



## Calculus in Preauricular Sinus: A Case Report

Saldanha Marina, Bhat Vadisha S, Bhandary Satheesh K, K Jayaramesh

K.S.Hegde Medical Academy, Derlakatte, Mangalore-575018, Karnataka, India

### ABSTRACT

Preauricular sinuses are common congenital malformations. They are usually asymptomatic but in some cases can get infected and present with intermittent discharge and abscess formation. We present a case of a 30yr old lady presenting with continuously discharging preauricular sinus which was not responding to antibiotic therapy. Surgical excision in the presence of infection was considered. This case report documents a rare presentation of a calculus in the Preauricular sinus tract as a predisposing factor for persistence of infection. The review of literature regarding Preauricular sinus and factors contributing to recurrence after surgery are also discussed in the article.

### Introduction:

Preauricular sinus is a common congenital malformation that manifests as small openings in the external ear, usually near the anterior limb of the ascending helix [1]. Most patients are asymptomatic but if active discharge or infection commences, surgical excision of the sinus tract is recommended [2]. Studies have shown that in the presence of infection the chance of recurrence after surgery is high [3].

The aim of this case report is to note, a rare case of a calculus in the sinus tract. Only one case of the same has been reported in literature.

## Case Report:

A 30 year old woman presented to the out-patient department with complaints of swelling in front of the right ear since 6yrs. The swelling was associated with recurrent purulent discharge which used to subside on giving antibiotics. For the past 6 months she complained of continuous purulent discharge and pain not responding to treatment.

On examination of right ear a soft cystic swelling 2x1cm was noted in front of the anterior limb of the ascending helix. Sinus was present on the swelling and on pressure over the swelling, purulent discharge came out of the sinus. There was no regional lymphadenopathy. Other systemic examination was normal.

Hematological and Biochemical investigations were within normal limits. Pus from the sinus was sent for culture and sensitivity and showed no growth after 48 hrs of incubation.

Surgical excision in the presence of infection was considered. Under intravenous sedation and aseptic precautions the sinus was probed with lacrimal probe and methylene blue was injected to delineate the tract. Elliptical incision was taken around sinus [Figure 1] and on dissection a calculus was felt in the sinus and delivered out. [Figure 2]The sinus with the surrounding soft tissues was excised till the temporal fascia. Multiple ramifications of the methylene blue stained sinus tract could be visualized using magnification with 0 degree adult endoscope and was excised. Drain was placed, wound was sutured in two layers and mastoid dressing was done. Sutures removed on the seventh day. Wound was healthy. On follow up for one year there was no recurrence. [Figure 3]

The excised tissue was sent for Histopathological examination – microscopically showed sinus tract lined with stratified squamous epithelium. The stone was brown, measuring 0.5x 0.5 cm, hard in consistency. Biochemical analysis of the stone showed calcium oxalate crystals.

## Discussion:

The auricle develops from the fusion of six mesenchymal proliferations, known as Hill-ocks of His. The most frequently cited and generally accepted theory attributes the development of Preauricular sinus to incomplete or defective fusion of the 6 hillocks. The other, less well known, published theory is that the sinus develops as a result of isolated folding during auricular development .[1]

Preauricular sinus are usually asymptomatic, and when symptomatic present with chronic intermittent drainage of purulent discharge from the opening. Once infection occurs, the likelihood of recurrent acute exacerbation is high. At this point, the sinus tract should be surgically removed [3]. Incomplete excision is believed to be the cause of recurrence of preauricular sinus; recurrence rates are reported between nil and 42% [4].

After extensive medical database search there has been one article which mentions the presence of calculus noted in a preauricular sinus [5].This article is the first to note the presence of calculus in the sinus tract as a contributing factor for infection and persistent discharge.

Various pre- operative and postoperative precautions were taken during surgery to reduce chances of recurrence in presence of infection. In our case injection with methylene blue which is practiced widely and gentle probing with lacrimal duct probe was done. The idea being that lacrimal probe helps to identify the main tract and the small multi-branched ramifications are then identified with methylene blue but each technical variant has limitations [6]. Studies have shown higher recurrence when methylene blue was used alone in comparison to both modalities [3]. Wide local excision of sinus was done. Studies have shown that with supraauricular approach the recurrence rate was low [3,7,8] . Other precautions taken were to avoid rupture or spillage of the sinus tract, magnification in the form of endoscope was to visualize any remnants of sinus ramifications stained with methylene blue.

Use of operating microscope for magnification has been reported to improve outcome [9]. Reduction of wound dead space during closure, placement of drain and mastoid dressing for wound compression were done to reduce chances of postoperative infection.

The main limitation of the case was that only one case was studied but all the factors to avoid recurrence was considered and presence of calculus in the sinus tract being a rare presentation is documented.

#### Conclusion:

Patients with a chronic discharging sinus, when they do not respond to antibiotic treatment, surgical excision of the tract should be the definitive treatment. The presence of calculus in the sinus being a rare finding should be kept in mind by the operating surgeon as a contributing factor for non response to treatment.

Identification of sinus tract with gentle probing and methylene blue injection, choice of surgical technique, gentle dissection to avoid rupture of sinus magnification , placement of drain and wound compression are some factors when considered reduce chances of infection and recurrence .



Fig1: Dissection of Temporalis Fascia



Fig 2.- Stone in preauricular sinus



Fig 3- Post operative period after 1 year

#### References:

1. Huang XY, Tay GS, Wansaicheong GK, Low WK. Preauricular sinus: clinical course and associations. *Arch Otolaryngol Head Neck Surg* 2007;133:65-8.
2. Tang IP, Shashinder S, Kuljit S, Gopala KG. Outcome of Patients Presenting with preauricular sinus in a tertiary centre- a five year experience. *Med J Malaysia* 2007;62:53-5.
3. Yeo SW, Jun BC, Park SN, Lee JH, Song CE, et al. The Preauricular sinus: factors contributing to recurrence after surgery. *Am J Otolaryngol* 2006;27:396-400.
4. Tan T, Constantinides H, Mitchell TE. The preauricular sinus: A review of its aetiology, clinical presentation and management. *Int J Pediatr Otorhinolaryngol* 2005;69:1469-74.
5. Tembe D. Calculus in the Preauricular sinus. *J Laryngol Otol* 1966; 80:95-7.
6. Leopardi G, Chiarella G, Conti S, Cassandro E. Surgical treatment of recurring preauricular sinus: supra-auricular approach. *Acta Otorhinolaryngol Ital* 2008;28:302-05.
7. Prasad S, Grundfast K, Milmore G. Management of congenital preauricular pit and sinus tract in children. *Laryngoscope* 1990;100:320-1.
8. Vijayendra H, Sangeetha R, Chetty KR. A safe and reliable technique in the management of preauricular sinus. *Indian J Otolaryngol Head Neck Surg* 2005;57:294-5.
9. Kumar KK, Narayanamurthy VB, Sumati V, Vijay R. Preauricular sinus: Operating microscope improves outcome. *Indian J Otolaryngol Head Neck Surg* 2006;58:6-8.