

## Clinical Record

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## Abstract

**Objective.** Auricular pseudocysts are rare, painless, benign intracartilaginous cysts of the auricle that are not lined by epithelium and have no known aetiology.

**Method.** This was a prospective study conducted in an ENT department from January 2020 to June 2022. In 21 patients, complete aspiration of the pseudocyst with enhanced negative drainage was performed. They were followed for a minimum of six months.

**Results.** All patients completely responded to the negative drainage treatment. No cases of recurrence or obvious deformities were observed.

**Conclusion.** Aspiration with intensified negative drainage was associated with a positive response in patients with auricular pseudocysts. Complete resolution of the swelling can be achieved without any serious complications. Thus, it appears to be a simple and effective method for managing the condition.

## Introduction

Auricular pseudocysts are spontaneous serous fluid collections, a type of benign, painless, cystic swelling of the auricle. These lesions are typically located in the scaphoid fossa, triangular fossa and cymba concha of the auricle. Auricular pseudocysts can also be labelled as endochondral pseudocysts, intracartilaginous cysts, pseudo-auricular seromas or cystic chondromalacia in the medical literature.<sup>1</sup> Even though this is an idiopathic condition, trivial traumas, such as sleeping on hard pillows, wearing helmets, rubbing, frostbite and ear pulling have been considered predisposing factors.

Needle aspiration is one of the applied treatment methods; however, it has high recurrence rates. Needle aspiration or incisional drainage followed by compressive dressings can dramatically decrease recurrence rates. If the affected area is too extensive and involves multiple concavities, it may be difficult properly to compress the auricular surface with symmetrical and tender pressure. Many wounds have different oedematous levels in the days following surgery. The outer compression sutures or plasters cannot be adjusted accordingly. Chemical or mechanical obliteration of the cavity is necessary for successful treatment, as reported in previous studies.<sup>2</sup> In recurrent cases, more invasive surgical approaches, such as anterior wall excision and deroofting surgery, are necessary.<sup>3</sup> We present a treatment for auricular pseudocysts using enhanced negative drainage therapy, which involves only minor trauma and is non-recurrent.

## Patients and methods

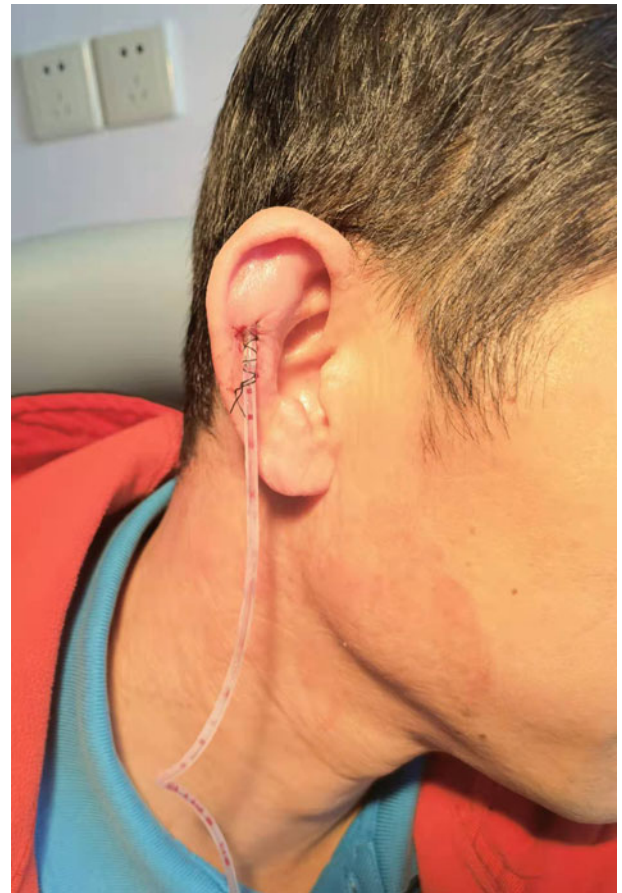
This was a prospective study conducted in the ENT department of our hospital from January 2020 to June 2022. Accordingly, 21 patients clinically diagnosed with an auricular pseudocyst were selected for this study. Patients were fully informed of the nature of the disease and available treatment options, including probable therapeutic complications and recurrences. Patients who had primarily been diagnosed with an auricular pseudocyst and were older than 14 years were included in the study. Patients with an external ear infection and diabetes mellitus were excluded. Informed consent was obtained from all the patients who participated. The institutional review board of the medical college approved this study.

For local anaesthesia, 1 per cent lidocaine was injected subcutaneously at the site just below the pseudocyst under aseptic conditions. A small incision was made, a slim drainage tube was placed in the cyst and fixed by sutures, all the pseudocyst collection was aspirated into an empty injector, and intensified negative pressure was formed by a syringe (Figures 1 and 2) and kept for three days (Figure 3).

No oral antibacterial medication was prescribed to the patients because this was a minimally invasive procedure performed in the out-patient department. The negative drainage tube was dismantled after three days. Each patient was followed for a minimum of six



**Figure 1.** Auricular pseudocyst in the triangular fossa before the surgery.



**Figure 3.** Prepared for dismantling of negative drainage three days after the surgery.



**Figure 2.** The well-placed negative pressure tube. No compressive dressing was necessary.



**Figure 4.** Three weeks after surgery.





**Figure 5.** One year after surgery.

months (Figures 4 and 5). The complete resolution of the auricular swelling was considered a treatment success. Serious complications of the treatment, such as perichondritis, perichondrial abscess or cartilage deformity were assessed and properly treated if they were present.

## Results

Twenty-one patients were enrolled in this study (Table 1). All patients were male with a median age of 36 years (range, 17–73 years). All patients had unilateral lesions, with 11 (52.4 per cent) right-sided lesions, which were slightly more common than left-sided lesions. The predominant sites of lesions were the scaphoid fossa (47.6 per cent) and triangular fossa (33.3 per cent). Five patients (23.8 per cent) had experienced ear trauma within the previous 6 months (including one case with a long-term helmet wearing history), 3 patients felt ear

**Table 1.** Basic information of patients\*

Gender	Patients
Male (n)	21
Female (n)	0
Age (range; (median); years)	17–73 (36)
Side (n (%))	
– Left	10 (47.6)
– Right	11 (52.4)
Site (n (%))	
– Scaphoid fossa	10 (47.6)
– Triangular fossa	7 (33.3)
– Concha	2 (9.5)
– Diffuse involvement of concha & scaphoid fossa	2 (9.5)
Predisposing factors (n (%))	
– Ear trauma	5 (23.8)
– Ear itchiness & scratching	3 (14.3)
– No specific factors	13 (61.9)

\*n = 21

itchiness and scratched the auricle frequently, and the other 13 patients had no specific aetiology.

All patients were followed up for a minimum of six months after surgery and recovered smoothly, without any complications or recurrences. No cartilage infection, perichondritis, cauliflower ear or other serious auricular deformity was observed after surgery.

In our series of 21 cases, all the cartilage was preserved very well after drainage without curettage. Drainage is a kind of minor-traumatic treatment compared with deroofting surgery. About three or four weeks later, fibrous tissue (healing scar) adhered skin to cartilage tightly (Figures 4 and 5).

## Discussion

Auricular pseudocysts are distinguished by the accumulation of fluid within the cartilage and the absence of an epithelial membrane lining. The most prominent histological findings are intracartilaginous fibrosis and excessive granulation tissue, as well as a perivascular mononuclear infiltrate, predominantly made up of lymphocytes, which suggests that this condition is caused by an inflammatory process.<sup>4</sup>

The exact aetiology of this condition is unknown. Chronic low-grade trauma, inflammation or degeneration of cartilage and perichondrium, and congenital embryonic dysplasia with residual tissue planes in the auricular cartilage are the three main theories that explain the formation of auricular pseudocysts. The trauma and inflammation mechanism can also be seen in the effusion of the joint caused by the destruction of articular cartilage.

The auricle is formed mainly by cartilage and two layers of tense skin, with a lack of soft connective tissue in the upper two-thirds of the structure. The perichondrium and surrounding connective tissue supply blood to the cartilage and absorb lymph and exudates from the cartilage. As the ability to absorb fluids or lymph decreases, auricular pseudocysts are more easily formed via a similar mechanism to arthritis or joint effusion. The upper part of the auricle forms a pseudocyst more easily

than the lower part of the auricle. We believe that the earlobe protects the lower part of the auricle from the pseudocyst.

The treatment used aimed to provide the best cosmetic outcome for the patient while using a minimally invasive technique that gave no recurrence. Various treatment methods have been developed for auricular pseudocysts. Medical treatments include systemic or intralesional steroid therapy<sup>2,5</sup> and intralesional sclerosing agents such as minocycline, tincture of iodine, trichloroacetic acid and fibrin glue. Aspiration and pressure dressing with dental wax,<sup>6</sup> plaster of Paris, bolsters or buttons, cartilage curettage with drainage tubes, and open cartilage de-roofing procedures<sup>4,7</sup> are surgical treatment options. If aspiration was performed alone, multiple recurrences were observed. Most of the results were obtained using incisional drainage, followed by mechanical obliteration, such as pressure dressing with button bolsters and compression suture therapy. The critical aspect for the successful application of outer pressure are the forces on the uneven surface of the auricle as the auricular cartilage framework is three-dimensional. Dental silicone or plaster casts need to be held on the auricle for two to four weeks,<sup>8</sup> but it is easy for them to drop from the ear during movement or while sleeping; solid fixation also increases the risk of necrosis. Rubber sheets can apply equal pressure to auricular cartilage.<sup>7</sup> Deroofing surgery with variable compression methods, or transcartilaginous through-and-through sutures,<sup>1</sup> is considered the most effective method but seems more traumatic.

- Auricular pseudocysts are painless, benign intracartilaginous cysts of the auricle
- Aspiration with intensified negative drainage would be a simple and effective method for curing the auricular pseudocyst

We believe that all external pressure methods would make it difficult to prevent residual cyst or oedema, which could result in a new smaller cyst appearing when using these methods. The negative pressure drainage inside the cyst can avoid uneven

pressure from outer compression. Dong described a weaker negative drainage method for the successful treatment of auricular pseudocysts.<sup>9</sup> The mild negative pressure drainage device had to be kept in place for about one week, and their drainage tube was fixed by sticking film, not something firm like a suture.

## Conclusion

Enforcing negative drainage to cure auricular pseudocysts is a simple and inexpensive technique that can be of great help in saving patients from a surgical procedure.

**Competing interests.** None declared

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