

# Pre-Auricular Sinus and its Management by Supra-Auricular Approach

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## ABSTRACT

**Introduction:** Although management of pre-auricular sinus is a straightforward simple matter but recurrence is a common problem. In this study we present the demographic data, clinical features, risk factors for recurrence and influence of supra-auricular approach in comparison to the recurrence rate with standard surgical technique.

**Patients and methods:** Patients of pre-auricular sinus which were managed at our setup from January 2002 to December 2006 were included in this study.

**Results:** Thirty patients of pre-auricular sinus were managed by supra-auricular surgical approach. The recurrence rate with this approach was found to be 10% in comparison to the recurrence rate of 19% to 42% in different series with standard surgical technique. The main risk factor for recurrence was infection prior to excision or around excision.

**Conclusion:** Supra-auricular approach appeared to be the best technique for surgical excision of pre-auricular sinus.

**Key words:** Supra-auricular approach, Pre-auricular sinus, Recurrence, Congenital.

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## INTRODUCTION

Preauricular sinus is a congenital deformity of the external ear described by Heusinger in 1864<sup>1</sup>. Its incidence varies between 0.02 & 5%<sup>2-4</sup>. They can be unilateral (80%) or bilateral and vary from simple congenital pit to a complex branching sinus<sup>5</sup>. A preauricular sinus appears externally as a small opening at the leading edge of crus of helix. The majority of the people with preauricular sinus are asymptomatic and require no treatment. Surgical excision is indicated if there is frequent discharge, recurrent infection or abscess formation. The recurrence rate is high as a result of incomplete removal of preauricular sinus and its ramification. The standard surgical technique for excision of preauricular sinus involves an elliptical incision around the sinus opening and dissection of the tract by sinectomy. After simple elliptical excision around the sinus opening and limited dissection of the tract, the reported recurrence rate varies from 19% to 42% in various studies<sup>6,7</sup>. The supra-auricular approach described incorporates a post auricular extension of incision and identification of temporalis fascia, which is regarded as the posterior margin of dissection. This technique provides a clear guideline for surgeon in dissection for complete removal of epithelial lining of preauricular sinus with statistically lower long term recurrence rate. Parsad in 1990 described recurrence rate of 5% with this technique<sup>7</sup>.

The factor for recurrence of preauricular sinus reported in different studies are infection, sinus

rupture, recurrent sinus, incomplete removal of preauricular sinus and its ramifications, use of local anesthesia. Recurrence rate may be reduced by meticulous dissection of the sinus, use of extended preauricular incision (supra-auricular approach), avoidance of sinus rupture and closure of the wound dead space. In this study we report our on results with this surgical approach

## PATIENTS AND METHODS

This study was carried on in the department of ENT Fatima Memorial Hospital from January 2002 to December 2006. Thirty cases of preauricular sinus were selected through the OPD. In addition to clinical evaluation Sinogram was performed in all the patients to enline the sinus tract. After control of wound sepsis with appropriate antibiotics excision of the sinus was carried out.

All the patients were operated by an experienced surgeon using supra-auricular approach for sinus excision under general anesthesia.

Probing and dye injection were used to identify the sinus extension. Meticulous applied in order to close the dead space. Regular follow up of the patients was carried out to assess the surgical outcome and possible complications.

## RESULTS

Thirty consecutive patients were selected for this study. The mean age at presentation was 11 years (Table 1). Males were affected more than females

with a male to female ratio of 3:2 (Table 2). Most of the patients (87%) presented with previous history of infection. In most of the cases (63%) sinus tract ended blindly in subcutaneous tissues (Table 4). Recurrence was seen in three patients (10%). Wound infection and keloid formation was seen in one patient each.

**Table 1:** Age at presentation.

Age	Duration
Average	11 years
Youngest	6 years
Oldest	18 years

**Table 2:** Sex incidence.

Male	18
Female	12

**Table 3:** Presenting symptoms

Acute infection	6
Previous H/O recurrent infection	4
Previous aspiration, I/D	6
Congenital sinus/pit	4

**Table 4:** Sinus tract

Subcutaneous	18
Over part of auricular cartilage	11

## DISCUSSION

The external ear develops from the fusion of six hillocks of the first and second branchial arches. Incomplete fusion of the hillocks will lead to malformation of the external ear. The most accepted theory of fusion is intertubular theory of His in 1885<sup>8</sup>. This theory states that "The failure of fusion of two of the six hillocks lead to the malformation".

Preauricular sinus is more common in males than females and in most cases it is unilateral<sup>9</sup>. In our study there was male predominance with male to female ratio of 3:2. These results are similar to those reported by Currie in this study<sup>6</sup>. Most of patients with preauricular sinus present with discharge or acute infection i.e. pain and swelling and 87% of patients in our study had infection prior to surgery. Treatment of acute infection or abscess is adequate drainage and antibiotics after culture and sensitivity till the infection settles. Once the acute infection is over the treatment of choice is surgical excision.

The aim of surgery is to extirpate all squamous epithelium that forms the lining of the sinus. Insertion of a fine lacrimal duct probe through the external sinus opening<sup>2,10</sup>, injecting the dye after purse stringing around the opening or both<sup>2,11</sup> helps to delineate the sinus tract and its deep ramifications

and make subsequent surgery more straight forward<sup>10,11</sup>. In this study probing and dye injection into the tract was used simultaneously followed by meticulous dissection of the sinus tract and its extensions. The sinus may have extension, deep branching and ramification, so unless completely removed, the residual epithelium will form a recurrent sinus.

The standard technique for excision of preauricular sinus has a reported recurrence rate ranging from 19% to 42%<sup>6,7</sup>. Prasad described the supra-auricular approach in 1990 and reported a low recurrence rate of 5%<sup>7</sup>. Supra-auricular approach for excision of preauricular sinus is preferable over standard surgical technique as it gives better exposure and allows complete excision of the sinus and its extensions therefore has been reported to have lower recurrence. In our study all patients underwent supra-auricular approach for excision of preauricular sinus with recurrence rate of 10%, which is lower than the standard surgical technique reported in literature. An important feature of preauricular sinus is the close relationship between the sinus wall and the cartilage of helix. It is advisable using sharp dissection, to resect a portion of perichondrium or cartilage to ensure complete removal of epithelial lining<sup>2,13</sup>. In this study eleven out of thirty (37%) had preauricular sinus in close relationship with perichondrium or cartilage. We excised the involved perichondrium or cartilage to ensure complete removal of epithelial lining.

Preauricular sinuses that have recoiled surgical drainage of abscesses have a high recurrence rate. Recurrence rate reported as high as 30% has been reported<sup>14</sup>. These results are comparable with our study in which out of six patients presenting with previous history of incision and drainage, two recurred with recurrence rate of 33% in that group.

The postoperative wound sepsis also increase recurrence rate after surgery<sup>6</sup>. In our study one patient developed wound sepsis and the recurrence. The use of perioperative antibiotics is advisable with full aseptic measures.

## CONCLUSION

A preauricular sinus is relatively uncommon problem. Most common factor for recurrence of the sinus is infection antibiotics requiring preoperatively. Avoidance of incision and drainage, use of perioperative antibiotics and full aseptic measures are recommended. Supra-auricular approach for excision of preauricular sinus is a batter technique as it give batter exposure and makes subsequent surgery more straight forward. The recurrence rate

with this technique is also less as compare to already reported recurrence with standard surgical technique.

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