**Management of Auricular Pseudocyst: A Comparative Study**

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**Abstract**

**Introduction:** Auricular pseudocyst also known as auricular seroma is an asymptomatic condition of unknown etiology affecting the pinna, commonly encountered in middle aged men. The aim of the study was to compare various modalities of treatment involved i.e. wide-bore needle aspiration and splint suturing Vs incision drainage and glove drain insertion.

**Materials and method:** 30 patients with clinical diagnosis as auricular seroma were selected and were compared with different treatment modalities as stated and were followed for 3 months. No recurrence for at least 3 months was taken as the main outcome of treatment.

**Result:** Ten patients out of thirty underwent wide-bore needle aspiration and splint suturing (group A) and twenty patients underwent incision drainage and glove drain insertion (group B) were followed for 3 months. None of the patients had recurrence of the disease in group B but four patients presented with recurrence in group A. Out of the two, incision and glove drain insertion was found to be successful in all cases with no recurrence.

**Conclusion:** Incision drainage and glove drain insertion though requiring frequent visits to the hospital, was found to be more promising treatment modality in terms of recurrence.

**Key words:** Auricular Pseudocyst, Auricular Seroma, Glove Drain Insertion, Splint Suturing

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**Introduction**

Pseudocyst of the auricle also known as auricular seroma is a rare benign condition of ear that is caused by intracartilaginous collection of serous fluid in the anterior aspect of the auricle. Pseudocyst of the auricle was first reported by Hartmann in 1846 and first described in the English literature in 1966 by Engel. The cavity is not lined by epithelium hence termed pseudocyst by Engel [1]. Historically, pseudocyst of the auricle has been addressed by many terms, including endochondral pseudocyst, intracartilaginous cyst, cystic chondromalacia, and benign idiopathic cystic chondromalacia.

This rare disorder results from spontaneous accumulation of a sterile, oily, yellowish fluid and presents clinically as a painless, solitary, fluctuant, non-inflammatory, dome shaped cystic swelling on the anterior surface of pinna. Majority of cysts are located in the scaphoid and the triangular fossae. It ranges usually from 1-5 cm in diameter.

Etiology is still unclear. Hansen [2] has suggested that planes are created within the cartilage as a result of the complex embryonic development of the auricle, and these may be the sites for further pseudocyst formation. Choi et al. [3] have stated that it is a degenerative process of unknown cause occurring in the auricular cartilage, leading to the formation of a cavity containing an oily yellow fluid which is sterile. The cavity may be lined by granulation tissue, but not by epithelium, hence the title pseudocyst. It may result due to blunt trauma. Analysis of the cytokine profile of the fluid indicates markedly elevated levels of interleukin (IL)–6, which is believed to stimulate chondrocyte proliferation. IL-1, an important mediator of inflammation and cartilage destruction, induces IL-6. IL-1 also stimulates chondrocytes to synthesize proteases and prostaglandin E2 while inhibiting the formation of extracellular matrix components. The observation that an auricular pseudocyst often results after repeated minor trauma, such as rubbing, ear pulling, sleeping on hard pillows, or wearing a motorcycle helmet or earphones, has led to the suggestion that these minor traumas may be the mechanism. In support of this traumatic etiology, elevated serum lactic dehydrogenase (LDH) values have
been reported within the pseudocyst fluid [4]. Two of the elevated isoenzymes, LDH-4 and LDH-5, are proposed as major components of human auricular cartilage. These enzymes may be released from auricular cartilage degenerated from repeated minor trauma. One article reports that pseudocysts can be regarded as simply a variation of othematoma or otoseroma. [5]

Tan and Hsu reported the epidemiological features, clinicopathologic characteristics, and success of surgical treatment in 40 patients of different Asian groups presenting with pseudocyst of the auricle [6]. Results showed a Chinese predominance (90%), followed by Malays (5%), and Eurasians (5%).

All except one patient had unilateral presentations. Most (55%) presented within 2 weeks of auricular swelling. Few (10%) had a history of trauma. Most reports of pseudocyst of the auricle have involved Chinese or white patients; however, persons of all racial groups have been affected. Males show a higher prevalence of pseudocyst of the auricle than females [7].

Most pseudocysts of the auricle are unilateral and occur in men aged 30-40 years, but lesions are documented in patients ranging in age from 15-85 years. The success rate of different treatment modalities vary markedly as it is known for recurrence.

Materials and Method

This case control study was conducted at Bundelkhand Medical College, Sagar during the period of one year (March 2013 to February 2014). Thirty (30) patients were diagnosed with pseudocyst of pinna & presented with asymptomatic painless cystic swelling over anterior aspect of auricle and were managed at our tertiary care centre.

All patients were included in our study. Of this, 10 patients underwent wide-bore needle aspiration [Fig 1&2] under aseptic precautions followed by splint suturing (group A). 20 patients underwent incision drainage and insertion of a glove drain [Fig 3 & 4] under local anaesthesia followed by pressure dressing (group B).

All patients were informed about the procedure beforehand and consent was obtained. Group A patients were instructed to maintain strict hygiene and asepsis at the operated area and to visit the hospital on 7th day for suture removal.

Group B patients were instructed to visit the hospital daily for 7 days for cleaning and pressure dressing. Drain was kept in place for 7 days. After this patients were called on alternate days for pressure dressing. The total duration of treatment was of 15 days in group B.

All patients were instructed to report immediately if the swelling recurred. Follow up of patients was done for 3 months. All patients of both groups were prescribed 7 days of amoxyclav along with analgesics. Recurrence of the swelling was recorded and compared for both the groups by calculating p-value.

Results

All together 30 patients with clinical diagnosis of auricular seroma were included in the study. All were male patients of age group 21 to 40 yrs. all had spontaneous development of swelling and denied any history of trauma or insect bite.
Recurrence of seroma was noted in 4 patients of group A within 8 weeks and none had a recurrence in group B after 3 months of follow up. (p value=0.0011). Disease was more common found on right side. Minor complications like discoloration of skin, pain, thickening of pinna were temporary in both groups.

Table 2: Recurrence rate after

<table>
<thead>
<tr>
<th>Treatment modality</th>
<th>No. of patients</th>
<th>Recurrence</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide-bore needle aspiration and splint suturing (group A)</td>
<td>10</td>
<td>4</td>
<td>40%</td>
</tr>
<tr>
<td>Incision drainage and glove drain insertion (group B)</td>
<td>20</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

P value= 0.0011

Statistical analysis of recurrence showed that there was a statistically significant difference between two groups. Hence we found that incision drainage and glove drain insertion though requires frequent hospital visits is better than wide-bore needle aspiration and splint suturing as recurrence rate is very low.

Discussion

Pseudocyst of the auricle also known as auricular seroma is a rare benign condition of ear that is caused by intracartilaginous collection of serous fluid in the anterior aspect of the auricle. Pseudocyst of the auricle was first reported by Hartmann in 1846 and first described in the English literature in 1966 by Engel. The cavity is not lined by epithelium hence termed pseudocyst by Engel [1]. Historically, pseudocyst of the auricle has been addressed by many terms, including endochondral pseudocyst, intracartilaginous cyst, cystic chondromalacia, and benign idiopathic cystic chondromalacia.

Auricular seroma are asymptomatic, cystic swelling of pinna resulting from accumulation of sterile fluid within unlined intracartilaginous spaces [8]. It is spontaneous accumulation of a sterile, oily yellowish fluid, resembling olive oil with no signs of inflammation [9] and no bacterial or fungal growth [10]. It is more prevalent in Chinese population. Disease usually involves scaphoid fossa. Men are more affected than women. Mostly affected patients belong to young and healthy population.

Cohen [11] reported that 93% of the cases occur in males. Other studies have reported a similar male preponderance.
Elevated isoenzymes, LDH-4 and LDH-5, are proposed to have been reported within the pseudocyst fluid [4]. Two of the elevated serum lactic dehydrogenase (LDH) values have suggested that these minor traumas may be the cause of the pseudocyst often results after repeated minor trauma, pseudocyst. Another theory is that repeated minor trauma of the locus minoris resistentiae causes cartilage fragmentation and subsequent cystic cavity formation [16]. Third theory is that repeated minor trauma of the pseudocyst degenerated from repeated minor trauma. One article reports that pseudocysts can be regarded as simply a variation of othematoma or otoseroma [5].

Several treatment modalities have been described in literature with variable success. The ultimate goal of the treatment modality is to drain the pseudocyst without any damage to healthy cartilage and prevent recurrence [18]. Various treatment modalities include simple aspiration, aspiration and pressure dressing, aspiration with intralesional steroid, aspiration with oral steroid, aspiration and pressure dressing with POP caste, incision and drainage with removal of anterior cartilage leaflet with buttoning etc [13,19-22].

The role of corticosteroids either systemic or intralesional is controversial with varying success rates. Minocycline is thought to work as a sclerosant through its anti-inflammatory and immunomodulatory mechanisms. Recently, the use of fibrin glue as a sealer between the 2 leaves of the cartilage has been described by Tuncer [23] with positive results in one patient of recurrent pseudocyst. However, it is difficult to interpret the significance of these observations as both involved few patients. Various surgical techniques have been proposed for treating this condition. Incision and drainage was the earliest to be described but has shown to have a high recurrence rate [1]. Zhu and Wang [24] have reported a method of inserting a small drainage tube in to the cavity of the pseudocyst with a guidewire. Paul et al [25] described in a single patient the successful use of a 3-mm punch biopsy of the inferior border of the pseudocyst followed by application of a bolster.

Bhandary S et al. in 2000 compared different modalities of treatment i.e wide-bore needle aspiration, intracavitary steroid and window deroofing. Deroofing was successful in most of the cases with minimal sequale [26]. In 2004, sangeetha R Vijayendra H studied 27 cases. They exposed the cartilage by making a linear incision and rectangular piece of cartilage was removed. Wound was closed with drain in situ. Cases were followed for 2 months and no recurrence or deformity was noted [27].

Almost all the reported studies [1,3,12,13,19] on this mysterious condition have been described in the Chinese population. This study is among non-Chinese (Indian) population. Most of the studies report a high male preponderance [11,1,12]. The mean age of presentation was 31.9 years, similar to those reported by Tan [12] (38.2 years) and Choi [3] (42.8 years) showing it to be a
disease primarily of young adults. In our study, scaphoid fossa was the most common site of involvement. Choi [3] described scaphoid fossa (80.6%) as being the most common site of pseudocyst.

In this study we have compared wide-bore needle aspiration with splint suturing vs incision drainage with insertion of glove drain in terms of recurrence. On comparing the two modalities, we found that needle aspiration with splint suturing is a simple procedure but is associated with frequent recurrences.

On the other hand, incision drainage and glove drain insertion is a minimally invasive procedure with no recurrences. The only drawback associated with this procedure is good patient compliance as requires frequent hospital visits.

**Conclusion**

Pseudocyst of the auricle is a benign condition of the anterior or lateral wall of the pinna with unknown etiology. It can occur in all races. The epidemiological profile of this condition is similar in Chinese and non-Chinese (Indian) population.

A hormonal influence modulating the inflammatory process explains the marked male preponderance of this condition. Due to its high propensity of recurrence, treatment of seromas remains a challenge. In our study we concluded that incision drainage and glove drain insertion, though require frequent hospital visits is more promising as recurrence rate was found to be nil with normal appearing pinna.

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**References**


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