

## Management of Preauricular Sinus

MK Rajasekar, Shwetha Shashikumar\*

Department of ENT, Sree Balaji Medical College and Hospital, Shankar Nagar, Chromepet, Chennai, Tamil Nadu, India

### ABSTRACT

Preauricular sinuses are a relatively frequent congenital anomaly. They are, for the most part, asymptomatic. They are most commonly present on the right side, parallel to the external ear, near to the anterior margin of the ascending limb of the helix. Preauricular sinuses can be inherited or develop on their own. They are inherited in an incomplete Autosomal dominant manner. It's probable that 25–50% of cases are bilateral, which increases the likelihood of inheritance. Preauricular sinuses are linked to various illnesses or syndromes in 3–10% of cases, including deafness and branchiootorenal (BOR) syndrome. If there are any congenital anomalies in these sinuses, an audiologist should be consulted and a renal ultrasound should be performed.

**Key words:** Preauricular sinus, Pregnancy, Branchial arch

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**Corresponding author:** Shwetha Shashikumar

**e-mail**✉: editor.pubs@gmail.com

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### INTRODUCTION

During the sixth week of pregnancy, the Hillocks of His are six mesenchymal proliferations that develop the auricle: three from the caudal border of the first branchial arch and three from the cephalic border of the second branchial arch. The auricle is formed as they fuse together. The most commonly stated and accepted idea is that a preauricular sinus develops as a result of an incomplete or imperfect union of the six auditory hillocks during auricle development. Incomplete fusing of the hillocks results in a blind-ended sinus. The sinus is lined with skin, which can lead to recurrent discharge and infections. While a sinus located above the tragus line is normally an independent preauricular sinus/cyst, a sinus found below the tragus line is more likely associated to a first branchial cleft abnormality, and testing for a fistula in the external auditory canal is essential [1-5]. The developmental structure of the auricle from hillock of his is depicted in Figure 1.

The condition can be sporadic or genetic, and it is more common in women. Over half of all instances are unilateral, with the remaining half being sporadic. In situations of bilateral preauricular sinus, incomplete autosomal dominance with lower penetrance is more likely to be inherited (nearly 85 percent) 4. Preauricular

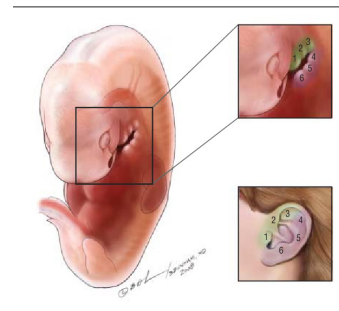


Figure 1: Development of auricle from hillock of his.



Figure 2: Preauricular sinus.

sinus is shown in Figure 2.

### CASE HISTORY

- ✓ We dealt with five cases of preauricular sinusitis. Patients with periodic discharge from the preauricular region presented to the ENT OPD.

- ✓ Despite the fact that the majority of patients were clinically silent, indicators of an infectious process are not uncommon. Erythema, swelling, pain, and discharge were some of the presenting signs and symptoms.
- ✓ If the outcome was isolated and asymptomatic, no therapy was necessary. Only patients with infected sinuses were treated. In the acute stage of infection, adequate antibiotics were administered; when an abscess was evident, an incision and drainage procedure was performed.
- ✓ No particular investigation was performed apart from routine tests for general anaesthesia.
- ✓ In the case of recurring or chronic preauricular sinus infection, surgical removal of the sinus and its tract during a period of quiescence may be required.
- ✓ Incomplete excision is the cause of recurrence.
- ✓ A basic sinectomy consists of removing an oval patch of skin around the sinus entrance and dissecting out the sinus tract which is shown in Figures 3 and Figure 4.

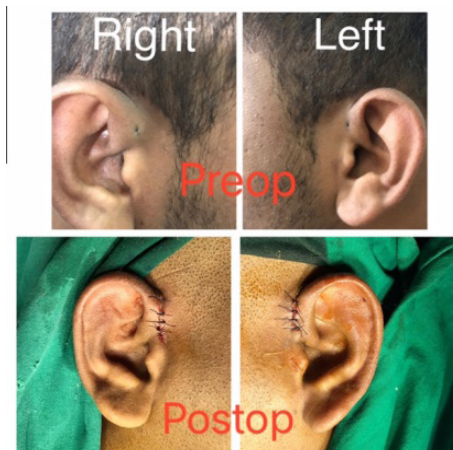


Figure 3: Case 1 showing bilateral preauricular sinus preop and postop images.



Figure 4: Case 2 showing infected preauricular sinus preop and postop images.

## DISCUSSION

A little pit on the anterior side of the ascending part of the helix, surrounding the postero superior boundary of the helix, the tragus, or the lobule, is the preauricular sinus. The sinus does not always follow the same course in subcutaneous tissues. It's possible that the visible pit is the entire malformation, or that it's a sinus tract that varies in length, forks, and follows a complex path. In all cases, a piece of the tract fuses with the perichondrium of the auricular cartilage. An infected preauricular sinus can cause erythema, edema, pain, and discharge, even if it is clinically silent. The most prevalent pathogens that cause infection are Staphylococcal species, as well as Proteus, Streptococcus, and Peptococcus species. Preauricular sinuses can be inherited or develop on their own. Mutations in the EYA1 gene on chromosome 8q13 have been detected in 40% of patients. Branchio-oto-renal syndrome is a genetic disorder characterized by outer, middle, and inner ear developmental problems, branchial cleft anomalies, and renal abnormalities [6-8].

### Preauricular sinus excision

- ✓ In all cases, general anaesthesia was administered.
- ✓ Incision: An elliptical incision was made around the sinus pit and continued superiorly and posteriorly into the post aural sulcus (Figures 5 and Figure 6).

The temporalis fascia serves as the dissection's medial boundary, while the anterior helix cartilage serves as the dissection's posterior margin. Using a self-retaining mastoid retractor to retract tissues has shown to be incredibly effective. The preauricular sinus, as well as the tissue above the temporalis fascia, is excised (Figure 7).

- ✓ A portion of the helix's cartilage or perichondrium is excised at the base of the sinus, implying that the epithelial lining is entirely removed in all cases.

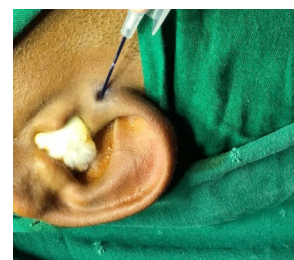


Figure 5: Injecting methylene blue to visualize preauricular sinus tract.



Figure 6: Elliptical incision around sinus.



Figure 7: Dissection.

- ✓ The layered closing reduces dead space.
- ✓ The skin is sutured with 3'0 silk or prolene suture. The drain should be left in place if the incision is stretched halfway through the post-aural area; otherwise, the wound should be closed.
- ✓ After 24 hours, the dressing was removed along with the drain.
- ✓ Patients are given antibiotics and anti-inflammatory drugs for five days. The sutures were removed after 7 days. Fig 5,6,7 shows the illustration of the operation.

#### COMPLICATIONS

- ✓ Incomplete excision may lead to recurrence.
- ✓ Bleeding.
- ✓ Infection.
- ✓ Injury to facial nerve.

However, these were not encountered.

#### CONCLUSION

Several adjuvant treatments to aid complete resection and avoid sinus recurrence have been presented. Sonograms before surgery, sinograms during surgery, methylene blue injections during surgery, and the use of a lacrimal probe have all been documented, with varied degrees of success. Damage to the tract caused by the probe can be damaging, causing further scarring and making excision more difficult. Each technical version has its own set of limitations: lacrimal probe trauma can cause a false course, making modest ramifications difficult to track; methylene blue has a critical diffusion

in tissues, making it difficult to detect the tiniest ramifications. Fistulography is conducted in the absence of acute viral infections and requires expert hands. There is an approximate estimate of the sinus length, but no indication of its depth. The absence of surgical radicality and, as a result, the high recurrence rate is most likely due to these issues 8.

Furthermore, the type of anaesthetic used has been shown to influence the rate of recurrence. When surgery was performed under general anaesthetic, there was no recurrence. Individual preference currently determines which of these approaches is used, but wide local excision in a Supra Auricular approach under general anaesthesia using an Extended Post Auricular incision would almost certainly produce satisfactory results, and many of the variations mentioned in the literature are unwarranted. This is a pretty simple method that does not require much coaching.

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