

Successful Treatment of Auricular Pseudocyst Using a Surgical Bolster: A Case Report and Review of the Literature

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Auricular pseudocysts are a benign condition characterized by the asymptomatic, usually unilateral swelling of the helix or antihelix. The condition is often difficult to treat because recurrences and subsequent auricular deformities are common. We successfully treated a patient with an auricular pseudocyst of the left ear using needle aspiration followed by application of a surgical bolster. In this article, we discuss the features of auricular pseudocysts and propose a simple, first-line approach to the management of this disease.

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Case Report

A 45-year-old white man presented to our dermatology clinic with swelling of his left ear pinna. The patient reported that he awoke 3 days prior to find his left ear swollen. He denied any recent trauma including sleeping on his left side, wearing a helmet, or using earphones. The patient was entirely asymptomatic, with no report of pain or irritation of the affected ear. The swelling had been getting progressively worse. The patient was otherwise healthy and not on any medications. He had never had this problem before, and family history was noncontributory. A review of systems revealed no history of fever, chills, pain, or arthritis.

Results of a physical examination revealed a cystic, soft, fluctuant swelling of the left ear pinna with mild erythema (Figure 1A). The area measured approximately 3×2 cm, and no tenderness, warmth, or drainage was noted. The rest of the physical examination results were within reference range.

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Figure 1. An asymptomatic fluctuant swelling of the left ear pinna before (A) and after (B) drainage using a punch biopsy.

A 22-gauge needle aspiration of the swelling yielded approximately 6 mL of serosanguineous fluid. A pressure bandage was applied to the affected area. The fluid was sent for a culture, the result of which was negative for microorganisms. After 3 days, the patient returned with recurrence of the swelling. At that time, a 4-mm punch biopsy was performed on the inferior edge of the swelling, and the fluid was expressed. The punch biopsy area was left open to allow for drainage (Figure 1B). A pressure dressing in the form of gauze and a headband was again applied for one week. The biopsy result revealed prominent dermal edema and mucinous stromal change. At the 1-week follow-up visit, the swelling had again recurred. The fluid was aspirated again with a 22-gauge needle, and a surgical bolster was applied to the drained area (Figure 2). The bolster was left in place for one week. At the 4-month follow-up visit, the patient had a normal-appearing auricle and no evidence of recurrence.

Comment

Auricular pseudocysts are uncommon, noninflammatory, fluctuant swellings of the ear. The condition has been historically termed *pseudoauricular seroma*, *enchondral pseudocyst*, *intracartilaginous cyst*, and *cystic chondromalacia*.¹ It usually presents as an asymptomatic swelling of the external ear caused by an intracartilaginous accumulation of fluid. The diameter of the cystic swelling ranges from 1 to 5 cm.² Typically, the swelling develops over 4 to 12 weeks.³ Drainage of the cyst yields a sterile, viscous, glycosaminoglycan-rich fluid.⁴ Although pseudocysts can occur anywhere on the auricle, the most common locations are within the scaphoid or triangular fossa.⁵



Figure 2. Surgical bolster that was left in place for one week.

According to one study, auricular pseudocysts predominantly affect young men (93%) and is mostly unilateral (87%).⁶ Men of Chinese and European ancestry have been reported most often. Bilateral cases, cases involving children, and a history of antecedent trauma are rare.¹ Histologically, there is an intracartilaginous cavity lacking an epithelial lining because of cartilaginous degeneration. Fibrous tissue replacement of the cartilaginous tissue also is noted. Some cases show mucinous material that is continuous with the cartilage. The diagnosis of auricular pseudocyst is usually based on a combination of clinical history and physical examination, aspiration of cystic fluid, and/or histologic examination of a biopsy specimen. The differential diagnosis includes subperichondrial hematoma, relapsing polychondritis, chondrodermatitis nodularis helices, epidermal inclusion cyst, dermoid cyst, and cellulitis.⁷

Various hypotheses have been suggested for the etiology of this cystic swelling, but the exact cause remains unclear. In 1966, Engel⁸ proposed that lysosomal enzymes were released from chondrocytes, leading to damage of auricular cartilage and subsequent fluid accumulation. However, analysis of pseudoauricular fluid by Harder and Zachary⁹ revealed fluid rich in albumin, proteoglycans, and cytokines, but no lysosomal enzymes. Another theory proposed that a defect in auricular embryogenesis results in this condition. The developmental defect produces residual tissue planes within the auricular cartilage and subsequent minor trauma leads to shearing of the tissue planes and their filling with fluid.¹⁰ Most reports, however, suggest that auricular pseudocysts are likely the result of 2 factors. First, the apposition of the hyaline cartilage of the ear to the skull causes increased production of glycosaminoglycans and subsequent ischemic necrosis of the cartilage.¹¹ Second, repeated minor trauma to the ear leads to separation of the perichondrium from the cartilage and subsequent development of an intracartilaginous cavity that becomes filled with serosanguineous fluid.¹² It has been observed that rubbing, ear pulling, sleeping on one side, wearing a motorcycle helmet, or using earphones has led to the development of a pseudocyst.^{2,3} The trauma theory is supported by the fact that elevated levels of lactate dehydrogenase 4 and 5, the predominant subtypes in the ear, were found in aspirated fluid. It is postulated that the disruption of auricular cartilage leads to lactate dehydrogenase being released from the degenerated cartilage.²

Many treatment methods have been used for this benign lesion, but high recurrence rates are usually seen. If not properly treated, repeated recurrences could lead to permanent deformity of the affected ear. The goal of treatment is to ablate the pseudocyst

while maintaining the normal appearance of the auricle. A review of the literature revealed a vast array of treatment modalities. Nonsurgical treatment options ranged from simple aspiration of the cystic fluid to the use of a close-fitting ear cast that applied constant pressure to the cystic area.⁵ The ear cast was successful in one case⁵; needle aspiration alone typically led to recurrences. There is a series of 10 cases of auricular pseudocysts that were successfully treated with aspiration and pressure dressing by a plaster of Paris cast over the pinna for 2 weeks.¹⁰

Treatment with various injectable agents also has been tried with the rationale being to obliterate the cavity through sclerosis and/or decreasing the release of lactate dehydrogenase. This method includes local injection of trichloroacetic acid to induce fibrosis,⁶ injection of intralesional steroids,¹³ and intralesional injection of minocycline.¹⁴ Injection of intralesional steroids can be considered one of the first-line therapies, but recurrences are common and repeated injections can lead to auricular deformity.¹⁵

Most reports reviewed used a surgical method of treatment that varied from a simple punch biopsy to incision, drainage, and curettage. Some reports have recommended an incision into the pseudocyst followed by curettage and application of fibrin glue or other sclerosing agent to eliminate the potential space.^{12,16} More complicated surgery involves excision of the anterior cartilage of the ear and compression buttoning of the pseudocyst. However, excision has been reported to lead to cauliflower and floppy ear deformities.^{7,17}

The use of surgical bolsters for the treatment of auricular pseudocysts has been reported and recommended by other practitioners^{1,16,18,19}; however, only 2 of these reports are in the dermatology literature. Paul et al¹ proposed using a 3-mm punch biopsy on the inferior edge of lesions, allowing for open drainage of the fluid, followed by application of a bolster. In addition, incision and drainage of the pseudocyst followed by a compression bolster was reported by Christian et al.¹⁸ Other successful reports of using incision and drainage and needle aspiration followed by surgical bolsters have been published by general surgeons and otolaryngologists.^{16,19}

Conclusion

This report highlights a simple approach to the management of an auricular pseudocyst. The use of a 22-gauge needle for aspiration of the cystic fluid followed by a surgical bolster can easily be performed in the office setting. We propose the use of this method as first-line therapy given its successful outcome in prior reports, as well as in our patient. The potential for recurrences and the possibility for deformity with

the use of injectable agents and more complicated surgical procedures further supports our recommendation. We believe this simple alternative method provides a safe and efficacious mechanism for treatment of this phenomenon.

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