

POSTAURICULAR CUTANEOUS MASTOID FISTULA AS COMPLICATION OF UNSAFE TYPE OF CHRONIC SUPPURATIVE OTITIS MEDIA

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ABSTRACT Introduction: Postauricular cutaneous mastoid fistula (PCMF) is a very rare complication of chronic suppurative otitis media (CSOM). The fistula is typically challenging to manage due to necrotic skin edges. **Case Report:** This case report described a 53 years old female with PCMF as a complication of an unsafe type of CSOM and a history of diabetes mellitus who underwent a radical mastoidectomy procedure. After two days of post-operation, the patient was discharged from the hospital without any complication observed. The surgical scar was favourable in the fifth week after surgery. **Conclusion:** Radical mastoidectomy is an effective procedure to eradicate the disease as well as possible and also for the closure of PCMF.

KEYWORDS Postauricular cutaneous mastoid fistula, unsafe type of CSOM, radical mastoidectomy

Introduction

Postauricular cutaneous mastoid fistula (PCMF) is a very rare complication of chronic suppurative otitis media (CSOM). PCMF is connecting the mastoid cavity with postauricular skin and commonly unilateral. While a large number of simple mastoid fistulas tend to heal spontaneously with appropriate treatment of CSOM, PCMF tends to be difficult to heal because the skin growth around the fistula experiences necrosis or epithelization at the skin edges.[1-3]

Unsafe type of chronic suppurative otitis media (CSOM) is high morbidity and mortality due to its complications. Unsafe types of CSOM are most often found in developing countries. It is characterized by cholesteatoma, which is histologically benign but can cause destruction of the bone and cause various complications.[1,4] Mastoiditis and subperiosteal abscess are the most common extracranial complications. Excessive production and accumulation of keratinized debris in the middle ear and

mastoid cavity increases the pressure in the middle ear and mastoid, resulting in reduced blood supply to the middle ear and mastoid cavity, causing bone destruction. Chronic mastoiditis usually occurs because it is present of chronic cholesteatoma or spreading of infection to the mastoid through the chronic central perforation. Mastoiditis occurs due to the expansion of inflammation in the middle ear (otitis media) through the aditus ad antrum into the mastoid bone cells. In cholesteatoma, debris can inhibit the emptying of the infection to the external auditory canal (EAC) and cause erosion in the mastoid tip and, if not appropriately treated and neglected, can cause a fistula.[5]

Symptoms in patients with PCMF range from asymptomatic, hearing loss, otorrhea, mass in the retroauricular, and facial nerve paralysis. Primary closure of the fistula is often unsuccessful because the skin edges are necrotic.[3] We report a case of PCMF triggered by the underlying unsafe type of CSOM and a history of diabetes mellitus.

Case report

A 53-year-old female patient came to the ENT polyclinic with the chief complaint of discharge from the left ear since ten years ago. The discharge is mucoid. The patient also complained that there was a hole behind the left ear that appeared ten years ago. Patients also complained about hearing loss that began around two weeks ago and nasal obstruction. The patient said she did not experience tinnitus or vertigo. The patient has a

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history of diabetes mellitus since 4 years ago and has been taking medication such as metformin and glimepiride.

On physical examination, there was a white mass in the medial part of the left EAC and mucoid discharge. The tympanic membrane was not visualized. In the postauricular area of the left ear, multiple fistulae sized $\pm 1 \times 2$ cm, with a soft mastoid area and mucoid discharge. The nose examination found the right and left nasal cavity was narrow, and there was inferior turbinate hypertrophy.

There were no abnormalities in balance function and facial nerves examination. An audiogram revealed a mild conductive hearing loss in the right ear and moderated to severe conductive hearing loss in the left ear. Computerized tomography (CT) showed lesions on the EAC, tympanic cavity, and left mastoid air cells, which destroyed the left ossicle, mastoid septation, and left os petrosus. There was no visible expansion to the intracranial, and the abscess could not be excluded. There was bilateral chronic sinusitis of the sphenoid, maxillary, ethmoid, and frontalis sinuses (Figure 2).

The patient underwent a left radical mastoidectomy, bilateral Caldwell – Luc, bilateral etmo-sphenoidectomy and inferior bilateral turbinectomy with general anesthesia. Radical mastoidectomy revealed a multiple fistulas sized $\pm 1 \times 2$ cm in the left postauricular area, cholesteatoma in the mastoid cavity, tympanic cavity and left EAC. Also found a posterior wall of EAC is collapsed with no ossicles. From the bilateral Caldwell – Luc, bilateral etmo-sphenoidectomy and inferior bilateral turbinectomy revealed mucopurulent secretions filled the bilateral maxillary sinuses cavity, bilateral ethmoid sinuses and sphenoid sinuses and hypertrophy of the bilateral inferior turbinate.

After two days of post-operation, the patient was discharged from the hospital without any complication observed. Anatomical pathology examination of left EAC shows the morphological results are suitable for keratinized mass and could be part of cholesteatoma. In contrast, the anatomical pathology examination in the maxillary sinuses cavity showed that suitable for the respiratory epithelial adenomatoid hamartoma (REAH). Follow-up after the third week of post-operation, we found that the wound did not close completely, so that we performed injuries and re – suturing in that area. Two weeks follow – up after re – suturing, the wound healed well, and no recurrent fistula at 12 – month follow – up.

Discussion

A case of PCMF as a complication of left unsafe type of CSOM has been reported in a woman aged 53 – year – old. According to Siregar et al., the most age groups who experienced an unsafe type of CSOM were at the age of 11 – 20 years old, and it was more common in men than women (53,78%). Meanwhile, according to Restuti et al., a study at Cipto Mangunkusumo Hospital Jakarta found that 217 cases with an unsafe type of CSOM, and the most occurred in adulthood (157 cases or 72,35%). While according to research conducted by Santoso BS et al., 18 people (32,14%) had extracranial complications in the form of a postauricular fistula.[6 – 8]

The patient had a history of diabetes mellitus four years ago and has been taking medication, such as metformin and glimepiride. According to research conducted by Park Mina et al., diabetes mellitus is associated with an increased prevalence of CSOM. Many previous studies have shown that diabetes mellitus and cardiometabolic disease are associated with hearing



Figure 1: The multiple postauricular cutaneous mastoid fistula is shown.

loss, depending on the diabetic microangiopathy and macroangiopathy process.[9]

In this patient, there was a discharge complaint from the left ear and a hole behind the left ear that appeared ten years ago. The discharge is mucoid. The patient also complained about hearing loss that began around two weeks ago. According to Michael et al., the diagnosis of CSOM is made when the symptom of ear discharge (otorrhea) are found permanent or intermittent with duration ≥ 2 months.[2] According to Helmi et al., CSOM with cholesteatoma is often accompanied by a characteristic smell of otorrhea. The patient may also complain of hearing loss, ear pain, dizziness, and headaches.[10] According to Choo JC et al., PCMF is a rare complication of CSOM where generally occurs unilaterally and has various range of symptoms such as hearing loss, otorrhea, mass in the retroauricular, and fa-

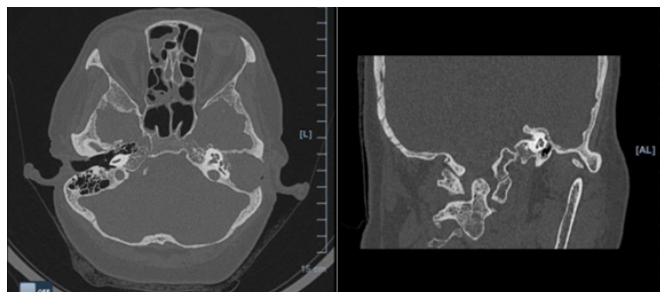


Figure 2: A preoperative axial and coronal CT scan.



Figure 3: Fifth weeks follow – up wound healed well.

cial nerve paralysis.[3] According to Arora Viresh, postauricular fistula can occur due to prolonged cholesteatoma or the spread of infection that extends to the mastoid through a chronic central perforation, resulting in chronic mastoiditis and causing erosion in the mastoid tip. [11]

In this patient, the right and the left nasal cavity was narrow, and there was inferior turbinate hypertrophy. From the CT – Scan obtained with pansinusitis and right and left inferior turbinate hypertrophy. According to Helmi et al., otitis media is multifactorial; one of the factors is Eustachian tube dysfunction. The infection focus usually originates from the nasopharynx, which reaches the middle ear through the Eustachian tube.[10] According to Dhanasekaran et al., infection in the nose and paranasal sinuses can affect the middle ear's condition. If sinusitis is left untreated, surgical management of CSOM often results in failure and poor prognosis. Therefore, it is important to determine that sinusitis is a focal infection of active CSOM and should be treated immediately. [12]

In this patient, a left radical mastoidectomy was performed because the lesion had already affected and destroyed the mastoid and the ossicular bone in this patient. According to Harmadji S., radical mastoidectomy is the best procedure possible to eradicate the disease, which removes all pathological tissue and leaves a dry operating cavity without connection to the nasopharynx.[14]

On the third week postoperative, the wound did not close completely, and re- suturing has been done. On the fifth week postoperative, the wound began to close completely and well maintained, with no patient's significant complaints. According to Choo JC et al., this condition is necrotic at skin edges and poor blood supply in the area, making postoperative wounds

difficult to close completely.[3]

Conclusion

We report a case of PCMF triggered by the underlying unsafe type of CSOM and a history of diabetes mellitus. Radical mastoidectomy is an effective procedure to eradicate the disease and for the closure of PCMF.

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Conflict of interest

There are no conflicts of interest to declare by any of the authors of this study.

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