

MICROSCOPE-ASSISTED DISSECTION OF PREAURICULAR SINUS: OUR EXPERIENCE

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ABSTRACT**BACKGROUND**

PAS (Preauricular Sinus) is a common congenital condition of external ear. It is seen in front of external ear as a small dimple or pit. When infected, it presents as swelling with pain and discharge from sinus with foul smell. There are many terminologies used for this condition like preauricular pit, preauricular tract and helical fistula.¹ It was first described by Heusinger in 1864.² It is more often unilateral than bilateral. Right side is more involved and females are more affected than males.³ PAS is an embryological malformation associated with development of pinna in 6th week of gestation. Embryologically six mesenchymal hillocks form the auricle - three hillocks from first arch and three hillocks from the 2nd arch. These hillocks fuse to form the pinna and incomplete fusion of these hillocks give rise to preauricular sinus.¹ Another theory states that PAS develops from ectodermal folding.^(4,5,6)

OBJECTIVE

The rationale of this study is to highlight the surgical advantage achieved with the aid of operating microscope combined with standard surgical techniques.

MATERIALS AND METHODS

A prospective longitudinal study was conducted in the department of ENT, Santhiram Medical College and General Hospital, Nandyal between November 2013 and March 2015. A total of 7 patients were diagnosed with preauricular sinus and were planned for excision. A thorough ENT examination was done and the syndromes commonly associated with PAS were ruled out. All patients were examined by a physician for systemic diseases and were declared fit for surgery. All the cases were operated by first author under local anaesthesia. Surgery was done using simple elliptical incision around preauricular sinus pit and dissection proceeded with the aid of operating microscope (Carl Zeiss, Movena).

RESULTS

Out of 7 patients, 5 were females and 2 were males. 6 were unilateral and only one case was bilateral, 4 cases were right sided and 2 were left sided. Two patients had scars of incision and drainage done previously for abscess formation. All were primary cases. None of the cases were part of any syndromes associated with PAS. Patients were aged between 15 yrs. to 45 years. Followup period was between 9 months to 2 years. Six patients presented with quiescent stage of disease and were considered for immediate surgery. One female patient presented with abscess formation and facial cellulitis. Incision and drainage was done for the patient and surgery had to be deferred for 3 months to get rid of the residual infection.

CONCLUSION

PAS (Preauricular Sinus) is a common congenital condition of external ear. PAS is multibranched and has several ramifications. Hence it is prone to recurrence if the tract is not completely excised. Microscopic magnification combined with methylene blue dye gives a better result. Preauricular soft tissue is dissected along with the sinus tract to avoid recurrence and remove all ramifications of PAS tract.

KEYWORDS

PAS, Microscope, Methylene Blue, Quiescent Stage.

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INTRODUCTION: PAS (Preauricular Sinus) is a common congenital condition of external ear. It is seen in front of external ear as a small dimple or pit. When infected, it presents as swelling with pain and discharge from sinus with foul smell. There are many terminologies used for this condition like preauricular pit, preauricular tract and helical fistula.¹ It was first described by Heusinger in 1864.² It is more often unilateral than bilateral. Right side is more involved and females are more affected than males.³

PAS is an embryological malformation associated with development of pinna in 6th week of gestation. Embryologically six mesenchymal hillocks forms the auricle - three hillocks from first arch and three hillocks from the 2nd arch. These hillocks fuse to form the pinna and incomplete fusion of these hillocks give rise to preauricular sinus.¹ Another theory states that PAS develops from ectodermal folding.^(4,5,6)

The course of the sinus in preauricular subcutaneous tissue is not constant, but with ramifications upwards and medially,⁷ externally the sinus is located superficial to temporalis fascia, lateral and superior to parotid gland, facial nerve and more important terminal part near or adhering to first part of helical cartilage.⁶ Most of the PAS are silent. Surgery is indicated usually after at least two episodes of infection.^(7,8) and preferably in quiescent stage.⁹ The most common causative pathogen isolated is Staphylococcus and less frequently Proteus, Streptococcus and Peptococcus.¹⁰

In literature apart from few modifications, the standard surgical procedure for PAS is simple sinectomy. An elliptical incision is given around the preauricular pit and dissection proceeds in subcutaneous plane towards helix. Later in 1990, supra-auricular approach was described in which a standard elliptical incision is extended to supra-auricular region.¹¹ His modification widely practiced nowadays makes dissection easier, reduces recurrence.¹² and makes scar aesthetically pleasing and acceptable to the patient. The rationale of this study is to highlight the surgical advantage achieved with the aid of operating microscope combined with standard surgical techniques.

MATERIAL AND METHODS: A prospective longitudinal study was conducted in the department of ENT, Santhiram Medical College and General Hospital, Nandyal between November 2013 and March 2015. A total of 7 patients were diagnosed with preauricular sinus and were planned for excision. A thorough ENT examination was done and the syndromes commonly associated with PAS were ruled out. All patients were examined by a physician for systemic diseases and were declared fit for surgery. All the cases were operated by first author under local anaesthesia. Surgery was done using simple elliptical incision around preauricular sinus pit and dissection proceeded with the aid of operating microscope (Carl Zeiss, Movenia).

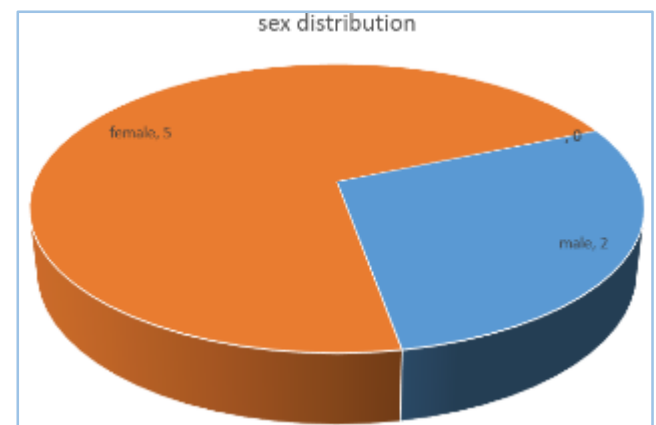
Inclusion Criteria: Patients in age group of 15-45 presenting in quiescent stage of PAS.

Exclusion Criteria: Patients suffering from active infection and any PAS associated syndrome.

Patients were adequately sedated and continuously monitored by an anaesthetist throughout the procedure. After local disinfection 1:100000 2% Xylocaine with adrenaline was injected around the preauricular sinus. A lacrimal probe was used to gently probe the sinus for its extension and methylene blue dye is injected into the sinus with a lacrimal cannula.

An elliptical incision is given around the sinus pit and dissection proceeded with fine dissecting scissors with the dye guiding the dissection. A small Babcock forceps is used to hold and lock the mouth of sinus opening avoiding spillage of dye into surgical field. Using 0.6 magnification and 200 mm focal lens of operating microscope dissection is carried out meticulously with fine dissecting scissors towards the helix. It is true that methylene blue does not help to identify the ramifications as stated in some studies but the dye when combined with magnification gives a better result. Wound is closed without drain as perfect haemostasis is achieved with microscope. Preauricular soft tissue is dissected along with the sinus tract to avoid recurrence and remove all ramifications of PAS tract.

RESULTS: Out of 7 patients, 5 were females and 2 were males. 6 were unilateral and only one case was bilateral.



4 cases were right sided and 2 were left sided. Two patients had scars of incision and drainage done previously for abscess formation. All were primary cases. None of the cases were part of any syndromes associated with PAS. Patients were aged between 15 yrs. to 45 years. Followup period was between 9 months to 2 years. Six patients presented with quiescent stage of disease and were considered for immediate surgery. One female patient presented with abscess formation and facial cellulitis. Incision and drainage was done for the patient and surgery had to be deferred for 3 months to get rid of the residual infection.

DISCUSSION: PAS is a congenital condition commonly found in routine ENT examinations. Most of them are asymptomatic and appear as a small pit in front of the helix. Patients present with foul smelling discharge, swelling, pain and rarely facial cellulitis. When infected an incision and drainage is done primarily and a surgery is planned in later stage. PAS is multibranching and has several ramifications. Hence it is prone to recurrence if the tract is not completely excised. There are no proper guidelines regarding the timing of PAS excision. However, in literature there is a general agreement for surgical excision to be performed after, at least, two previous infections and in quiescent stage. In our study, all the cases were operated in quiescent stage only.

Our results are similar to a study done by Taneja et al¹³ who attained success rate with lacrimal probe, methylene blue and operating microscope. Several studies discourage the use of probe and methylene blue injection for the fear of causing a false tract with probe and inability of methylene blue staining to identify all the ramifications. In our study, we have used lacrimal probe to assess the extent of main tract approximately and the advantage of methylene blue staining can be augmented with operating microscope to dissect ramifications as well. All our surgeries were timed during quiescent stage of disease which is similar to study of Goel AK et al.⁹ Our study achieved 100% success rate with methylene blue stain in contrast to study by Awauh. P. et al¹ who recorded a 3 fold increase in recurrence with methylene blue stain. All cases in this study were operated under local anaesthesia with 100% success rate which is in contrast to study of Yeo et al¹⁴ where local infiltration had higher rate of recurrence than general anaesthesia.

CONCLUSION: PAS (Preauricular Sinus) is a common congenital condition of external ear. PAS is multibranched and has several ramifications. Hence it is prone to recurrence if the tract is not completely excised. Microscopic magnification combined with methylene blue dye gives a better result. Preauricular soft tissue is dissected along with the sinus tract to avoid recurrence and remove all ramifications of PAS tract.



Wound Closure without Drain



Dissection of the Sinus Tract



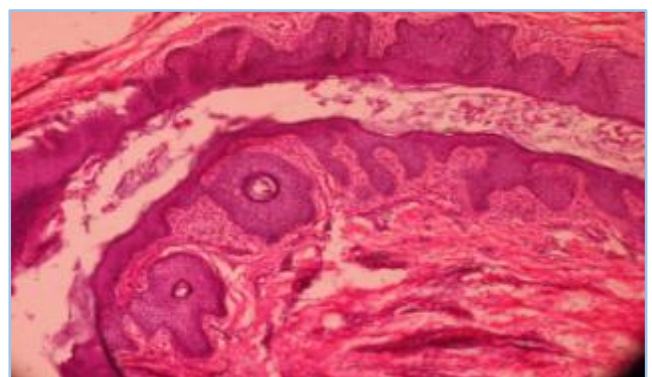
Methylene Blue Injection



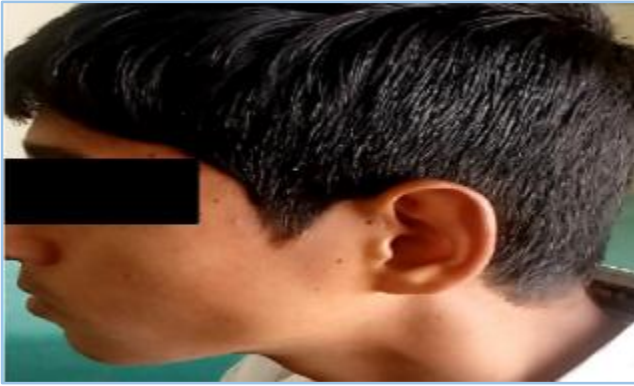
Excised Sinus Tract



Probing with a Lacrimal Probe



Microscopic Picture of Specimen



Post-operative Followup Picture

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