Outcome of Patients Presenting With Preauricular Sinus in a Tertiary Centre – A Five Year Experience

I P Tang, MD, S Shashinder, MS (ORL-H&N), S Kuljit, MS (ORL-H&N), K G Gopala, FRCS

Otorhinolaryngology Department, Faculty of Medicine, University of Malaya, 50630, Kuala Lumpur

SUMMARY

We reviewed the recurrence rate and possible factors influencing recurrence of preauricular sinus after excision. Seventy-one patients with 73 preauricular sinuses seen at our centre from year 2000 to 2005 were reviewed in this study. The overall recurrence rate was 14.1%. Twelve sinuses needed to be drained for an abscess prior to a definitive surgery. Different modalities used in demonstrating the sinus tract between methylene blue alone and probing together with methylene blue, showed different outcomes, which were statistically significant with a p value of <0.05(chi-square test). A preauricular sinus with a previous history of infection or actively infected during the definitive surgery may have a higher tendency of recurrence. Meanwhile demonstrating the sinus tract by probing with lacrimal probe/sinus probe followed by injection of methylene blue reduces the recurrence rate (p<0.05 with chi-square test).

KEY WORDS:
Preauricular sinus, Excision, Outcome, Recurrence

INTRODUCTION

Preauricular sinus is a common congenital abnormality described by Van Heusinger in 1864[1]. It is rare in Caucasians (1%)[2], but common among African and Oriental races (4-10%)[3]. Most patients with preauricular sinus are asymptomatic. Not infrequently, patients present with discharge from the sinus either as a result of desquamating epithelial debris or infection. The diagnosis is made clinically and asymptomatic patients require no treatment. However, if repeated infection occurs, excision of the sinus may be necessary[5]. The tract is prone to recurrence if it is not completely excised[6].

Most patients undergo excision of sinus tract after the infection has subsided. Some patients have an abscess drained and others have surgery with an active infection in situ. Various techniques can be used to identify the tract and its extension. Some surgeons add the excision of the cartilaginous attachment at the base of the tract as well[5].

In this study, we evaluated a group of patients who had primary resection of a preauricular sinus. Our aim was to review the recurrence rate and the surgical factors influencing it and to compare our results with other centers.

MATERIALS AND METHODS

Seventy-one patients with 73 preauricular sinuses attended the ORL clinic at our centre between the years 2000 to 2005 as per record office data. Fifty-one out of 71 patients with 51 preauricular sinuses underwent preauricular sinus excision. The demographic, clinical, operative and postoperative data of these patients were reviewed and collected (Table I).

All of these factors were analyzed statistically for their role in affecting sinus recurrence by using a chi-square test of significance. Each group of patients with a suspected factor to be associated with high recurrence rate was compared with the group of patients in whom this factor was not present.

RESULTS

Thirty-two patients (45%) were male and 39 patients (55%) were female (Table I). The mean age at presentation was 26.7 years with the most patients presenting between 0-5 years and 21-25 years old. Sixty-nine out of 71 had unilateral preauricular sinus out of which 60.6% presented with left, 36.6% with right preauricular sinus and two had bilateral preauricular sinuses. Forty-one of 51 patients were indicated for surgery because of history of infection of the tract and 10 of 51 patients underwent surgery secondary to swelling of preauricular sinus without stigmata of infection.

An abscess requiring incision and drainage before the definitive procedure was present in 12 of 51 patients (Table II). Thirteen patients had an infection at the time of definitive surgery. All the sinuses were operated with the standard technique which was total excision of the sinus tract. Two different operative techniques were used to identify the extension of sinus tracts. In the first group of 30 patients, injection of methylene blue as dye was performed to identify the extension of sinus tracts. Meanwhile probing with fine lacrimal probe/sinus probe followed by injection of methylene blue into the tract to delineate its course was used in the rest of 21 patients. Twenty-seven of 51 patients with preauricular sinus were operated by ORL surgeon meanwhile 24 patients were operated by resident student under supervision of a surgeon.

All the recurrences occurred within a mean time interval of four months from time of surgery. Average range of follow up post excision was eight months with the range from 1 to 24 months depending on whether any complications developed after operation. The patients were advised to come back to

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Corresponding Author: Shashinder Singh, Otorhinolaryngology Department, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia

ORL clinic if any complications developed even if they were discharged from the clinic early. The overall recurrence rate was 14.1% (10 patients). Of the sinuses needing drainage for an abscess before the definitive surgery, 4 (33.3%) recurred and 6 (15.3%) of 39 sinuses recurred in the patients who did not have an abscess. The difference between these groups is statistically insignificant with a p value of 0.17 but with an odd ratio of 2.75. Four (30.7%) out of 13 sinuses that were actively infected at the time of the definitive surgery recurred. In 38 non-infected sinuses, only 6 (15.7%) recurred. However, this was statistically not significant.

Nine (30%) out of 30 sinuses recurred in the tract demonstrated by injection of methylene blue only compared to only 1 (4.7%) of 21 sinuses recurred in the tract recognized by probing with lacrimal probe followed by injection of methylene blue. This was statistically significant (p value= 0.025). Out of 27 sinuses excision done by ORL surgeon, 5 (18.5%) recurred. On the other hand, 5 (20.8%) of 24 sinuses excision recurred which were performed by resident student. This was statistically insignificant as p value is 0.835 with the odd ratio of 0.86.

DISCUSSION

The external ear is formed embryologically from six hillocks, which arise from the first brachial arch. Failure of complete fusion of the hillocks results in the formation of preauricular sinuses stated by intertubular theory of His in 1885[7]. The preauricular sinus is thus closely related to the groove between the tragus and the anterior end of helix. They are usually multibranched and ramifying within the preauricular soft tissue. Therefore, the exact identification of the sinus and all its ramifications for a complete excision especially over the cartilage of the helix and the tragus can be potentially difficult[8].

Most patients are asymptomatic but if active discharge or infection commences, surgical excision of the sinus tracts should be done. When the tract is not completely excised, the recurrence is very likely. The recurrence rate has been stated to be as high as 42 precent[9, 10]. Repeated infections and procedures at the same location will make both excision of the tract and closure much more complex. Therefore, some authorities have recommended early excision of the sinus tract, whereas others have suggested the prophylactic excision of the noninfected sinuses[5].

Different techniques have been used to identify the sinus tract before the excision of the tract. Injection with methylene blue and probing the tract with lacrimal duct probe or sinus probe are the basic modalities used to recognize the sinus tract[5, 12]. In this retrospective study, a group of 51 patients who had undergone primary resection of 51 preauricular sinuses were evaluated. The factors predisposing to recurrence had been found after the initial sinus tract excision.

The presence of an abscess prior to surgery had a higher recurrence rate (33.3%) compared to non abscess group (15.3%). However, the difference was statistically insignificant. The odds ratio for these two groups was 2.75 which mean the tendency for recurrence in the group with an abscess is higher compared with the non-abscess group. It may be due to the fact that a significant infectious process will produce fibrotic and edematous changes and postoperative scarring[5]. These changes may distort the normal tissue structure and the sinus tract landmarks making definitive surgery more complex. Therefore, the complete excision of sinus tract is more difficult and increases the chances of leaving squamous epithelium behind to cause recurrence[11].

Table I: Patients' Demographic, Clinical, Operative and Postoperative Data

	No. (%)
Number of patients/number of sinuses	71/73
Number of patients/sinuses for excision	51/51
Male / Female	32(45)/39(55)
Side of sinus (left/right/bilateral)	43(60.6)/26(36.6)/2(2.8)
Referral (walk in /referral)	10(14)/61(86)
Age at first visit in clinic (mean)	26.7(range 1-63)
Race (Malay/Chinese/Indian) according to identity card	34/22/15
Indications for surgery (aesthetic/cyst/infection)	0/10/41
Location of surgery (major/ daycare/minor)	35/15/1
Average range of follow-up post excision (months)	8(range 1 -24)
Complications (no/wound infection/recurrence)	38/3/10

Table II: Factors Associated with Recurrence of Excised Preauricular Sinus

Factors	Total No. of Sinuses	No. Recurred
Presence of an abscess prior to surgery	12	4
Absence abscess	39	6
Active infection in definitive surgery	13	4
No active infection	38	6
Injection of methylene blue in surgery	30	9
Probing and injecting methylene blue in surgery	21	1
Done by ORL surgeon	27	5
Done by Resident student	24	5
Overall	51	10

The recurrence rate was higher in the actively infected preauricular sinus at the time of surgery compared to the non infected group even though the difference is statistically insignificant. However, the odds ratio of 2.37, suggested a higher tendency for recurrence if infection was present at surgery with the same reasons as explained above.

The sinus tracts which were recognized by probing with lacrimal probe followed by injection of methylene blue showed 4.7% recurrence compared with 30% using methylene blue only. The difference is statistically significant with p value <0.05. This is attributed to the lacrimal probe/sinus probe which helps to identify the main tract of the preauricular sinus but not the small multibranched ramifications which is then identified by using methylene blue. The adding of both modalities to identify the sinus tract reduces the incomplete excision of sinus tract.

There was no statistical significance of the recurrence rate among the operation done by ORL surgeon or resident student. This may be due to the supervision the students received while performing the surgery. Our patients presented late with a mean age of 24.5 year as compared to developed countries where patients present in their first decade of life. This was probably due to poor understanding of the disease among the general practitioners or patients.

In conclusion, surgical drainage of an abscess before definitive surgery, active infection at the time of the definitive procedure and failing to demonstrate the tract at surgery by dye injection or probing may cause a higher recurrence rate after perauricular sinus excision: We recommend the approach of demonstrating the sinus tract by probing with lacrimal probe then followed by injection of methylene blue as dye into the tract before wide excision of the tract with or without cartilage removal (at the site of attachment of the tract) as seen in other studies. Earlier referrals may reduce the risk of repeated infection to the sinuses and therefore reduces the probability of recurrence.

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