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ORIGINAL RESEARCH ARTICLE

AURICULAR DISSECTION METHOD FOR TREATMENT OF PREAURICULAR SINUS.

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ABSTRACT

Preauricular sinus is the common congenital disease with tendency for repeated infections. Standard surgical procedure i.e sinusectomy has more recurrence rate so we designed this study to observe the surgical outcome after supra-auricular dissection method. This is the prospective study conducted in Chitwan Medical College. All patients with problematic preauricular sinus were included for this study. All surgeries were done by single surgeon. Surgical outcomes were measured for short and long term duration. Thirty nine patients of all genders with symptomatic preauricular sinus were undergone supra-auricular dissection. Majority of cases were unilateral disease, male patients, pits at ascending limb of helix, incision and drainage done previously. No recurrence is seen after this kind of surgery. supra-auricular dissection method is the preferred one to every case of PAS irrespective to age, previous surgery. It has no recurrence.

***Key Words:** Preauricular sinus, Sinusectomy, Supra-auricular dissection*

INTRODUCTION

Pre auricular sinus (PAS) is the congenital malformation seen around the external ear and first described by Heusinger in 1864[1]. It may present as a pit, cyst, abscess in unilateral or bilateral ear. It is the common malformation developed from first branchial arch during sixth week of gestation, probably due to incomplete fusion of six auditory Hillocks of His. Another hypothesis is the development from isolated ectodermal folding[2]. It is asymptomatic in most cases but intermittent painful swelling, foul smelling discharge are other presentations.

Surgery is the desired option to prevent recurrence. The recurrence rate is high as a result of incomplete removal. Various factors like previous surgery, ramifications, surgical techniques used are responsible for recurrence. The standard technique for excision of PAS, Sinusectomy, has reported recurrence rate from 19% to 42%[3,4]. Supra-auricular dissection method, drainless minimal supraauricular dissection methods have low recurrence rate[5]. We designed this study of supra-auricular dissection for all cases aiming to decrease recurrence rate with good operative view, without dye and without post-operative drain with cosmetically acceptable scar mark. We evaluated the surgical outcome in short and long term basis.

MATERIALS AND METHODS

It is the prospective, longitudinal study conducted in Chitwan Medical College Teaching Hospital in Nepal from July 2010 to July 2014. All cases of symptomatic pre auricular sinus (PAS) who attended our hospital were included in our study. Those patients presenting with sign of acute infection like cellulitis, abscess were postponed till infection subsides. All surgical procedures were done by first author. Statistical analysis was done using SPSS v20 software. Dissection method was similar to Bae et al[5] with few modifications.

Patients of all age group who presented with symptomatic PAS were evaluated for surgery. Patient of less than 14 years of age group who were going to be operated under general anesthesia were admitted in ward but more than 14 years were planned under local anesthesia and called on the same day of surgery. Part preparation was done with shaving around the ear. Patients going to be operated under local anesthesia were sedated with intramuscular injection of Pethidine 50 microgram (mg) and Promethazine 25 mg in gluteal region half an hour before surgery. Other patients were anesthesized with oro-tracheal intubation. Lignocaine 2% with added adrenaline was infiltrated around operating ear. Elliptical incision was designed around the external opening of tract with extension from incissura terminalis to upper attachment of pinna. Surgical thread was secured at the pit to pull the tract during the procedure. Dissection was continued along the tract with confirmation by digital palpation up to temporalis fascia medially .Part of cartilage adjoining to tract, subcutaneous tissue, ramifications all were removed. End of the tract was confirmed by longitudinal opening and use of lacrimal probe to find blind sac .Surgical field was rechecked for possible remnant, if seen extra dissection was planned. Surgical cavity was washed with normal saline. Wound closed in layers from inferior to superior direction obliterating dead space. No drain was inserted but compressive dressing applied

for 2 days .Patients were asked to follow up every alternate day for first week. They were evaluated for complication. Patients were kept in touch through telephone, e-mail.

RESULTS

Thirty nine patients were enrolled aiming to operate single ear of the patient at a time. Age of the patients were in between 5 to 28 years with maximum 20 patient(51%) between 11-20 year and minimum 3(8%) in between 21-30 year. Most of them were male patients 24(61.5%). Female were 15(38.5%). Unilateral disease was found be most common with unilateral presentation in 27(69%) and bilateral in 12 (31%). Pre auricular pit is the most common finding i.e 36 (92%) followed by pre-auricular cyst i.e 3(8%). Location of sinus or cyst was found adjoining to ascending helix in 35(90%) cases and remaining 4(10%) were found at concha. Among the cases of ascending helix, 20(57%) were attached to the perichondrium without invasion of cartilage and remaining 15(43%) were intra-cartilaginous. Pit seen at conchal cartilage, all had cartilage invasion. Most common surgical intervention(67%)done previously was incision and drainage due to abscess formation ,sinusectomy was done in 10% cases ,remaining cases had history of painful discharge managed with oral medication without any surgical intervention. Only 3(8%) cases had family history of similar illness with their mother. Most of the surgeries (54%) were done under local anaesthesia. All general anaesthesia cases were done in children less than 14 years of age.

Part of the adjoining cartilage was removed in all cases. Larger piece of cartilage was removed from those cases that had intra-cartilagenous invasion. 5% cases had double and 5% cases had multiple identifiable ramifications. None of the cases had parotid capsule invasion. Single complication had noticed in a female patient who had developed pus collection seen in 4th post-operative day. She was admitted for intravenous antibiotics and completely resolved after four days. This patient had pre auricular pit adjoining to ascending helix with intra-cartilagenous invasion. None of the patients had developed perichondritis. None of the patient has recurrence till now.

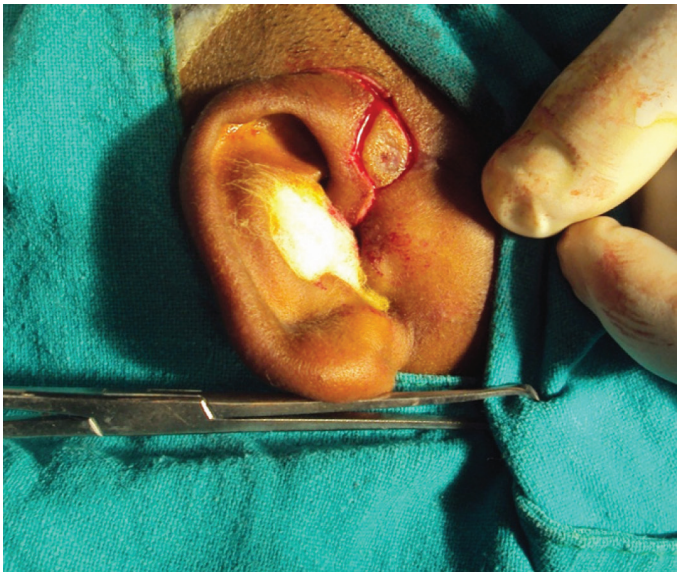

Fig 1: Incision for supra-auricular dissection

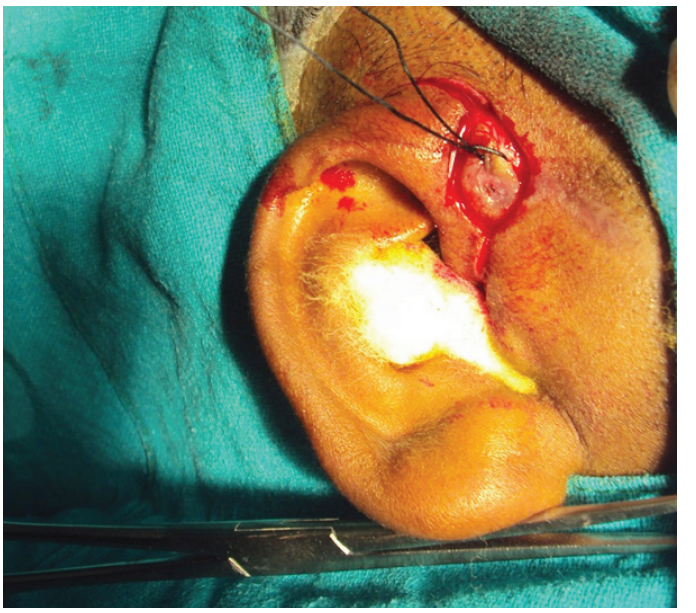

Fig 2: Surgical thread secured before dissection

Fig 3: Surgical cavity after dissection with exposure of temporalis fascia

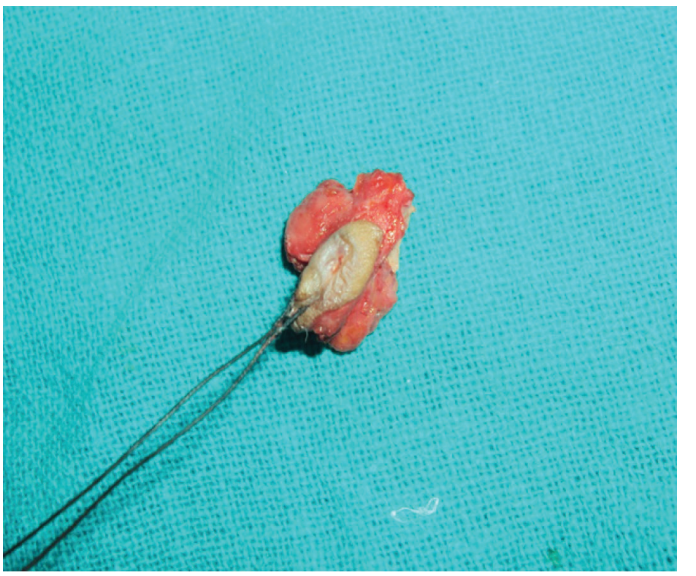

Fig 4: En-block resection of sinus, part of cartilage and surrounding soft tissue

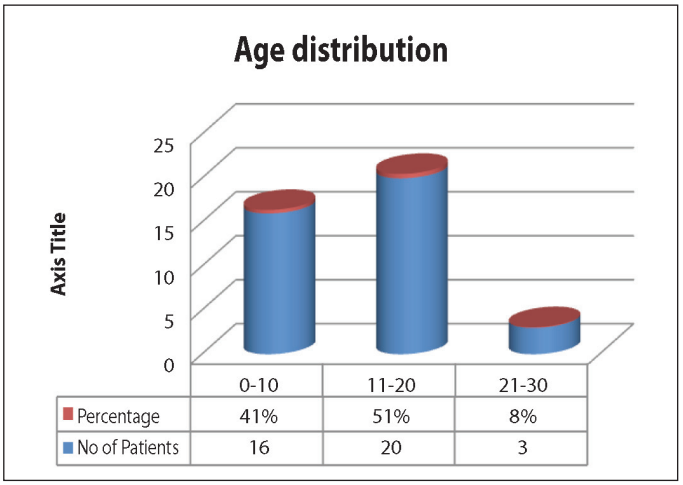

Fig 5: Chart showing age group and frequency of PAS

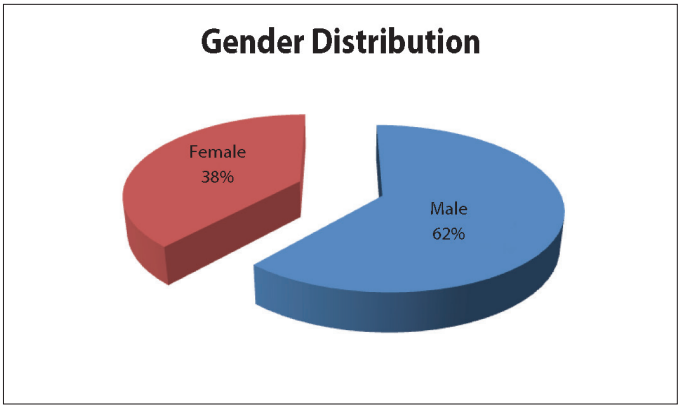

Fig 6: Chart showing gender distribution

DISCUSSION

Pre auricular sinus is the common disease among congenital disorders. Incidences of PAS are 0.1% to 0.9% in the United States, 0.9% in England [6] and 1.13% in Singapore. [7] No gender predilection is seen significantly in studies. Male number is more in our study but more occurrences is seen in women [4,8] as well. Although PAS is present at birth, it becomes symptomatic only after repeated episode of upper respiratory tract infection. PAS is commonly unilateral, sporadic, not associated with other congenital anomaly but may manifest as association with other congenital syndrome. Bilateral presentation is less frequent. In our study bilateral presentation is only 31% and none of the patients were syndromic. Apart from the classical position at ascending helix, other unusual positions at concha, post-aural region are also mentioned. Only 10% are found at conchal region in our study, remaining at ascending helix. 5% double and 5% multiple identifiable ramifications were seen in our study but Ahuja et al[9] reported that maximum width of the tract was 3 mm, 27% has branching pattern and 40% had terminal ramifying appearance.

Most patients with PAS are asymptomatic; only 25% of the patients develop symptoms. Most common symptom is the recurrent discharge associated with pain. If acute infection persists for considerable time, abscess can develop which requires incision and drainage procedure. Once infection occurs, possibility of recurrence of infection is high. So, recurrent PAS requires complete excision. The standard technique of PAS removal is a simple sinusectomy. In this technique, an elliptical incision is designed around the sinus opening, and dissection is done along the individual tracts. The recurrence rate with this technique is between 9% and 42%[10]. The supra-auricular technique was introduced by Prasad et al[3] to improve surgical results, reducing the recurrence rate to 5%. The author believed that all sinus, fistula are located superficial to the temporalis fascia in subcutaneous plane with varying degree of adhesion to the aural cartilage. Principle of this surgery is clearance of all surgical fields without following the specific tract. In this technique, the incision is extended to the supra auricular area to identify the temporalis fascia, which is the medial border of the dissection. In addition, the cartilage of the helix, which is the posterior border of dissection, can be readily identified. The excision of a portion of cartilage at the base of the sinus tract prevents the incomplete removal of the closely adherent epithelial lining. Subsequently, en bloc resection of the tissue superficial to the temporalis fascia, a portion of the cartilage and the sinus tract can be performed with this technique[3]. A comparison of the standard technique and supra-auricular approach reported recurrence rates of 32% and 3.7% respectively[8] .Incision is larger in supra-auricular dissection method like in End-aural approach but cosmetically acceptable. In our technique, we modified few steps. We used surgical thread to hold the tract so that manipulation of tract to different direction during the procedure is easy. Confirmation of main branch of tract with digital palpation is easy and reliable as compare with methylene blue because dye has vital tissue diffusion and cannot delineate every ramification of tract especially in previously intervened cases. Use of lacrimal probe to delineate the whole tract is useless because of possibility of false tract but useful to confirm the end of tract after excision. Compressive dressing is adequate avoiding the need of drain. A compression dressing can cause slippage of the bandage, skin necrosis, alopecia, and allergic reactions[11], but none of these disadvantages identified during short course of compressive bandage. No recurrence is seen till now with maximum follow up of four year duration. Yeo et al [12] mentioned that most recurrences are known to occur within one month. Leopardi et al[13] had no recurrence after supra-auricular dissection but sample size was only six in number. Initially this type of surgery was practiced in children and recurrent cases after standard sinusectomy failure but we used in every cases to avoid recurrence because if happens so is it more problematic creating unaesthetic scar mark, extra financial burden to the patient.

CONCLUSIONS

Congenital preauricular sinus is commonly located at the ascending limb of helix. Most of the sinus tracts were attached to the perichondrium. All of the sinus tracts were superficial to the temporalis fascia. Supra-auricular dissection method without drain has no recurrence seen with maximum follow up of four year regardless of age of patient, previous surgery done and type of anaesthesia used.

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