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Excision of preauricular sinus with abscess drainage in children

Lizhi Wang[1], Lai Wei[1], Weili Lu, Ziye Liu, Meiyi Wang, Zhiqiang Wang*

Department of Otolaryngology, Affiliated Zhongshan Hospital of Dalian University, China

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ABSTRACT

Purpose: To introduce a feasible approach for excising a preauricular sinus with abscess in children.
Materials and methods: Patients under 14 years old with a preauricular sinus abscess and volunteering for surgery were involved in this study.
Results: Neither recurrence nor local deformity was found in these patients with a follow-up of 3 to 72 months.
Conclusions: Excising the preauricular sinus with abscess in children is a feasible approach to treatment.

1. Introduction

Preauricular sinus (PAS), also called preauricular fistula, refers to a congenital malformation with a pit in the anterior of the auricle, especially, close to the crus of helix and is commonly seen worldwide. Most PAS patients are asymptomatic and ask for help because of discharge, infection, or even abscess. The preauricular sinus abscess accounts for 11.4% of patients [1]. Asymptomatic PAS does not require specific treatment, but PAS with infection needs excision [2]. In the past, excision has been performed when the infection was cured in the early stages, but a recent study shows that recurrence is no higher when PAS is excised in the infectious stage than in the cure stage. The excision will be smaller when the infection has settled down after abscess drainage and antibiotics. But for children, poor compliance makes it difficult to clean the wound after abscess drainage or dressing change after excision. In order to shorten the duration between abscess drainage and wound healing after excision, we carried out the surgery.

2. Materials and methods

Retrospective analysis involved 20 children suffering from a PAS abscess between 2012 and 2018, including 5 males and 15 females. Their ages ranged from 1 to 14 years, with a mean of 6.90 ± 4.23 years. Age distribution is shown in Table 1. There were six sinuses and abscesses in right ears, seven in left ears, and seven bilaterally. All seven bilateral PASs had their left sinus infected. All patients had pits and abscesses located in the anterior of the auricle. They each underwent an abscess drainage about 2 to 5 days before excision. The ethics committee of the Affiliated Zhongshan Hospital of Dalian University approved the study.

General anesthesia and a dumbbell-shaped incision, consisting of two elliptical incisions around the pit and abscess drainage, respectively, were used. The incision was extended horizontally into the subcutaneous tissue until cartilage was reached in the posterior and boundary of the infected tissue found in other directions. The incisions between cartilage and perichondrium and along the infected tissues were deepened onto the plane formed by the temporalis fascia and parotid capsule (t-p plane). Then the incision was extended onto the surface of the t-p plane, and all the tissues containing the sinus and its branch and abscess between the skin and the t-p plane were excised with a pit-and-abscess slit (Fig. 1). The cavity was closed with a direct suture, and a pressure dressing; a piece of rubber drainage was left in place. Antibiotics were taken for 72 h after surgery, while the drainage tube and pressure dressing were maintained for 48 h and 4 days, respectively. The suture was removed 10 days after surgery.

3. Results

No recurrence was found in any of the cases during the 3- to 72-month follow-up after surgery, with a mean time of 28.30 ± 17.28 months, nor was any local deformity found.

Abbreviations: PAS, Preauricular sinus; t-p plane, the temporalis fascia and parotid capsule

* Corresponding author at: Department of Otolaryngology, Affiliated Zhongshan Hospital of Dalian University, Dalian 116001, China.
E-mail address: wzqwlzwl@sohu.com (Z. Wang).

[1] Lizhi Wang and Lai Wei contribute equally.

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Table 1
Age distribution of patients.

Age (years)	Sex	Number
0–5	Male	1
	Female	8
6–10	Male	2
	Female	3
11–14	Male	2
	Female	4

4. Discussion

Surgical drainage of an abscess before excision may cause a higher recurrence, which may be due to disruption of the sinus duct by the abscess or drainage incision. A continuous duct cannot be traced by a probe or methylene blue [3]. So, the key point in surgery is to identify the sinus and abscess. In a PAS having a stratified squamous epithelium lining, the duct may be filled with a smegmalike material and contain sebaceous glands or sebocytes, sweat glands, or hair follicles [4]. When infected, *Staphylococcus aureus*, the most common bacterium, secretes two clotting proteins required for abscess formation, including coagulase and von Willebrand factor–binding protein. A pseudocapsule is formed via what the bacteria use to self-protect from host immune cells [5]. Indeed, the squamous epithelium and the pseudocapsule make it easier to recognize the sinus and abscess than to trace a disrupted duct. It is also considered the key point for reducing recurrence.

The supra-auricular approach for PAS excision had a significantly lower recurrence rate than did the standard technique [6]. With the approach described by Sanjay Prasad in 1990, an elliptical incision was extended postauricularly [7], but it was less convenient for sinuses with abscess that were extended anterior to the pit. Nevertheless, a dumbbell-shaped incision provides a wide view for the surgeon. It provides a complementary choice when abscess drainage needs to be considered.

The infected tissue near the sinus and abscess was also excised during surgery, which meant to reduce recurrence and need for antibiotics. Although it is not likely to lead to local deformity, more evidence is needed.

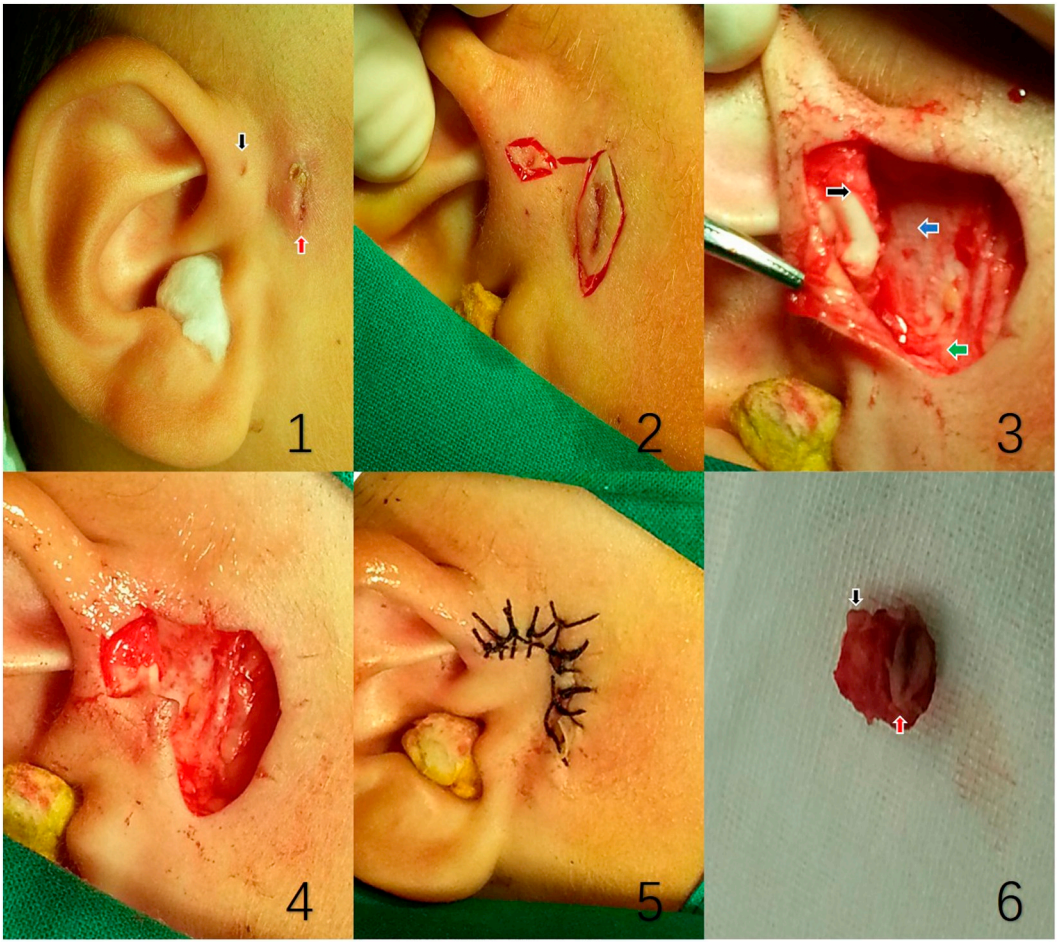

Fig. 1. Unidentified photos of the surgery. 1) Black arrow: pit of sinus. Red arrow: abscess drainage slit. 2) Dumbbell-shaped incision. 3) Exposed area. Black arrow: cartilage without perichondrium. Blue arrow: plane of temporalis fascia. Green arrow: parotid capsule. 4) After excision. 5) Rubber drainage after suture. 6) Entire tissue containing sinus and abscess, also with pit and drainage slit. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

5. Conclusion

Excision of preauricular sinus with abscess is a feasible approach in children, especially if the pit and abscess is located anterior to the auricle.

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Declarations of interest

None.

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