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Original Article

Ear, Nose and Throat Section

A New Surgical Technique for Treating Pseudocyst of Pinna: A Prospective Interventional Study

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ABSTRACT

Introduction: Pseudocyst of pinna is a cystic swelling of pinna in which collection of serous fluid occurs between the auricular cartilage and perichondrium. Successful treatment of pseudocyst of pinna is very challenging because of high chances of recurrence and cosmetic deformity. Various treatment modalities have been described in the literature but none gives fully satisfactory result.

Aim: To present a new surgical technique for treating pseudocyst of pinna and to evaluate recovery and recurrence.

Materials and Methods: A prospective interventional study was done on 38 patients with pseudocyst of pinna at the Department of Ear, Nose and Throat (ENT), Sheikh Bhikhari Medical College, Hazaribag, Jharkhand, India, from September 2022 to February 2025. Aspiration and drainage with creation of a small triangular window in the most dependent part of pseudocyst was done. Mechanical obliteration of dead space was done with compression suture. Suture was removed on 7th postoperative day by the time window heals by secondary healing. Patients were kept on regular follow-up. The data were collected and entered in Excel sheet. The data was presented in the form of frequency table and percentages.

Results: Most of the patients in the present study were males (89%) with a mean age of 29 years and around 37% patients belonged between 21 to 30 years. All of them had unilateral pinna involvement. The concha was the most common site. Recurrence was not seen in any of them. One patient developed thickening of pinna due to late presentation.

Conclusion: Small triangular draining window in the most dependent part of pseudocyst with compression suture gives faster recovery, good cosmetic outcome and recurrence can be prevented.

Keywords: Auricular cyst, Compression suture, Ear deformity, Pinna surgery

INTRODUCTION

Auricular pseudocysts are a benign condition characterised by the asymptomatic, spontaneous, painless cystic swelling occurring on the lateral surface of pinna. It is an idiopathic condition in which serous or serosanguinous fluid collects between the cartilage and perichondrium of the pinna. It was first reported by Hartmann A in 1846 but later on described in English literature by Engel D in 1966 [1,2]. It is a pseudocyst as it does not have an epithelial lining. The exact cause for the development of pseudocyst of pinna is unknown; it may be either due to defect in the embryogenesis or due to repeated micro trauma [3]. Repeated minor trauma to the ear due to rubbing, ear pulling, sleeping on one side, wearing a motorcycle helmet, or using earphones leads to separation of the perichondrium from the cartilage and subsequent development of a cavity that becomes filled with serous or serosanguineous fluid leads to the development of a pseudocyst [4].

These patients present with a painless swelling of the ear with a mild foreign body sensation and heaviness on the affected side. Although pseudocysts can occur anywhere on the auricle, the most common locations are within the scaphoid fossa followed by triangular fossa and cymba concha [5]. Auricular pseudocysts predominantly affect young men and are mostly unilateral. The differential diagnosis of pseudocyst of pinna includes subperichondrial haematoma, relapsing polychondritis, chondrodermatitis nodularis helicis, epidermal inclusion cyst, dermoid cyst and cellulitis [6].

The main aim of the management of this condition is to treat the pseudocyst while maintaining the anatomical architecture of the auricle and avoiding complications and recurrences. Since the time it was first described in literature by Hartmann in year 1846 [1] various forms of treatment including medical and surgical have been proposed to treat this condition. The condition is often difficult to treat because recurrences and subsequent auricular deformities are common. Job A and Raman R reported successful outcome with oral corticosteroid alone [7]. Simple observation for three months, aspiration followed by pressure dressing, aspiration of fluid followed by injection of various substances such as steroids, trichloroacetic acid and triamcinolone, needle aspiration plus bolstered pressure sutures applied over both aspects of the cyst, incision and drainage with curettage and pressure dressing, surgical curettage and fibrin sealant has been shown to be effective in obliterating the cystic cavity. Resection of the anterior cartilaginous leaflet of the pseudocysts with repositioning of the overlying skin flap or the so-called deroofing technique followed by buttoning is also used [8]. Paul AY et al., in their study suggested punch biopsy on the inferior edge of lesions, allowing for open drainage of the fluid, followed by application of a bolster [9].

Although multiple treatment options are available for this condition, but there is no standard treatment because the less invasive methods like simple needle aspiration and intralesional injection of corticosteroid tend to have higher recurrence while more invasive methods like injection of a sclerosing agent with pressure dressing, incision and drainage with button suturing and plaster of Paris pressure dressing have higher risk of complications such as perichondritis and deformity of the auricle. Successful treatment of pseudocyst of pinna is very challenging because of high chances for recurrence and cosmetic deformity. If not properly treated, repeated recurrences could lead to permanent deformity of the affected ear.

The aim of the present study was to present and discuss a new surgical technique for treating pseudocyst of pinna and to evaluate recovery and recurrence.

MATERIALS AND METHODS

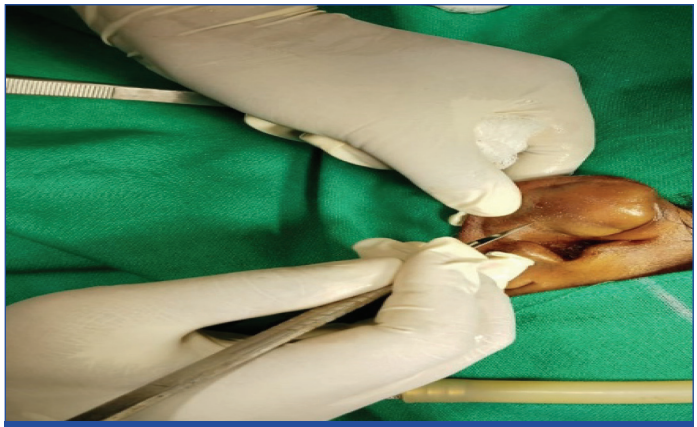
The present study was a prospective interventional study carried out in the Department of ENT, Sheikh Bhikhari Medical College, Hazaribag, Jharkhand, India, from September 2022 to February 2025. The ethical clearance was obtained from Institutional Ethics Committee vide letter no IEC/04/2024 Written consent was taken from each patient before the surgical procedure. Permission was also taken from the subjects regarding use of their pictures.

The pseudocysts were diagnosed on the basis of clinical presentation, characteristics of the aspirated fluids and no evidence of infection and it was confirmed by aseptic aspiration of non purulent straw or yellow colour fluid from the cyst during surgical procedure [8]. Patients were explained in detail about the nature of the disease and available treatment options including probable therapeutic complications and recurrence. Total 38 patients were taken in the present study.

Inclusion and Exclusion criteria: All the patients with pseudocyst who came during the study period were taken in the present study after their consent. All the patients who did not give consent were excluded.

Study Procedure

Operative technique: All the patients with pseudocyst of pinna were selected after routine blood investigations which included complete blood picture, renal function test, random blood sugar, Human Immunodeficiency Virus (HIV), Hepatitis B surface Antigen (HBsAg) and Hepatitis C Virus (HCV). Photograph of the affected ear was taken just before the surgery as shown in [Table/Fig-1]. The procedure was done under local anaesthesia using 2% lignocaine with adrenaline. Lignocaine with adrenaline was infiltrated locally around the pinna. Pseudocyst was aspirated aseptically with a sterilised 10 mL syringe and sent for culture and sensitivity. Aspiration and drainage with creation of a small triangular window in the most dependent part of pseudocyst was done [Table/Fig-2]. Underlying cartilage was not excised and it was left intact.



[Table/Fig-1]: Pseudocyst of pinna before start of surgical procedure in a 23-year-old male patient with right ear involvment.

[Table/Fig-2]: Triangular draining window in dependent part of cyst.

Mechanical obliteration of dead space was done with compression suture [Table/Fig-3]. The created triangular window acted as drainage for collected fluid and prevents further collection. Suture was removed on seventh postoperative day by the time window heals by secondary intention [Table/Fig-4]. This was a new technique which was not mentioned in any of the searched literature by the researcher. All the patients were put on oral antibiotic for seven days (Ciprofloxacin 500 mg BD) and a pain killer (Aceclofenac) for five days. Patients were kept on regular follow-up on 7th day, one month and three months postoperatively to see the recurrence and other complications.

[Table/Fig-3]: Mechanical obliteration with compression suture.

[Table/Fig-4]: Healed window site on 7th postoperative day.

STATISTICAL ANALYSIS

The variables recorded during the study were name, age, sex, locality, complaints, side of pinna involved, colour of aspirated fluid etc. The data were collected and entered in Excel sheet. The data was presented in the form of frequency table and percentages.

RESULTS

Total 38 patients were enrolled in the present study in which 34 were males (89.5%) and 4 females (10.5%). Most of the patients (37%) in present study were males between 21-30 years of age. The mean age was 29 years (SD±11.5). Involvement of both right and left ears was seen, but left ear was involved in 24 (63%) while right ear in 14 cases (37%), respectively. Bilateral involvement was not seen in the present study. Maximum numbers of patients had swelling involving concha (57.8%). The fluid aspirated was straw-coloured serous fluid in majority of patients (84%) while few of them (16%) had serosanguinous fluid. Culture of the aspirated fluid from pseudocyst was sterile in all cases [Table/Fig-5,6].

Recurrence was not seen in any case on seventh postoperative day and after one month and three months of follow-up. Thickening of pinna was present in one case [Table/Fig-7].

Age (in years)	Male	Female	Total
<10	1 (2.7%)	0	1 (2.7%)
11-20	5 (13.1%)	1 (2.7%)	6 (15.8%)
21-30	14 (36.8%)	0	14 (36.8%)
31-40	7 (18.4%)	2 (5.3%)	9 (23.7%)
41-50	4 (10.5%)	1 (2.6%)	5 (13.1%)
>50	3 (7.9%)	0	3 (7.9%)
Total	34 (89.5%)	4 (10.5%)	38 (100%)

[Table/Fig-5]: Age and sex distribution of the patients.

Characteristics of pseudocyst		Number of patients
Side involved	Bilateral	0
	Right	14 (37%)
	Left	24 (63%)
Site of pinna	Concha	22 (57.8%)
	Scaphoid fossa	9 (23.7%)
	Triangular fossa	1 (2.7%)
	Mixed	6 (15.8%)
Colour of aspirated fluid	Straw	32 (84%)
	Serosanguinous	6 (16%)

[Table/Fig-6]: Distribution of patients according to characteristics of pseudocyst pinna.

Complications	Number of patients post-operative 7th day	Number of patients after 1 and 3 months
Reaccumulation of fluid (recurrence)	**0**	**0**
Redness/tenderness/erythema of pinna	0	0
Thickening of the pinna	1	1
Deformity of the pinna	0	0

[Table/Fig-7]: Finding on seventh postoperative day and after one month.

DISCUSSION

Auricular pseudocysts are a benign condition characterised by the asymptomatic, spontaneous, painless cystic swelling occurring on the lateral surface of pinna. History and clinical examination along with needle aspiration are generally sufficient to diagnose a pseudocyst [8]. Pseudocyst of pinna is most commonly seen in young adult male. Young children are rarely affected by this condition as reported in many studies [10]. Majority (58%) of the pseudocysts in the present study were involving concha. Supiyaphun P and Decha W noted concha as the most common site of predilection like present study [10], while Engel D and Cohen PR and Grossman ME in contrast cited the scaphoid fossa and triangular fossa of the antihelix as the main sites of predilection [2,11]. In majority of cases straw coloured serous fluid is seen in the pseudocysts; however, serosanguineous fluid may be observed in some cases [12]. Pseudocysts occur more commonly on the right-side as reported by many authors but we found them more on the left-side. Similar to the present study which showed that pseudocyst was present in left ear in 24 (63%) patients, other study also reported pseudocyst to occur more commonly on the left-side [8,10].

Multiple treatment methods described in the literature for management of pseudocyst include needle aspiration [12] incision and drainage with contour pressure dressing [13], surgical de-roofing procedure [14] insertion of a small drainage tube into the pseudocyst [15] and use of derma punch in window procedure [16]. Multiple methods of positive pressure application described in literature are Plaster of Paris cast application, clipping, buttoning and fashioned stainless steel wire etc., [17,18]. Positive pressure application leads to patient noncompliance, discomfort, pain and sometimes ischaemic necrosis of the skin [19], while intralesional steroid application leads to recurrence and thickened pinna [20]. Inspite all of these methods used for applying and maintaining uniform positive pressure to obliterate dead space and prevent accumulation of fluid it still remains a challenge due to the contour of the pinna.

The main aim of treating pseudocyst of pinna is successful drainage of the pseudocyst without damage to healthy cartilage and to prevent its recurrence. In the present surgical technique, a small draining window in the most dependent part of pseudocyst allows open drainage of fluid followed by compression suture to obliterate dead space was done which is a novel method for treatment of pseudocyst of pinna. Patients were kept on regular follow-up on 7th day, one month and three months postoperatively to see the recurrence and other complications. This technique showed faster recovery with no recurrence observed during follow-up. The cosmetic outcome of present study was also good.

Limitation(s)

Although the study showed good outcome in all the operated patients, a randomised controlled trial or an analytical study design would be a better design.

CONCLUSION(S)

Pseudocyst of pinna was most commonly seen in adult males and unilateral involvement was seen. The authors recommend aspiration and drainage with creation of a small triangular window in the most dependent part of pseudocyst with application of compression suture which gives faster recovery, good cosmetic outcome without recurrence.

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