HOW I DO IT

Retroauricular Hairline Approach for Excision of Second Branchial Cleft Cysts

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ABSTRACT

Objective: To report our preliminary experience with a retroauricular hairline incision (RAHI) for excision of second branchial cleft cysts (SBCC) and to present a relevant literature review.

Study design: Retrospective case series.

Methods: A retrospective chart review was conducted of two consecutive patients diagnosed with SBCC who underwent surgical removal via a RAHI. Relevant demographic, clinicopathological and radiological data were recorded. A web-based search was conducted to identify relevant scientific literature on "retroauricular hairline incision/approach" in order to present a systematic review of current literature.

Results: In both cases, the SBCC (6.0 and 3.8 cm) could be safely excised without major complications. One patient developed a temporary hypoesthesia of earlobe. None of the patients had a postoperative infection, hematoma, spillage of cyst fluid or necrosis of the skin flap. All patients were satisfied with the cosmetic outcome of the procedure (100%). The incisions healed well without any evidence of hair loss or keloid formation.

Conclusion: In conclusion, the RAHI offers an excellent surgical outcome and superior cosmetic result with no proven increased risks to the patients who require surgical excision of a benign SBCC.

Keywords: Retroauricular, Upper neck mass, Branchial cleft cyst, Lateral cervical cyst, Postauricular.

INTRODUCTION

In recent years, there has been increasing attention to cosmetic results associated with making cervical incisions for benign neck lesions. Minimally invasive techniques using either endoscopic guidance or distant access incisions have been proposed for treating benign cervical lesions. The goal of these surgical innovations is often improved cosmesis, visualization, and magnification with the endoscopic guidance. Branchial cleft anomalies are benign congenital lesions that result from incomplete obliteration of branchial clefts or pouches and represent nearly 30% of congenital neck masses. Second branchial cleft cysts (SBCC) are the most common of these anomalies and often present anterior to the upper-third of the sternocleidomastoid muscle. SBCC are typically painless, well-circumscribed, cystic masses that frequently manifest during or shortly after an upper respiratory infection. The primary treatment for SBCC is surgical excision which has traditionally been through a cervical incision placed in a favorable horizontal skin crease overlying the lesion. Removal of upper neck masses by way of an incision placed in the postauricular sulcus and hairline also known as the retroauricular hairline incision (RAHI) has been shown to result in better cosmetic outcome and patient satisfaction compared with conventional cervical incisions. In our review of current English literature, we came across three articles describing the results of the retroauricular auricular approach for excision of upper neck masses and SBCC. Our literature search revealed that the feasibility and utility of this approach has not been discussed in western literature. We report two cases of SBCC treated surgically by way of a postauricular hairline incision approach and also discuss potential pitfalls associated with management of lateral cervical cysts.

METHODS

A retrospective chart review was conducted of two consecutive patients diagnosed with SBCC who underwent surgical removal via RAHI. The study was conducted at the Department of Otolaryngology and Head and Neck Surgery, Louisiana State University Health Sciences Center, New Orleans, LA. Relevant demographic, clinicopathological and radiological data was recorded. A web-based search was conducted to identify relevant scientific literature on retroauricular hairline incision/approach in order to present a systematic review of current literature. Keywords entered included, "retroauricular hairline approach, retroauricular..."
Table 1: Retroauricular hairline approach: Surgical steps

- General anesthesia: position—supine with neck extended with a shoulder roll and head rotated to the opposite side.
- An incision is made beginning at the inferior limit of the postauricular sulcus which is then curved into the hairline first posterior and then caudally (Fig. 1).
- A postauricular flap is then elevated like in a "face-lift procedure" identifying and preserving the greater auricular nerve and the external jugular vein.
- A subplatysmal plane of dissection can be obtained via a triangle at the upper end of the neck defined by the anterior border of the sternocleidomastoid muscle, poster ramus of the mandible, and upper fibers of insertion of the platysmal muscle to the lower border of the mandible. Care must be taken to avoid injury to the marginal mandibular branch of the facial nerve by careful dissection and use of bipolar coagulation.
- The mass is dissected with sharp and blunt finger dissection from its attachments. Structures that need to be identified and preserved include the spinal accessory nerve, carotid sheath containing the internal jugular vein and carotid artery, posterior belly of digastrics, and hypoglossal nerve. The internal jugular vein is often compressed by the mass and is usually found posterior to it.
- The mass is then dissected, finger dissection helps the mass to be delivered into the surgical wound. A complete removal of the SBCC is accomplished by releasing its attachment to the floor of the neck and internal jugular vein.
- A surgical drain is then placed within the cavity created by the cyst removal and is fashioned to exit the skin via a small separate incision within the hairline posterior to the retroauricular incision (Fig. 3).
- The skin flap is repositioned and sutured in layers.

RESULTS

Case 1

A 44-year-old female presented with a 2.5 month history of a compressible soft upper left neck mass; slowly increasing in size, without incidence of infection. CT scan showed a hairline incision, RAHI, surgical approaches to the upper neck, branchial cleft cyst, and lateral cervical cysts. In both cases, the neck mass was surgically removed by a RAHI after obtaining an informed consent from the patient. The surgical approach is described in Table 1 (Figs 1 to 3).

Fig. 1: Retroauricular hairline incision

Fig. 2: Surgical exposure via a retroauricular approach to the upper neck

Fig. 3: Placement of the surgical drain

Fig. 4: Postoperative retroauricular healed incision
3.8 cm cystic mass at the inferior margin of the left parotid gland and deep to the sternocleidomastoid muscle with minimal peripheral rim enhancement. The head and neck evaluation was otherwise unremarkable. The patient had no risk factors for head neck cancer albeit the age of presentation. The neck mass was removed via RAHI. There were no complications. Pathology was benign branchial cleft cyst.

Case 2
A 20-year-old female presented to the emergency room with complaints of a tender erythematous left upper neck mass. She was treated with antibiotics which reduced the pain and swelling associated with the neck mass. A CT scan showed a 3 cm left neck mass below the angle of the mandible adjacent to the anterior border of the sternocleidomastoid muscle. The neck mass was removed via RAHI. Intraoperatively, the contents of the mass were decompressed to improve surgical access. Pathology was a benign branchial cleft cyst.

Complications and Cosmetic Results
None of the patients had a postoperative infection, hematoma, spillage of cyst fluid or necrosis of the skin flap. All patients were satisfied with the cosmetic outcome of the procedure (100%) (Fig. 4). The RAHI healed well without any evidence of hair loss or keloid formation. Complications of surgery by each case are listed in Table 2.

DISCUSSION
The RAHI has been reported to offer equivocal resection outcomes and safety, while offering a more cosmetically appealing incision for excision of upper neck masses, including branchial cleft cysts, in adults and in children. In a study by Roh JL et al, patients undergoing RAHI approach ranked their overall subjective satisfaction with the procedure (100%) (Fig. 4). The RAHI healed well without any evidence of hair loss or keloid formation. Complications of surgery by each case are listed in Table 2.

Table 2: Complications of RAHI approach

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age</th>
<th>Sex</th>
<th>Diagnosis</th>
<th>Complication</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>44</td>
<td>Female</td>
<td>Branchial cyst</td>
<td>None</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
<td>Female</td>
<td>Branchial cyst</td>
<td>Temporary hypoesthesia of the earlobe</td>
</tr>
</tbody>
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In conclusion, the RAHI offers an excellent surgical outcome and superior cosmetic result with no proven increased risks to the patients who require surgical excision of a benign SBCC. Since the majority of BCC are removed in young adults, age 20 to 40, the improved cosmesis is very desirable.
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REFERENCES