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Management of Post-Mastoidectomy *Retroauricular* Wound Dehiscence Using Advancement Flap: Case Report

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Abstract

Mastoidectomy with tympanoplasty commonly requires a postauricular incision and may be complicated by retroauricular wound dehiscence, particularly in the presence of infection, tissue tension, or impaired local perfusion. Persistent wound dehiscence can delay healing, compromise cosmetic outcomes, and necessitate secondary reconstructive procedures. Local advancement flaps and skin grafting are among the reconstructive options described. The purpose to report the clinical outcome of post-mastoidectomy retroauricular wound dehiscence managed using an advancement flap and review supporting evidence for this technique. Case report: A 52-year-old man with chronic suppurative otitis media with cholesteatoma underwent canal wall up mastoidectomy with tympanoplasty. During postoperative follow-up, retroauricular wound dehiscence complicated by local infection was identified. Surgical reconstruction was performed using a retroauricular advancement flap under general anesthesia. Postoperative follow-up demonstrated satisfactory wound closure, progressive epithelialization, and acceptable cosmetic outcomes, with no recurrence or major complications. Clinical question: Does advancement flap reconstruction offer better outcomes compared to skin grafting in post-mastoidectomy retroauricular wound dehiscence? Method: A literature search was conducted in PubMed, ScienceDirect, and Google Scholar to identify relevant studies on the management of post-mastoidectomy retroauricular wound dehiscence using advancement flaps or skin grafts. Seven relevant articles were identified. Case reports and small case series demonstrated high primary wound closure rates and low recurrence following advancement flap reconstruction. Skin grafting facilitated epithelialization in selected cases but showed variable outcomes in compromised wound beds. Advancement flap reconstruction is an effective and reliable option for managing retroauricular wound dehiscence following mastoidectomy, particularly in chronic or infected wounds.

INTRODUCTION

Mastoidectomy with tympanoplasty is a commonly performed otologic procedure for chronic middle ear diseases such as cholesteatoma and chronic otitis media. The procedure typically involves a postauricular incision with exposure of *retroauricular* soft tissue. Although generally safe, postoperative wound complications may occur, including *retroauricular* wound dehiscence or persistent cutaneous–mastoid fistula. These complications can delay primary wound healing, impair cosmetic outcomes, increase local morbidity, and necessitate additional reconstructive interventions (Seth et al., 2024). Factors associated with wound dehiscence include surgical technique, local tissue perfusion, infection, mastoid cavity pressure, and patient-related comorbidities (Kennedy & Lin, 2025).

Reconstruction of *retroauricular* wound dehiscence following mastoidectomy can be achieved using several techniques, most commonly local flaps or skin grafting. Local flaps provide well-vascularized tissue, offering improved resistance to infection and tissue necrosis, as well as favorable aesthetic outcomes due to optimal skin color and texture match. Various *retroauricular* flap techniques, including advancement, island, and fasciocutaneous-periosteal flaps, have been reported to achieve reliable wound closure and low recurrence rates in small case series (Zhang et al., 2016; Papa et al., 2020; Curzio et al., 2023).

Skin grafting, including split-thickness and full-thickness skin grafts, represents an alternative reconstructive option, particularly when local flap coverage is not feasible. Split-thickness skin grafts may cover larger defects and survive on less vascularized surfaces but are associated with variable aesthetic outcomes and risks of contracture or graft loss, especially in contoured postauricular regions. Full-thickness skin grafts generally provide better cosmetic results but require an optimal recipient bed to ensure graft survival. The effectiveness of skin grafting in compromised or infected wound beds remains variable (Ramsey et al., 2025; Prohaska & Cook, 2025).

Direct comparative evidence between advancement flaps and skin grafting for post-mastoidectomy *retroauricular* wound dehiscence is limited. Available non-randomized studies suggest that local flaps may offer more reliable primary wound healing, satisfactory cosmetic outcomes, and lower complication rates, while skin grafts remain useful in selected cases. Given the paucity of robust comparative data, this case report aims to describe the clinical outcome of *retroauricular* wound dehiscence managed with an advancement flap following mastoidectomy and tympanoplasty, supported by a focused review of the existing literature (Zhang et al., 2016; Papa et al., 2020; Curzio et al., 2023; Ramsey et al., 2025).

The objectives of this study are to report the clinical outcome of post-mastoidectomy *retroauricular* wound dehiscence managed using an advancement flap, and to compare the effectiveness of advancement flap reconstruction versus skin grafting based on available evidence. The benefits of this research are twofold. Theoretically, this study contributes to the limited literature on reconstructive options for post-mastoidectomy wound complications, particularly in chronic or infected wound beds. Practically, the findings provide evidence-based guidance for otologic surgeons in selecting the most appropriate reconstructive technique prioritizing advancement flaps in compromised wounds while recognizing skin grafting as a viable alternative in selected cases thereby improving wound healing outcomes, reducing recurrence rates, and enhancing patient satisfaction with cosmetic results.

Case Report

A 52-year-old man presented with right ear pain of one-week duration, which initially was intermittent and became continuous two days before admission. He also reported intermittent right ear discharge for approximately 30 years, which had become continuous over the preceding month. The discharge was yellowish, thick, and foul-smelling. Additional symptoms included right-sided facial weakness, decreased hearing, and intermittent fever for one week. He denied tinnitus, vertigo, headache, nausea, vomiting, or a history of ear trauma. The patient had previously received treatment at a private hospital and was referred for further management.

His medical history was notable for controlled hypertension treated with amlodipine 5 mg daily. There was no history of diabetes mellitus, asthma, allergy, previous surgery, or significant family illness.

On physical examination, the patient was alert and hemodynamically stable. Otoscopic examination of the right ear revealed a narrowed external auditory canal with hyperemia, mucopurulent discharge mixed with blood, and granulation tissue; visualization of the tympanic membrane was limited. The left ear examination was unremarkable. Facial nerve examination demonstrated right peripheral facial nerve paresis consistent with House–Brackmann grade V. No abnormalities were found on nasal, oropharyngeal, or cervical examination. Otoendoscopic examination of the right ear revealed a perforated tympanic membrane with pathological findings, while the left ear appeared normal (Figure 1).

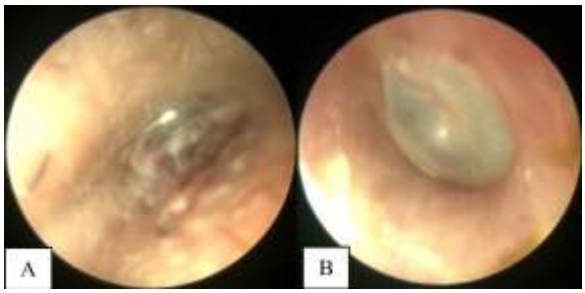

Figure 1. Otoendoscopy. (A) right ear shows perforated and dry MT, (B) left ear normal
Source: Primary patient documentation, 2026

Audiological evaluation revealed mixed hearing loss in the right ear and mild conductive hearing loss in the left ear, as demonstrated by pure tone audiometry showing severe mixed hearing loss in the right ear and mild conductive hearing loss in the left ear (Figure 2). Temporal bone MSCT demonstrated soft tissue opacification of the tympanic cavity and mastoid antrum, consistent with chronic otitis media with cholesteatoma. The facial nerve canal appeared intact (Figure 3).

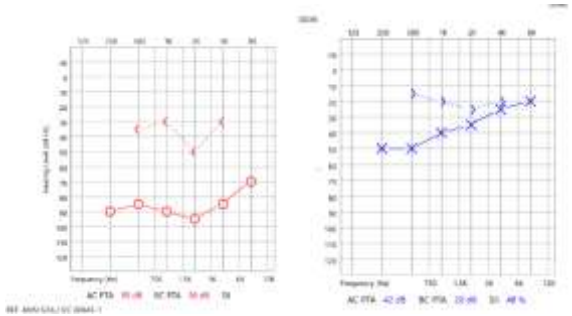

Figure 2. Pure tone audiometry. AD: Lateralization to the right, non-masking: 88.75 dB (severe MHL), Masking: 88.75 dB (mild CHL). AS: Non-masking: 37.5 dB (mild CHL) Masking: 37.5 dB (mild CHL)
Source: Patient audiogram record, 2026

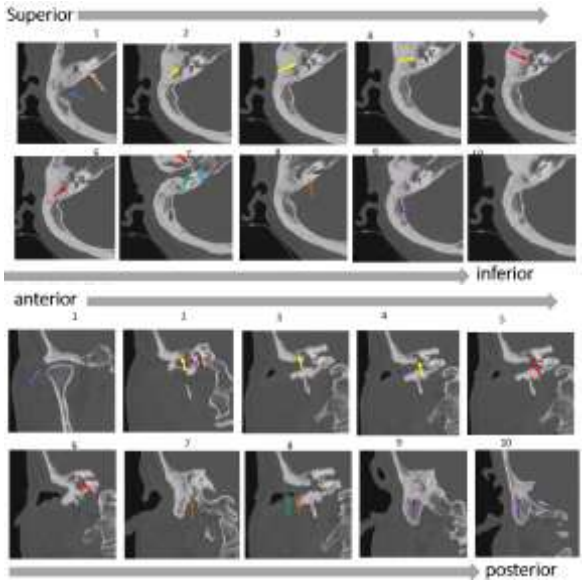

Figure 3. MSCT mastoid without contrast.
Source: Patient radiology record, 2026

Axial and coronal MSCT images of the temporal bone demonstrating key anatomical structures and pathological findings. Blue arrows indicate the sigmoid sinus (axial) and temporomandibular joint (coronal). Yellow arrows mark the middle ear ossicles (malleus, incus, and stapes). Red arrows demonstrate soft-tissue opacification in the tympanic cavity and mastoid antrum. Green arrows indicate the tympanic membrane or external auditory canal, which are poorly visualized. Orange arrows show the facial nerve and lateral semicircular canal. Purple arrows denote mastoid air cells with diploic or sclerotic pneumatization. Brown arrow identifies the cochlea, and light purple arrow marks the internal carotid artery.

The patient underwent canal wall up mastoidectomy with type II tympanoplasty and canaloplasty. During postoperative follow-up on day 18, *retroauricular* wound dehiscence with signs of local infection was identified during outpatient control (Figure 4). Surgical management consisted of debridement followed by reconstruction using a *retroauricular* advancement flap under general anesthesia (Figure 5). Postoperative follow-up showed satisfactory wound closure, progressive epithelialization, and acceptable cosmetic results without recurrence or major complications up to day 27 (Figure 6).

Figure 4. Wound dehiscence during outpatient control (post operative day 18)
Source: Primary patient documentation, 2026

Figure 5. Durante advancement flap + correcting with GA
Source: Intraoperative documentation, 2026

Figure 6. (A) Post-operative day 1, (B) Post-operative day 27
Source: Primary patient documentation, 2026

Clinical Question

In patients with *retroauricular* wound dehiscence following mastoidectomy with tympanoplasty, does reconstruction using an advancement flap result in better wound healing outcomes compared to skin grafting, in terms of primary wound healing rate, time to epithelialization, cosmetic outcomes, prognosis, and complication rates?

P: Patients with post-mastoidectomy tympanoplasty wound dehiscence

I : Adavancement flap

C : Skin grafting

O : Primary wound healing rate, epithelialization, cosmetic aesthetics, prognosis, and complications

METHOD

A literature search was conducted using PubMed, Science Direct, Google Scholar, and other manual searches. The keywords used were ("Wound Dehiscence") AND ("Post Mastoidectomy") AND ("Advancement Flap") AND ("Skin Graft") AND ("Effectivity"). Eligible studies consisted of systematic reviews, case reports, or case series involving patients

with *retroauricular* wound dehiscence following mastoidectomy. Articles addressing reconstructive outcomes using advancement flaps or skin grafting were included.

RESULTS AND DISCUSSION

The literature search identified eleven relevant articles that met the inclusion criteria. The selected studies consisted primarily of case reports and small case series evaluating the use of advancement flaps or skin grafting for the management of *retroauricular* wound dehiscence following mastoidectomy.

Table 1. Literature research results

Author, Year	Technique	Study Design	No. of Cases	Primary Closure	Healing / Epithelialization	Recurrence / Complications
Tsuladze & Nakhutsrishvili (2025)(Tsuladze & Nakhutsrishvili, 2025)	Advancement flap	Case report	1	Yes (100%)	Wound closed by 1 month	No recurrence; no complications
Khatri (2021)(Khatri, 2021)	Advancement flap	Case report	1	Yes	Accelerated epithelialization (qualitative)	No recurrence at 6–12 months
Tsitsiou et al. (2020)(Tsitsiou et al., 2020)	Advancement flap	Case report	1	Yes	Not reported	No recurrence at 12 months
Saki et al. (2015)(Saki et al., 2015)	Advancement flap	Case report	1	Yes	Complete healing (time not specified)	No recurrence at 6 months
Olusesi & Opaluwah (2014)(Olusesi & Opaluwah, 2014)	Advancement flap	Case series	2	Yes (2/2)	One delayed healing (4 weeks)	No recurrence at 18–24 months
Hochwalt et al. (2015)(Hochwalt et al., 2015)	FTSG	Retrospective study	18	Yes (majority)	Mean healing time 2–3 weeks	>50% graft necrosis in 2 cases
Wetmore et al. (2014)(Wetmore et al., 2014)	STSG	RCT	13	Yes (92% by week 3)	Faster epithelialization vs control	Otorrhea, granulation, stenosis

Source: Author's synthesis from literature search, 2026

Mastoidectomy with tympanoplasty remains a cornerstone in the management of chronic middle ear disease, particularly in cases complicated by cholesteatoma. Although generally safe, these procedures may be complicated by postoperative skin and soft tissue problems, including *retroauricular* wound dehiscence. Such complications, while often considered minor, can significantly delay healing, increase morbidity, compromise cosmetic outcomes, and require additional surgical intervention. Reported risk factors include local infection, wound tension, impaired vascularity, hematoma formation, and systemic comorbidities that interfere with normal wound healing (Gulsen & Baltacı, 2021; Shinnawi et al., 2022).

Wound dehiscence typically occurs during the early inflammatory or proliferative phase of healing and may progress to a postauricular cutaneous–mastoid fistula if persistent communication with the mastoid cavity develops (Khatri, 2021; Primadina et al., 2019). Preventive strategies include adequate infection control, meticulous hemostasis, tension-free layered closure, and optimization of patient-related risk factors. When dehiscence occurs, management depends on wound size, tissue viability, and the presence of infection or exposed bone. Small defects may heal with conservative measures, whereas larger, chronic, or infected wounds often require surgical reconstruction (Moras et al., 2014; Cerci, 2016).

Reconstructive options for post-mastoidectomy *retroauricular* wound dehiscence include skin grafting and local flap techniques. Skin grafting can facilitate epithelialization in selected cases with a well-vascularized wound bed; however, graft survival is highly dependent on local conditions, and outcomes may be compromised in infected or poorly perfused tissue. Reported complications include partial or total graft loss, contracture, granulation tissue formation, and variable cosmetic results. Consequently, grafting is generally reserved for superficial or well-prepared defects.

Advancement flap reconstruction utilizes well-vascularized local tissue and has been widely reported as an effective method for closing chronic *retroauricular* defects and cutaneous–mastoid fistulas. Case reports and small case series consistently demonstrate high rates of primary wound closure, satisfactory cosmetic outcomes, and low recurrence rates (Tsitsiou et al., 2020; Saki et al., 2015; Pendolino et al., 2019; Restuti et al., 2021). By providing immediate blood supply, advancement flaps reduce dependence on secondary epithelialization and are more reliable in compromised wound environments, such as those associated with chronic infection or scarring. In the present case, advancement flap reconstruction resulted in stable wound closure, progressive epithelialization, and acceptable cosmetic outcomes without recurrence (Tsuladze & Nakhutsrishvili, 2025; Khatri, 2021).

However, the available evidence is limited by non-comparative study designs, small sample sizes, and heterogeneous outcome reporting. Most published data are derived from case reports or small series, and standardized metrics for healing time, cosmetic assessment, and long-term outcomes are lacking. Well-designed comparative studies are needed to better define optimal reconstructive strategies for post-mastoidectomy wound complications.

Advancement flap reconstruction represents an effective and reliable option for the management of *retroauricular* wound dehiscence following mastoidectomy with tympanoplasty. The use of well-vascularized local tissue supports stable wound healing, satisfactory cosmetic outcomes, and low recurrence rates, particularly in chronic or infected wounds. Based on current evidence and the present case, advancement flaps may be considered a preferred reconstructive option, while skin grafting remains suitable for selected cases with favorable wound bed conditions.

CONCLUSION

This study demonstrates that advancement flap reconstruction is an effective and reliable technique for managing *retroauricular* wound dehiscence following mastoidectomy with tympanoplasty. The presented case showed successful primary wound closure, progressive epithelialization, satisfactory cosmetic outcomes, and no recurrence or major complications. Supporting evidence from the literature also indicates that advancement flaps provide well-

vascularized tissue, which enhances healing and reduces the risk of infection, particularly in chronic or compromised wound conditions. Compared to skin grafting, which shows variable outcomes depending on the wound bed, advancement flaps offer more consistent results in terms of healing and aesthetics. Therefore, advancement flap reconstruction can be considered a preferred treatment option, while skin grafting remains suitable for selected cases with favorable conditions. Future studies with larger sample sizes and comparative designs are needed to further validate these findings and establish standardized treatment guidelines.

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