

## Original Research Article

# Clinical study of preauricular sinus and its management

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### ABSTRACT

**Background:** Preauricular sinus is the common congenital disease with tendency for repeated infections. It can present as a pit or depression at the anterior margin of ascending limb of helix. It is due to defect in auricular embryogenesis, which results in preauricular sinus.

**Methods:** This is the prospective study conducted in Mysore Medical College. All preauricular sinus patients were included for this study. 20 patients of all gender underwent surgery by supra-auricular dissection.

**Results:** In all the cases plane of temporalis fascia identified, skin anterior to the sinus is excised along with a piece of adjoining helical cartilage. With this method no recurrences were encountered.

**Conclusions:** Standard surgical technique i.e. sinusectomy has more recurrence rate. In our study we observed that surgical outcome after supra-auricular dissection method had no recurrences.

**Keywords:** Preauricular sinus, Supraauricular dissection, Sinusectomy

### INTRODUCTION

Preauricular sinus is the congenital anomaly seen around the external ear. It was first described by Heusinger in 1864.<sup>1</sup>

The external ear develops during the sixth week of embryonic period from six mesenchymal proliferations, known as hillocks of His, three from the caudal border of first branchial arch and three from cephalic border of the second branchial arch. These hillocks fuse to form definitive auricle.<sup>2</sup> During the development of the auricle, incomplete fusion of the six auditory hillocks results in preauricular sinus.

Preauricular sinus most frequently seen as a small pit or opening close to the anterior margin of the ascending portion of the helix.

The course of the sinus in preauricular subcutaneous tissues varies. The visible pit may be the full extent of the

deformity, or a sinus tract that may vary in length, branch and follow a vague course. Anatomically, the sinus is situated more superficially than the temporalis fascia, laterally and superiorly from the parotid gland and facial nerve, which may be closely related to these structures. In all cases, part of the tract blends with the perichondrium of the auricular cartilage.<sup>3</sup>

Preauricular sinus is mostly unilateral, only rarely are bilateral. The right side appears to be more commonly involved and females more than males.<sup>4,5</sup>

Most sinuses are clinically silent, onset of symptoms is related to an infectious process. Erythema, swelling, pain and discharge are signs and symptoms of infection. The Staphylococcal species are the most frequent organisms, rarely *Proteus*, *Streptococcus* and *Peptococcus* species are the ones to be involved in infection.<sup>4</sup>

Surgery is the best option to prevent recurrence. The recurrence rate is high as a result of incomplete removal.

Various factors like previous surgery, ramifications and surgical technique used are responsible for recurrence. The standard technique for excision of preauricular sinus, sinusectomy, has reported recurrence rate from 19% to 42%.<sup>6,7</sup>

We followed in this study supra-auricular dissection for all cases aiming to decrease recurrence rate with good operative view, with dye and without postoperative drain with cosmetically acceptable scar mark. We evaluated the surgical outcome in short and long term basis.

## METHODS

This is a prospective study of patients seen in ENT OPD in Mysore Medical College, Mysore. This Study was carried out between April 2017 to March 2018, after ethical approval from the Ethical Committee. Informed consent was taken from patients or their guardian before their enrolment into the study. All patients with clinical diagnosis of preauricular sinus were enrolled into the study. Detailed history was taken. Complete otologic, nasal and throat examinations were performed on all the subjects included. After taking informed written consent from patients, we performed preauricular sinus excision using supraauricular dissection method. All cases under 18 years of age general anaesthesia were preferred. Under asepsis we placed elliptical incision around the pit of the sinus with extension superiorly. Dissection was done in soft tissue to trace the sinus tract. Before starting the procedure we had also used methylene blue dye to identify the course of the tract. Tract was traced with its ramifications and temporalis fascia identified. Skin anterior to the sinus along with the piece of helical cartilage excised. Wound was closed in layers with mastoid dressing.

Standard postoperative protocol was followed in all cases. All cases were followed up to 1 year to observe for recurrences. Statistical analysis was done using SPSS v20 software.

## RESULTS

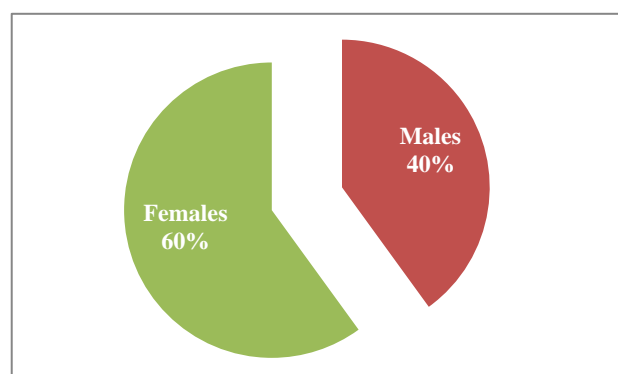
Twenty patients were enrolled in our study which includes adults and children. 12 were females and 8 were male patients, females being more involved (Figure 1).

Age of patients was in between 5 to 35 years with maximum 9 patients (45%) in the age group of 15-20 years (Table 1).

**Table 1: Age distribution of patients.**

Age (in years)	Number of cases
5-10	4
10-15	5
15-20	9
20-35	2

Unilateral disease was found to be most common with unilateral presentation in 19 cases (95%) and bilateral in 1 case (5%). Sinus was found more on the right side in 11 cases (55%)



**Figure 1: Sex distribution.**

Preauricular pit was the most common finding in 10 cases followed by preauricular swelling in 5 cases, discharge in 3 patients and erythema in 2 cases (Table 2).

**Table 2: Clinical characteristics of patients.**

Clinical finding	Number of cases
Preauricular pit	10
Swelling in preauricular area	5
Discharge from the sinus	3
Erythema	2

All cases under 18 years of age general anaesthesia was preferred. Under aseptic precautions, methylene blue dye was injected to the sinus pit to delineate the tract intraoperatively. Incision was made around the sinus and extended to the post aural region. Plane of temporalis fascia delineated skin anterior to the sinus and tragus is meticulously separated from the underlying soft tissue. Soft tissue between the plane of temporalis fascia and skin anterior to the sinus is excised along with a piece of adjoining helical cartilage. The wound is washed with betadine and closed in layers with mastoid dressing. Patients were put on antibiotics and anti-inflammatory drugs. Sutures were removed on 8<sup>th</sup> postoperative day.

All cases were followed up at weekly intervals for the first three weeks and then at monthly intervals for 3 months and then after 6 months for 1 year. With this technique no recurrence was noted. One patient had developed pus collection in 8<sup>th</sup> postoperative day which resolved after 5 days of antibiotics. None of the patients had developed perichondritis.

## DISCUSSION

Preauricular sinus is a congenital malformation which usually manifest during childhood or early in life as in majority of our studied patients. Incidence of preauricular

sinus are 0.1 to 0.9% in United states, 0.9% in England and 1.31% in Singapore.<sup>8,9</sup> Affection of right ear is commoner in our study than the left. Other studies also establish commoner unilateral and in right ear.<sup>4</sup>

No gender predilection is seen significantly in studies, being females more affected in our study.

The supra-auricular technique was introduced by Prasad et al to improve surgical results, reducing the recurrence rate to 5%.<sup>6</sup> We followed the same technique and in our series no recurrence was seen in 20 cases with follow up of 1 year. In our technique, removing the adjoining helical cartilage along with soft tissue between the plane of temporalis fascia and skin anterior to the sinus giving no room for recurrence.

## CONCLUSION

Congenital preauricular sinus is commonly located at the ascending limb of helix. Most of the sinus tracts were attached to the perichondrium. All of the sinus tracts were superficial to the temporalis fascia. The supra-auricular dissection method had no recurrence with maximum follow up of one year regardless of age of patient, previous surgery done and type of anaesthesia used.

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## REFERENCES

1. Heusinger CF. Hals-Kiemen-Fisteln von Noch nicht Beobachteter Form. Archi fur Pathologische Anatomie and Physiologie and fur Klinische Medicin. 1864;29:358-65.
2. Sadler TW. Langman's Medical Embryology. 6th edn. Williams and Wilkins Baltimore; 1990: 334-335.
3. Emery JP, Salama NY. Congenital preauricular sinus. A study of 31 cases seen over a 10 year period. Int J Paediatr Otolaryngol. 1981;3:205-12.
4. Scheinfeld NS, Silverberg NB, Weinberg JM, Nozad V. The Preauricular sinus: a review of its clinical presentation, treatment and associations. Paediatric Dermatol. 2004;21:191-6.
5. Paulozzi JJ, Lary JM. Laterality pattern in infants with external birth defects. Teratology. 1999;60:265-71.
6. Prasad S, Grundfast K, Milmore G. Management of congenital preauricular pit and sinus tract in children. Laryngoscope. 1999;100:320-1.
7. Currie AR, King WWK, Vlantis AC, Li AK. Pit falls in the management of preauricular sinuses. Br J Surg. 1996;83:1722-4.
8. Ewing MR. Congenital sinuses of the external ear. J Laryngol Otol. 1946;61:18-23.
9. Huang XY, Tay GS, Wansaicheong GK, Low WK. Preauricular sinus: clinical course and associations. Arch Otolaryngol Head Neck Surg. 2007;133:65-8.

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