



Postauricular Cutaneous Mastoid Fistula Surgically Closed by a Temporalis Muscle Rotational Flap: A Case Report

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Abstract

Background: Postauricular cutaneous mastoid fistula (PCMF) is quite rare. Possible triggers include a radical mastoidectomy, chronic suppurative otitis media (CSOM), or the spontaneous exteriorization of a mastoid cholesteatoma through the postauricular skin surface.

Case Report: This study reported a 62-year-old woman who presented with a right-sided discharging postauricular lesion for two years and a history of ear discharge over the past 20 years. Physical examination revealed a 10×8 mm fistula with a pearly white tissue at the opening and mucoid discharge. Otoscopy represented an attic cholesteatoma as the potential underlying cause, and computed tomography demonstrated a soft-tissue density in the middle ear extending into the mastoid cavity and towards the cutaneous postauricular area. The PCMF was surgically closed using a temporalis muscle rotational flap with no recurrence at the 6-month follow-up.

Conclusion: Overall, surgical closure with a temporalis muscle rotational flap appears to be an effective technique for treating PCMF.

Keywords: Case report, Cutaneous, Fistula, Mastoid, Rotational flap, Surgical closure

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Introduction

It is unusual to develop a postauricular cutaneous mastoid fistula (PCMF). Radical mastoidectomy, persistent suppurative otitis media, and spontaneous exteriorization of a mastoid cholesteatoma via the postauricular skin surface are all possible causes (1-5). In addition, if the skin borders of a postauricular incision are not properly taken care of, complications may arise, including necrosis, disintegration, and fistula formation (6). In most cases, the fistula is unilateral; however, it might affect both sides (1). The presence of the necrotic tissue at the fistula's edge makes spontaneous healing less likely, which might result in fistula recurrence. Additionally, antibiotic ointment dressings may be utilized for secondary wound healing, but this method is time-consuming and may result in some pain (4). As a result, a surgical closure is recommended for this condition. Several methods for closing the PCMF have been documented in the literature (2,4,7,8). Herein, we described a case of PCMF that was surgically closed using a temporalis muscle rotational flap.

Case Report

A 62-year-old woman presented with a right-sided discharging postauricular lesion for two years and a history of ear discharge over the past 20 years. Two or three previous drainings of a postauricular abscess were

found in her medical history. There was no evidence that she had ever been exposed to tuberculosis. Physical examination revealed a 10×8 mm fistula with a pearly white tissue at the opening and mucoid discharge, and the surrounding skin showed a scar from previous abscess drainage (Figure 1). An attic cholesteatoma with granulation tissue and the scarred tympanic membrane was found on otoscopy. The audiogram showed moderate mixed hearing loss with an air-bone gap of 50 dB in the range of low-to-mid frequencies. Computed tomography demonstrated a soft-tissue density in the middle ear cavity that extended into the mastoid cavity and towards the cutaneous postauricular area (Figure 2).

She underwent surgery for PCMF, during which the right mastoid was explored, and the cutaneous opening of the fistula and its track underwent *en bloc* excision. The mastoid antrum was filled with edematous mucosa, suggesting an underlying inflammatory process. Radical mastoidectomy was performed, along with the removal of cholesteatoma and meatoconchoplasty. Afterwards, a strip of temporalis muscle flap was rotated inferiorly to cover the mastoid cavity. Then, the postauricular skin wound was closed in two layers. Amoxicillin/clavulanic acid was prescribed for two weeks postoperatively. No recurrence was observed at the 6-month follow-up.

Discussion



Figure 1. A 10×8 mm Fistula With a Pearly White Tissue at the Opening and Mucoid Discharge and the Surrounding Skin Showing a Scar From Previous Abscess Drainage.

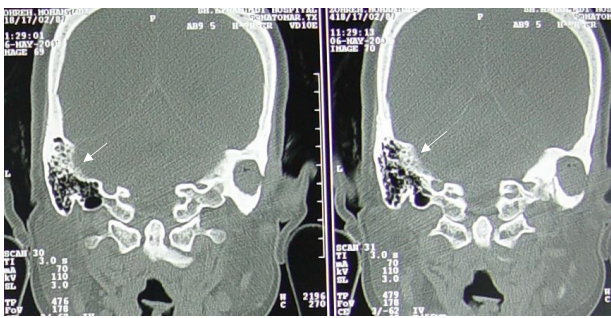


Figure 2. Computed Tomography Displaying a Soft-Tissue Density in the Right Middle Ear Cavity Extending into the Mastoid Cavity and Towards the Cutaneous Postauricular Area

Mastoid fistulas can develop secondary to a mastoid abscess or otitis media. Chronic suppurative otitis media (CSOM), including tuberculosis otitis media, was the underlying etiology in these instances (9). Some previous studies reported the CSOM of the squamous variant (5, 10-12) and non-specific CSOM (2, 13). Recently, the co-occurrence of squamous cell carcinoma of the middle ear and PCMF was reported by Acharya et al (14). PCMF can also develop secondary to a burst mastoid abscess, a cholesteatoma, or post-mastoidectomy (5, 8). Vira et al identified four patients treated for PCMFs, all occurring post-mastoidectomy. A similar surgical technique was applied for these patients, including a double-layer closure of the fistula tract, using two rotational flaps of the temporalis muscle and conchal cartilage (8).

The index case had never been exposed to tuberculosis. Three cases of middle ear cleft tuberculosis have been reported by Sachdeva et al (9), indicating that tuberculosis can lead to PCMF. However, aside from conductive hearing loss in one and sensorineural hearing loss in the other two, they also suffered from facial nerve palsy. They were treated with modified radical mastoidectomy.

An attic cholesteatoma was found upon the otoscopy of the index case as the underlying cause. Moreover, computed tomography revealed a soft-tissue density in the

middle ear extending into the mastoid cavity and towards the cutaneous postauricular area. There are two potential mechanisms of erosion by cholesteatomas, including the expansion of the keratin mass and osteoclast-mediated enzyme activity (15).

Otology surgeons may find it difficult to successfully close a PCMF. In these cases, immediate closure of the wound might be problematic due to the size of the fistula and the severity of skin necrosis. Skin necrosis and postoperative recurring fistula are two complications that may result from the skin tension brought on by skin loss (6). Pendolino et al could treat a patient with PCMF and previous tympanoplasty for recurrent cholesteatoma with a bilobed flap. The fibromuscular periosteal flap and a bilobed flap were used to cover the mastoid cavity and to repair the skin defect, respectively (4). Furthermore, Olusesi et al employed a postauricular advancement fascio-cutaneo-periosteal flap for the closure of two mastoid cutaneous fistulas and found no recurrence after approximately two years (7). The index case underwent surgical closure using a temporalis muscle rotational flap, which was a simple and effective technique as the patient exhibited no evidence of recurrence at the 6-month follow-up.

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Competing Interests

The authors declare that they have no competing interests.

Ethical Approval

The study received approval from the Ethics Committee of Hormozgan University of Medical Sciences (IR.HUMS.REC.1401.235).

Consent for Publication

Written informed consent was obtained from the patient for the publication of this case report.

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