgical and otological surgery. The necessity of immediate mastoidectomy (within 24 to 48 hours) with neurosurgical drainage of the abscess was emphasized by some authors to reduce mortality and enhance treatment effects of antibiotics.⁸ While some authors emphasized the need of urgent neurosurgical drainage because if the mental state becomes worse, the mortality of otogenic brain abscess will also increase. Another study suggested that there is no difference in therapeutic outcomes between immediate otological and neurosurgical surgery and delayed otological surgery after neurosurgery.⁹ Various treatment strategies has been advocated depend on the patient's condition and severity of the cases. In our cases, we delayed the otologic surgery to stabilize the patient after neurosurgical drainage of abscess. However the patient has recollection of intracranial abscess before we did mastoidectomy. We were not sure whether the recollection was due to delayed otologic surgery or incomplete drainage of the cerebellar abscess.

In CSOM complicated with intracranial

complications, it is accepted practise to treat the neurosurgical complications first, followed by otologic surgery later to stabilize the patient. However the advantages of neurosurgical surgery with concurrent mastoidectomy are the procedure can be completed in one setting, so can avoid reinfection while waiting for ear surgery, shorter hospital stay which is more economical for the patient.

Conclusion:

Cerebellar abscess has shown increase in incidence compared to temporal lobe abscess as a complication of CSOM. Treatment of CSOM with complications must be made based on patient's condition and severity of the cases, and discussed between otolaryngologist and neurosurgeon to offer better option to the patient.

References:

1. OsmaU, CureogluS, HosogluS. The complications of chronic otitis media: report of 93 cases. *J Laryngol Otol* 2000; **114**:97–100.
2. Palva T, Virtanen H, Makinen J. Acute and latent mastoiditis in children. *J Laryngol Otol* 1985; **99**:127-36.
3. Myers EN, Ballantine HT. The management of otogenic brain abscesses. *Laryngoscope* 1965; **75**: 273-88.
4. Jiaqiang S, Jingwu S. Intracranial Complications of Chronic Otitis Media. *Eur Arch Otorhinolaryngol* 2014; **271**: 2923–26.
5. Dubey SP, Larawin V. Complications of chronic suppurative otitis media and their management. *Laryngoscope* 2007; **117**: 264-7.
6. Migiroy L, Duvdevani S, Kronenberg J. Otogenic intracranial complications: a review of 28 cases. *Acta Otolaryngol* 2005; **125**:819–822.
7. Ricardo B, Rubens DB, Guilherme CR. Surgical management of intracranial complications of otogenic infection. *ENT-Ear, Nose & Throat Journal* 2006; **85**(1): 36-9.
8. Szyfter W, Kruk-Zagajewska A, Borucki L, Bartochowska A. Evolution in management of otogenic brain abscess. *Otol Neurotol* 2012; **33**:393-5.
9. Min KK, Jae HC, Seung HL, and Chul WP. A Case of Otogenic Brain Abscess Causing Loss of Consciousness. *Korean J Audiol* 2014; **18**(2): 76-9.