

Original Research Article

A comparative study between window operation and through and through suturing in pseudocyst (seroma) of pinna

Smitha S. G., Nikitha Pillai, Jedhin Raveendran*

Department of ENT, KIMS Hospital, RGUHS, Bangalore, Karnataka, India

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*Correspondence:

Dr. Jedhin Raveendran,

E-mail: jedhinraveendran.k@gmail.com

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ABSTRACT

Background: Pseudocyst of pinna is a cystic swelling formed due to collection of fluid between the auricular cartilage and perichondrium. It can occur spontaneously or after surgery or trauma. Successful treatment is challenging despite the availability of various treatment modalities because of high rate of recurrence. This study was taken up to compare the outcomes of window operation and through and through suturing.

Methods: 30 patients diagnosed with auricular pseudocyst/seroma were randomized into 2 groups. Group 1 patients underwent window operation and group 2 underwent through and through suturing. Patients were followed up at the end of 10th day, 1 month and 2 months following procedures to assess and compare the outcome of each.

Results: The recurrence rate was 20% for group 1 patients. 2 patients of group 1 developed perichondritis and abscess following window operation. The percentage of cosmetic deformity was 13.3% in group 1 patients. Group 2 patients had no complications.

Conclusions: Through and through suturing is a simple and effective way for managing pseudocyst. It scores high due to its lower rate of recurrence and complications.

Keywords: Pseudocyst pinna, Perichondritis, Abscess, Cosmetic deformity, Through and through suturing

INTRODUCTION

Pseudocyst or seroma of pinna was first reported by Hartmann in 1946 and first described in English literature in 1966 by Engel.¹ The cavity is not lined by epithelium, hence called pseudocyst.² Auricular pseudocyst is a soft benign cystic swelling formed spontaneously due to accumulation of a sterile viscous straw coloured fluid between the perichondrium and cartilage. It usually presents as a painless unilateral dome-shaped, fluctuant swelling of about 1-5 mm diameter over the anterior and superior aspects of auricle with no signs of inflammation. Histologically, it is characterized by an intracartilaginous cavity with an irregular hyalinized periphery. Though rare, auricular pseudocyst/seroma has been a condition of

concern among otolaryngologists due to its very high propensity to recur following treatment. We have done a comparison between 2 different surgical procedures for pseudocyst that is, window operation and through and through suturing and assessed the occurrence of common complications following both the procedures during the follow up period.

METHODS

From January 2019 to July 2020, 30 patients presenting with pseudocyst/seroma of pinna to our OPD and who met the inclusion criteria were selected for the study. In our study, patients included were between the ages of 15 and 60 years of both the sexes, who developed seroma of

pinna due to any etiology and who were willing to take part in the study. Patients with chronic illnesses like diabetes, hypertension, bleeding disorders and autoimmune disorders, perichondritis of pinna and those who failed to follow up were excluded from the study.

The study patients were sequentially randomized into 2 groups. In group 1, patients underwent window operation. An eye shaped incision was placed on the medial aspect of pinna and a piece of auricular cartilage along with its perichondrium was resected out and the collected fluid was drained out. Pressure bandage was applied. Group 2 patients underwent through and through suturing. Incision was placed and collected fluid drained out. Multiple through and through mattress sutures were

placed with vicryl 3-0. Pressure bandage was applied. Suture removal was done on 10th day. Both the procedures were done in OPD, under local anaesthesia, with all aseptic precautions. Patients were prescribed adequate antibiotics and analgesics post procedure. Follow up was done on the 10th day, 20th day and after 1 month of procedures. In each follow up, the development of recurrence, perichondritis, abscess and cosmetic deformity were assessed.

RESULTS

In our study, out of 30 patients, 23 were males and 7 were females. Most common age group in our study was 31-40 years.

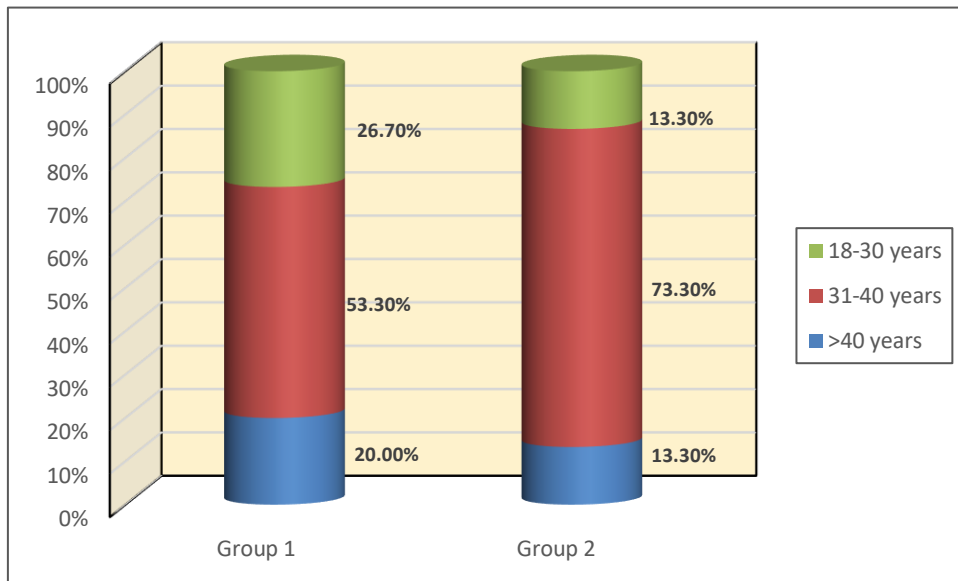


Figure 1: Age distribution among 2 study groups.

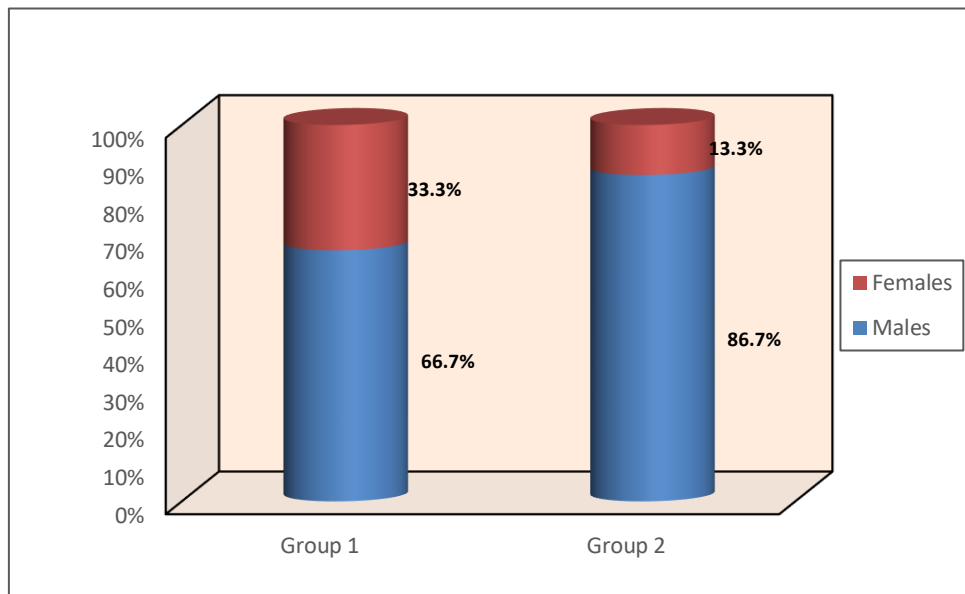


Figure 2: Gender wise distribution among 2 study groups.

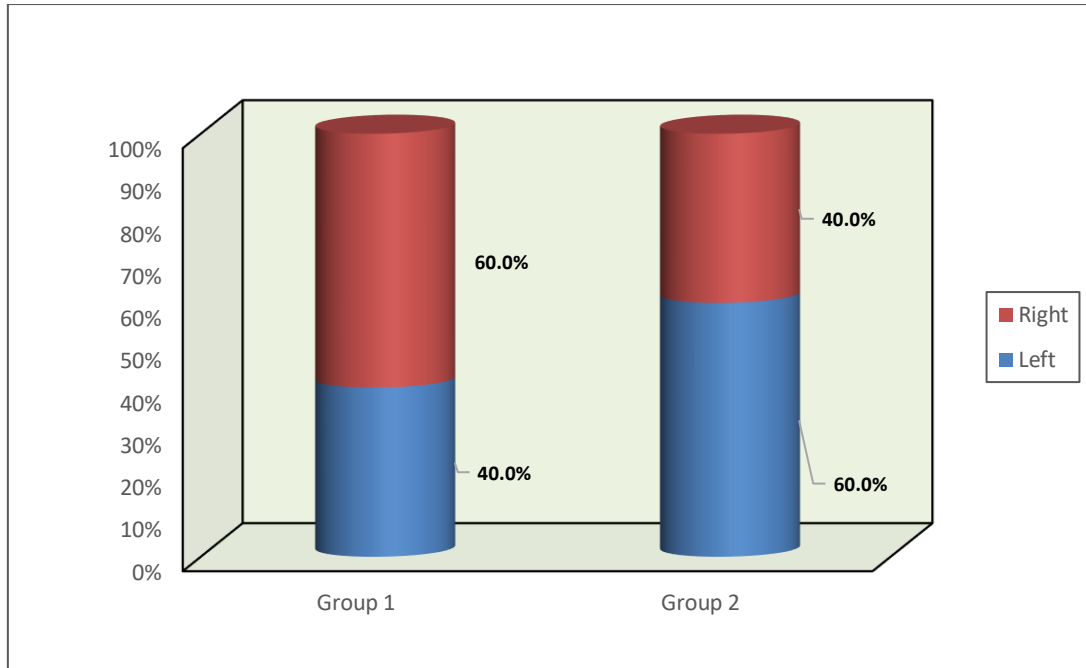


Figure 3: Distribution of ear operated between 2 study groups.

Table 1: Comparison of age and gender distribution between 2 study groups using chi square test.

Variables	Category	Group 1		Group 2		χ^2 value	P value
		N	%	N	%		
Age (in years)	18-30	4	26.7	2	13.3	1.340	0.51
	31-40	8	53.3	11	73.3		
	>40	3	20.0	2	13.3		
Sex	Male	10	66.7	13	86.7	1.677	0.20
	Female	5	33.3	2	13.3		

Table 2: Comparison of distribution of ear operated between 2 study groups using Chi Square Test

Variables	Category	Group 1		Group 2		χ^2 value	P value
		N	%	N	%		
Ear operated	Left	6	40.0	9	60.0	1.200	0.27
	Right	9	60.0	6	40.0		

Table 3: Comparison of distribution of post-operative complications between 2 study groups at different time intervals using chi square test.

Time	Category	Group 1		Group 2		χ^2 value	P value
		N	%	N	%		
10th day	No complications	10	66.6	15	100.0	4.615	0.10
	Recurrence	3	20.0	0	0.0		
	Perichondritis	1	6.7	0	0.0		
	Abscess	1	6.7	0	0.0		
20th day	No complications	13	86.6	15	100.0	2.143	0.34
	Recurrence	0	0.0	0	0.0		
	Cosmetic deformity	2	13.3	0	0.0		
1 month	No complications	13	86.6	15	100.0	2.143	0.34
	Cosmetic deformity	2	13.3	0	0.0		

The recurrence rate was 20% in group 1 patients and 0% for group 2 patients. The percentage of developing perichondritis and abscess was 6.7% each in group 1 patients 0% for group 2 patients. The recurrence, perichondritis and abscess formation were observed on 10th day of follow up. 13.3% patients in whom window operation was done, developed thickening, discolouration, cauliflower deformity of pinna on 20th day and 1 month of follow up.

DISCUSSION

Auricular pseudocyst is an uncommon benign condition often described under the following names like intracartilaginous cyst, cystic chondromalacia, endochondral pseudocyst and benign idiopathic cystic chondromalacia.¹ Various theories have been hypothesized to explain the uncertain etiopathogenesis of auricular pseudocyst. Repeated exposure to low grade trauma like those by the frequent use of motorcycle helmets and stereo-headphones or sleeping on hard pillow or carrying of large hampers and sacks on shoulders or repeated pulling of pinna can induce an inflammatory response in individuals with an autoimmune defect or congenital embryonic dysplasia of auricular cartilage.³ These, when modified by hormones, make them susceptible to the development of pseudocyst. According to Choi et al the lack of subcutaneous tissue over the avascular hyaline auricular cartilage makes it prone to ischaemic degeneration resulting from its continued pressure against the unpadded skull. Microcysts formed from glycosaminoglycans, released due to trauma, coalesce with time to form large pseudocyst. The traumatic theory of pseudocyst has been explained with the presence of haemosiderin and elevated levels of serum LDH within the pseudocyst fluid.^{4,5} But it is worth mentioning that majority of cases present spontaneously.

Auricular pseudocysts exhibit a male predominance as was shown by studies done by Cohen, Lim in which the incidence was 97% and 87% respectively. Richette et al, Posma et al and Morishita et al have attributed the cause of male predominance to be due to the differential action of estrogen and testosterone in inducing cytokines like IL1 which itself can release mediators to induce an inflammatory response in infections and immune mediated diseases.⁶⁻⁸ In our study too, out of 30 patients, 23 were males. The incidence of auricular pseudocyst is most commonly seen between the ages of 20 and 60 years. The most common age group of presentation in our study was 31-40 years, in concordance with studies done by Singh et al and Tan et al.^{1,9} Though the first and most reported cases belong to the Chinese population, there has been no racial predilection seen in cases of auricular pseudocyst.

Unilateral spontaneous presentation of pseudocyst is more common compared to bilateral presentation (13%), mostly asynchronous. Bilateral presentation was mostly

seen in the paediatric age group of which the common cause identified was atopic eczema of pinna. Among the unilaterally presenting pseudocyst, right ear was found to be more commonly affected compared to left which was doubtedly attributed to the right sided sleeping habit.⁹ Our study showed no side predilection. In majority of cases, the pseudocyst is located in scaphoid and triangular fossa. Zhu et al showed 71% of cases presenting with pseudocyst in concha while Choi showed 81% in scaphoid fossa in their studies.^{10,11}

The characteristic feature differentiating pseudocyst from other conditions like relapsing polychondritis, chondrodermatitis, nodule helicis, cauliflower ear and subperichondrial haematoma, are that pseudocyst is intracartilaginous with a very high recurrence rate while the others are subperichondrial and usually associated with inflammatory signs.¹²

There are a large number of surgical and non-surgical treatment modalities for pseudocyst but a definitive treatment has been controversial due to various complications and high recurrence rate. The ultimate goal of treatment is to restore a normal aesthetic architecture of auricle with no recurrence. The oldest and easiest mode of treatment is aspiration followed by pressure dressing which has proved to be the least effective method. Systemic and intralesional steroids like triamcinolone has shown varied results where the latter has also shown to cause permanent deformity. Effect of intralesional minocycline hydrochloride has been tried in recent studies. It acts as sclerosant through its anti-inflammatory and immunomodulatory mechanisms.¹³ Intracartilaginous trichloroacetic acid has shown inconclusive result. Tuncer et al has recently studied the use of fibrin glue as a sealer between the two leaves of cartilage.¹⁴ Incision and drainage of pseudocyst followed by compression using traditional contour dressing, POP casts bolstered pressure sutures, or the recent buttoning have also been studied.^{15,16}

We, in our study, have compared the efficacy of two different procedures like window operation and through and through suturing. The various possible common complications were assessed in patients during the follow up period. In our study, 3 patients (20%) developed recurrence following window operation probably because of the potential space between perichondrium and cartilage. The advantage of through and through suturing is that there was no space left between perichondrium and cartilage because of tight adhesions achieved by using tight sutures. Hence, we treated our recurrent cases with through and through suturing.

We encountered 1 patient with perichondritis and 1 patient with abscess formation on 10th day follow up in group 1. This could be attributed to perichondrium getting hampered with excision of cartilage and exposure of cartilage during procedure increases the risk of infection. Both the patients were treated with systemic

antibiotics and anti-inflammatory agents. In addition, the patients with abscess underwent incision and drainage.

Perichondritis led to thickening and discoloration of skin at the end of 20th day of follow up while the abscess gave rise to cauliflower deformity, both of which contributed to the cosmetic disfigurement following window operation observed at the end of 20th day of follow up. The cosmetic deformity persisted in both these patients of group 1 at the end of 1 month of follow up. Group 2 patients who underwent through and through suturing showed a success rate of 100% with no recurrence, perichondritis, abscess formation or any cosmetic deformity of the auricle.

CONCLUSION

The management of auricular pseudocyst has always been a challenge for ENT surgeons due to the high recurrence rate seen with most of the procedures. In our comparative study between window operation and through and through suturing, we concluded the latter to have a better hand due to its lower rate of recurrence and complications.

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