

PRE-AURICULAR SINUS AND ITS MICROSURGICAL EXCISION

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Objectives: To determine the role of operating microscopic magnification in reducing its recurrence after surgical excision of pre-auricular sinus.

Methods: All patients who underwent microscopic magnification guided surgical excision of pre-auricular sinus were studied. Follow up was carried out for one year for recurrence and other complications.

Results: One year follow up revealed satisfactory results regarding recurrence (10%) and post operative complications.

Conclusions: Magnification under operating microscope gives good results regarding recurrence, tissue trauma, wound infection, ugly scar and complete excision.

Keywords: Pre-auricular pit / sinus, Microscope.

Introduction

Pre-auricular pits or sinus are skin lined depressions found just anterior to anterior crus of helix. They may be shallow or extend down to cartilage. A pre-auricular sinus is a deeper squamous or columnar epithelium lined tract, which can extend medially usually at the tympanic ring.¹ Pre-auricular pits/sinus are a common congenital abnormality, first described by Van Heusinger.² In 1864 Robertberg defined that it is a congenital lesion in which a small skin opening, located anterior to pinna communicates with a subcutaneous network of cysts.³ Pre-auricular pits are inherited through an autosomal dominant gene with incomplete penetrance.⁴ They are usually bilateral and asymptomatic, although filled with small amount of cheesy, keratin debris. During sixth week of gestation, six small buds of mesenchyme appear around dorsal end of first branchial cleft called hillocks of HIS, three from 1st (Mandibular Arch) and three from 2nd (Hyoid Arch). The Mandibular Arch develops into Tragus (1st Hillock), Helix (2nd & 3rd Hillocks). While Hillocks 4 & 5 form Anti Helix and 6th hillock forms Ear Lobule.^{5,6,7} The auricle begins in anterior neck region, then migrates dorsally and reaches in its adult location at 20th week of gestation.⁸ Pre-auricular sinuses arise because of disunion of hillocks of mandibular and hyoid arches. It presents as a small opening in the skin anterior to crus of helix. From this opening a long branched tract may run under the skin between helix and tragus and anterior to tragus. Tract is lined with squamous epithelium, is often cystic and patient is initially seen because of infection of the cyst and purulent discharge. Recurrent infection can lead to pre-auricular ulcer. Recurrent infection is the

indication for surgical excision. If infection is present this should first be treated with injectable antibiotics (according to culture and sensitivity) and analgesics. Incision and drainage should be avoided. In acute infection no surgical excision should be done to avoid spread of infection. Incomplete removal is associated with draining sinuses, requiring their complete excision which is more difficult. Also difficulty of surgery is caused by branching of the tract cysts. Patients with pre-auricular sinuses present with persistent discharge, recurrent infection and recurrence after incomplete surgical excision. Several methods have been used for complete surgical excision to improve success rate, including use of pre operative sinogram, per operative use of injection methylene blue into the tract and lacrimal probe.⁹ The objective of this study is to get help of magnification of operating microscope for complete surgical excision of the sinus tract.

Patients and Methods

This is a hospital based study done at Mayo Hospital and Services Hospital, Lahore. All patients who presented in OPD of ENT Departments of these hospitals were included in the study consecutively. Those patients who presented in acute phase were first controlled of infection with injectable or oral antibiotics (according to culture and sensitivity) and analgesics. Those who presented with abscess formation were 1st treated with aspiration of purulent material through sinus tract with wide bore I.V branula. After control of infection relevant investigations required for general anesthesia were done and after consent for G/A the sinus tract was excised under magnification of operating

With adrenaline 1:200,000) was infiltrated subcutaneously for vasoconstriction, bloodless field and proper complete excision of the tract & its ramifications. The wound was closed with 5/0 prolene. No drain was inserted. Post operative antibiotics were used. Stitches were removed after five days. All patients were followed up.

Twenty five patients were enrolled for study, seven were females and eighteen were males. Five patients had bilateral pre-auricular sinuses, thirteen patients had pre-auricular sinuses on left side and seven had on right side. Twenty patients were less than ten years and five were more than ten years of age. Five patients presented with recurrent discharging sinus. Surgery was done in some other hospital.

Results

Twenty-five patients were included in this study. Complete surgical excision was done under microscopic magnification. Follow-up was done for one year regarding recurrence, tissue-trauma, wound infection, ugly scar and complete excision. Recurrence did not occur in any patient during one-year follow-up. The quality of scar was also good.

Table-1: Sex distribution.

Gender	No of Case	Percentage
Male	18	72%
Female	07	28%

Table-2: Site distribution.

Site	No of Case	Percentage
Left	13	52%
Right	07	28%
Bilateral	05	20%

Table-3: Age distribution.

Age	No of Case	Percentage
Less than 10 years	20	80%
More than 10 years	05	20%

Discussion

A pre-auricular sinus/pit is a common congenital lesion. Complete excision of the pit or sinus tract is

the only definitive cure to the patients, after infection is eradicated properly. Recurrence of pre-auricular sinus is manifested by recurrence of abscess and / or persistence of discharge. In secondary surgery chances of surgical failure are more than primary surgical excision. Instillation of methylene blue in the sinus tract helps in complete excision of the tract but it stains the surrounding tissues if extravasation or rupture of the tract & spillage of the dye occurs per operatively and so proper excision of the tract does not occur and can lead to persistence of sinus tract remnants and recurrence of the symptoms which can range from 9-42%.¹² Guru and co-workers have reported a recurrence of 8.22% without infection and 15.79% in the presence of infection.⁴ Per operative lacrimal probe insertion can also help in sinus tract excision. Results are always better in primary surgical excision. We have adopted a better technique of sinus excision under magnification of the operating microscope. Such technique was used by Tan T and co-workers in 2005.¹³ Similarly Kumar Krishna also has done same study of excision of pre-auricular sinus under microscopic magnification and reported good results. He is of the opinion that this method enables precise dissection without any epithelial breach.¹⁴ In our study, we also had good and satisfactory results.

Conclusions

It is concluded that operating microscopic magnification is very helpful for complete surgical excision of pre-auricular sinus tract and its ramifications. Surgery should not be done in the presence of acute infection. Infection first should be treated with appropriate culture and sensitivity report directed antibiotics and analgesics and anti-inflammatory drugs.

If abscess has already formed incision and drainage should not be done rather it should be drained with wide bore no.16 I/V branula through sinus opening. We recommend the use of operating microscope in every case of pre-auricular sinus excision.

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References

1. ANTHONY F JAHN: Non inflammatory lesions of the external ear. Diseases of Ear. Sixth Edition. HAROLD L U N D M A N & TONYWRIGHT 1998; 319-327
2. Heusinger Cf. Halskiemen-fisteln Von Noch Nicht Beobachter Form: Virchows Arch 1864; 358-65.
3. ROBERT J. BEATENBURG DE JONG: A new surgical technique for treatment of preauricular surgery. Surgery 2005; 137:567-70.
4. GUR E, YEUNG A, AL-AZZAWI M, THOMSON H: The excised preauricular sinus in 14 years of Experience: Is there a problem? Plast Reconstr Surg 1998; 102: 1405-8.
5. DE LA CRUZ A, HANSEN MR: Reconstruction surgery of the ear: auditory canal and tympanum. In: CUMMINGS CW, FLINT PW, HARKER LA, et al, editors. Otolaryngology head & neck surgery. 4th edition, Philadelphia: Mosby; 2004.p. 4439-44.
6. Cunningham MJ, Aguilar E. Congenital auricular malformation. In: BAILEY BJ, JOHNSON JT, NEWLANDS SD, et al, editors. Otolaryngology head and neck surgery. 4th edition, Philadelphia: LIPPINCOT, WILLIAMS and WILKINS; 2006.p.2691-700.
7. LEE KJ. Essentials of otolaryngology. 5th edition. 2003. McGRAW-HILL.
8. Z I M S A . Microtia reconstruction, an update. Curr Opin Otolaryngol Head Neck Surg 2003; 11(4):275-81.
9. Joseph VT, Jacobsen AS. Single stage excision of Preauricular sinus. Aust N Z J Surg 1995; 65:254.
10. Enepekides DJ. Management of congenital anomalies of the neck. Facial Plastic Surg Clin North Am 2001; 9:131-45.
11. Waldhausen JHT. Branchial cleft and arch anomalies in children. Semin Pediatr Surg 2006; 15:64-9.
12. O'MARA W, GUARISCO L. Management of the preauricular sinus. J La State Med Soc. 1999 Sep; 151(9): 447-50.
13. Tan T, Constantinides H, Mitchell TE. The preauricular sinus: A review of its aetiology, clinical presentation and management. Int J Pediatr Otorhinolaryngol. 2005 Nov; 69(11): 1469-74.
14. Kumar Krishna K, Narayana-murthy VB, Sumathi V, Vijay R. Preauricular sinus: Operating microscope improves outcome. Indian Journal of Otolaryngology and Head and Neck Surgery. 2006; 58(1); 6-8.