DOI: 10.7860/JCDR/2026/84611.22580

Case Report

Ear, Nose and Throat Section

Preauricular Epidermoid Cyst and it's Surgical Management: A Rare Case Report

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ABSTRACT

Preauricular epidermoid (keratinous) cysts are uncommon benign lesions that clinically resemble inflammatory or infectious conditions, such as abscesses, salivary gland pathology, or congenital sinuses, often resulting in misdiagnosis and delayed treatment. Early recognition is critical to prevent complications and unnecessary interventions. Hereby, the authors present a rare case of a 23-year-old male who developed a progressively enlarging swelling in the preauricular region, which acutely became painful, erythematous, and tender, with a central punctum discharging keratinous material. Although the clinical features initially suggested an abscess, the superficial location, absence of a sinus tract, and characteristic cyst contents raised suspicion of an infected epidermoid cyst. The patient was treated with antibiotics to control infection, followed by complete surgical excision under local anaesthesia. Intraoperative findings revealed a cystic mass containing laminated keratin debris, and histopathological examination confirmed the diagnosis of an epidermoid cyst lined by stratified squamous epithelium. The postoperative course was uneventful, with no recurrence at 12-month follow-up. Reporting present case is important due to the rarity of preauricular localisation and its clinical mimicry of other pathologies, particularly parotid abscesses and branchial cleft anomalies, which can lead to inappropriate management. The present case highlights the significance of considering epidermoid cysts in the differential diagnosis of preauricular swellings and reinforces that infection control followed by complete excision of the intact cyst capsule is crucial for optimal outcomes. Awareness of this entity may guide clinicians toward timely diagnosis, prevent recurrence, and avoid unnecessary imaging or invasive procedures.

Keywords: Central punctum, Parotid tumour, Preauricular swelling

CASE REPORT

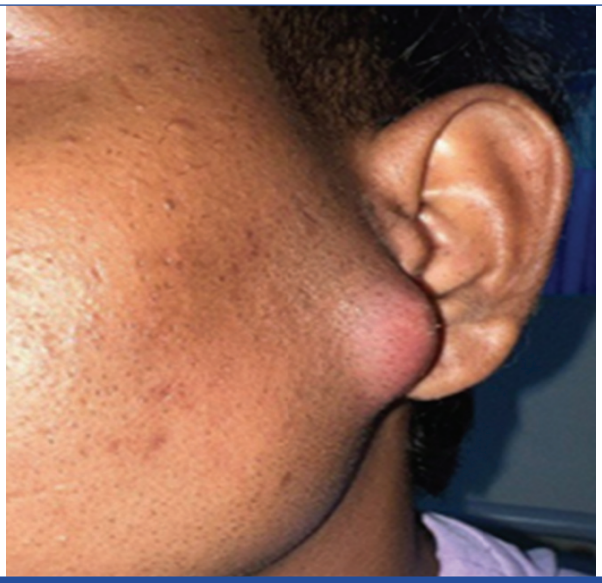
A 23-year-old male, working in Information Technology (IT), presented with an 8-month history of swelling in the left preauricular region. The swelling was initially painless but gradually enlarged over time. Two weeks prior to presentation, it became acutely tender, warm, and erythematous. The patient reported mild, intermittent pain, described as dull aching, localised to the lesion site, and rated 3/10 on the Visual Analogue Scale (VAS). The pain worsened during mastication but did not radiate.

The patient had no history of diabetes mellitus, hypertension, tuberculosis, or immunosuppressive conditions. There was no prior history of similar swellings, chronic skin infections, trauma, or surgical interventions in the preauricular or adjacent facial region. He denied any allergic reactions, long-term medication use, or systemic illnesses. Vaccination status was up to date, and there was no family history of congenital preauricular sinus, cystic lesions, or cutaneous disorders.

On examination, a 3×2 cm soft, fluctuant mass was palpable anterior to the left tragus [Table/Fig-1]. The overlying skin was erythematous, with a central punctum showing scant purulent discharge ("pus point"), but no frank sinus tract was present. Facial nerve function was intact. Otoscopic examination was normal, and no cervical lymphadenopathy was noted. The remainder of the head, neck, and oral examination was unremarkable.

A provisional diagnosis of an infected preauricular epidermoid (keratinous) cyst was made based on the presence of a fluctuant swelling with a central punctum and keratinous discharge. Differential diagnoses considered included sebaceous cyst, dermoid cyst, lipoma, and reactive lymphadenopathy, based on the anatomical location, consistency, and clinical presentation of the swelling.

Laboratory tests showed mild leukocytosis. Imaging, such as ultrasound or Computed Tomography (CT), could have been performed to delineate the relationship with the parotid gland and facial nerve; however, it was deferred due to the superficial location, absence of deep involvement, and resource considerations. A clinical diagnosis of an infected preauricular epidermoid cyst was made. Initial management included a course of broad-spectrum oral antibiotics (covering skin flora) and warm compresses to reduce inflammation. After two weeks, the pain and erythema subsided, but the mass persisted. Definitive surgical excision was scheduled once the acute phase resolved.

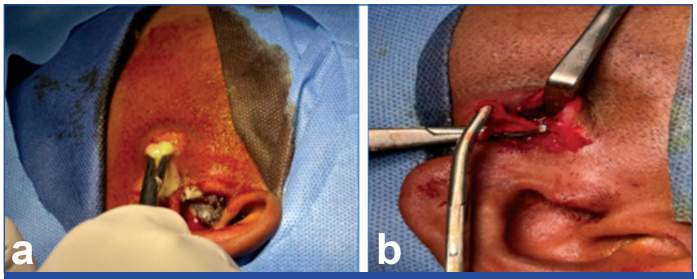


[Table/Fig-1]: A well-defined swelling in the left preauricular region.

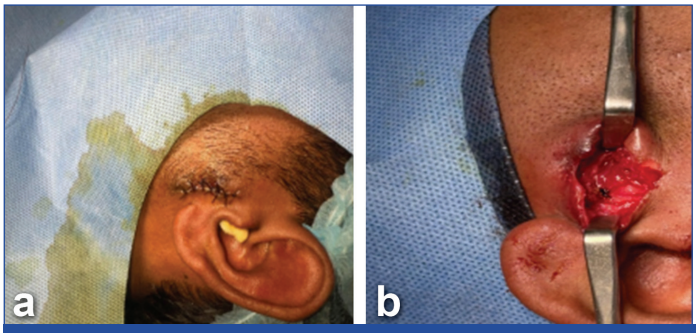
MANAGEMENT

Under local anaesthesia, an elliptical incision was made around the cyst [Table/Fig-2a,b]. Meticulous dissection preserved the capsule,

which was densely adherent to the surrounding tissue. Dissection was carried out carefully in the preauricular plane, away from the main branches of the facial nerve, to avoid injury [Table/Fig-3a,b].



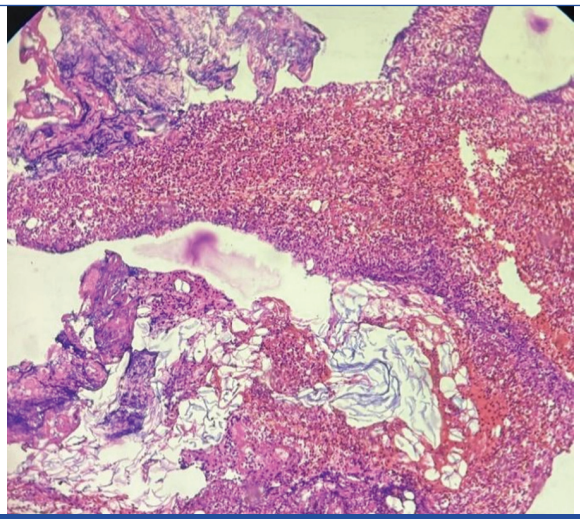
[Table/Fig-2a,b]: Intraoperative view of preauricular cyst excision.



[Table/Fig-3a,b]: (a) Post excision of the sac, healthy tissue visualised. (b) Wound closed with secondary suturing.

Grossly, the specimen was a smooth cyst filled with yellow, cheesy material characteristic of keratin. Culture of the cyst contents grew *Staphylococcus aureus*, which was sensitive to the administered antibiotic. Histopathology {Haematoxylin and Eosin (H&E)} confirmed an epidermoid cyst—a cystic space lined by stratified squamous epithelium with a granular layer and filled with laminated keratin debris [Table/Fig-4]. There was no evidence of malignancy.

Postoperatively, the patient's discomfort resolved. Follow-up was conducted at regular intervals to assess wound healing and monitor for recurrence. Sutures were removed on the seventh postoperative day, with satisfactory healing observed. At subsequent follow-up visits, the surgical site showed no signs of infection or discharge. At the 12-month follow-up, the patient remained asymptomatic, with a well-healed scar and no evidence of recurrence, confirming the effectiveness of complete cyst excision.



[Table/Fig-4]: Histopathology showing cystic space lined by stratified squamous epithelium with a granular layer (H&E, 10×).

DISCUSSION

Epidermoid (keratinous) cysts are benign subepidermal nodules filled with keratinous debris [1]. They most often arise in hair-bearing skin of the face, neck, scalp, and trunk. Although epidermoid cysts are commonly reported as benign skin lesions, their occurrence in the preauricular area is rare. These cysts are also referred to as "epidermal inclusion," "infundibular," or (misleadingly) "sebaceous" cysts [2]. Histologically, they are lined by stratified squamous epithelium and contain laminated keratin. Although common elsewhere, occurrence in the preauricular area is rare [3].

Epidermoid cysts may arise congenitally from ectodermal rests or be acquired after trauma or surgery. Their pathogenesis involves either congenital ectodermal remnants or implantation of epithelium following trauma [4], including surgery. In the present case, there was no prior surgery or trauma, suggesting a spontaneous or congenital origin.

An infected cyst can present with warmth, erythema, tenderness, and an overlying punctum discharging keratinous or purulent material. In the head and neck, common sites include the cheek, neck, and preauricular soft tissues. In the ear region specifically, cysts of the external auditory canal have been documented [4,5].

Clinically, these cysts are typically painless, slow-growing nodules covered by normal skin [6]. However, when infection or rupture occurs, the cysts may resemble abscesses, presenting with sudden swelling, pain, redness, and discharge of foul-smelling keratinous material [7]. Other differential diagnoses for preauricular swelling include first branchial cleft cyst, parotid tumour, dermoid cyst, lipoma, lymphadenitis, and preauricular sinus abscess. The diagnosis can be narrowed through careful clinical examination and supported by imaging when necessary. Notably, the cyst fluid often emits a "cheesy" or "foot-like" odour when the cyst is incised [8].

In present case, the acute presentation with pain and pus required differentiation from other preauricular lesions, such as a preauricular sinus abscess or parotid abscess. Preauricular sinuses are congenital pits that can form abscesses, but they usually have a visible opening or tract, which was absent in the present patient [9]. Additionally, parotid infections or lymphadenopathy can present similarly; however, those often involve deeper tissues, whereas in present case, the mass was superficial and the parotid gland was normal.

The literature on preauricular epidermoid cysts is sparse, with most published cases reported individually. For example, Altındal AS and Ünal N described a 33-year-old patient with a 3×2.5 cm preauricular epidermoid cyst mimicking a parotid tumour [10]. That case, like the present study, was treated by complete excision with facial nerve preservation. Large "giant" cysts (>5 cm) have also been described on the auricle and extending from the mastoid to the preauricular region after middle ear surgery. The key treatment in all cases is surgical removal of the entire cyst capsule to prevent recurrence. If infection is present, initial antibiotics (and, if necessary, drainage) can reduce inflammation prior to definitive excision [11]. The approach in the present case antibiotic therapy followed by staged excision is consistent with recommended management of infected epidermoid cysts.

Histopathology is considered confirmatory, as epidermoid cysts are characterised by a keratin-filled lumen lined with stratified squamous epithelium and an intact granular layer. This distinguishes them from dermoid cysts, which also contain adnexal structures (hair follicles, sebaceous glands) in their walls [12]. In the present malignant transformation in epidermoid cysts is extremely rare but has been reported; thus, any atypical rapid growth or signs of invasion warrant careful histological examination. Squamous cell carcinoma arising from epidermoid cysts has been reported in fewer than 1% of cases, usually in long-standing untreated lesions. In the present study, despite infection, no atypia was observed. Although rare, histopathology remains mandatory to exclude this possibility [13].

The postoperative prognosis is excellent when complete excision is achieved. Recurrence occurs if fragments of the cyst wall are left behind, with incomplete removal recognised as the most common cause. At follow-up, no residual or recurrent lesion was detected in

the patient. Preauricular cysts differ from congenital sinuses in that cysts have no opening to the skin, whereas sinuses do. Infected cysts often mimic abscesses or salivary masses; definitive diagnosis is made during excision and confirmed by histopathology [8]. Because complete removal is required to avoid recurrence, recognition of this entity is important in otologic practice. Preauricular epidermoid cysts are considered extremely rare, with only isolated case reports documented in the literature [14]. The present case is reported to highlight the diagnostic challenges and the importance of complete excision to prevent recurrence.

CONCLUSION(S)

Preauricular epidermoid cysts, though uncommon, should be considered in patients with persistent preauricular swellings, particularly when a central punctum or cheesy discharge is present. Management requires infection control followed by complete excision of the cyst capsule to prevent recurrence, while histopathology confirms the diagnosis and excludes rare malignancy. Long-term follow-up in present case demonstrated complete resolution with no recurrence, reinforcing the effectiveness of early surgical intervention. Early recognition and meticulous surgical management ensure excellent outcomes and help distinguish these cysts from more serious conditions, such as parotid tumours.

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PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Sep 29, 2025
- Manual Googling: Nov 03, 2025
- iThenticate Software: Nov 05, 2025 (9%)

ETYMOLOGY: Author Origin

EMENDATIONS: 6

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

Date of Submission: **Sep 27, 2025**
Date of Peer Review: **Oct 23, 2025**
Date of Acceptance: **Nov 07, 2025**
Date of Publishing: **Mar 01, 2026**