

Case Report

Infected Branchial Cyst Excision – The importance of timing and technique

Paramanayakam A¹, Drahaman AMP²

¹ENT medical officer, DGH Kilinochchi, Sri Lanka

²Consultant ENT surgeon, DGH Kilinochchi, Sri Lanka

Abstract

Branchial cysts are the most frequent congenital lesions in the lateral neck. We present a surgical case of a 38-year-old man who visited our clinic with a one-month history of left sided level II neck swelling associated with neck discomfort and left sided otalgia. Clinical examination revealed a firm yet mobile mass. Both ultrasound scan and CT scan showed a cystic lesion of 5cm x 4cm x 3cm in dimension lying lateral to the carotids without vascular invasion. Planned surgical excision had to be delayed due to cyst infection at the time of surgery for four weeks. Usage of the tonsillar dissector for difficult dissection enabled removal of the cyst without rupture.

Keywords: Branchial cyst, Surgical technique, Surgical instrument

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Correspondence: Dr. A. Paramanayakam (abby.param@gmail.com)

 <https://orcid.org/0000-0001-6721-8520>

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Introduction

The congenital defect arising from failure of involution of the branchial cleft in the course of embryonic development is defined as a branchial cyst which clinically presents later on in adulthood^[1]. Surgical excision of the entire cyst wall including the tract is the definitive management. We present a surgical case of a complicated branchial cyst excision in a 38-year-old male patient.

Case report

A 38-year-old man presented to the ENT clinic with a one-month history of a left-sided neck swelling at level II, associated with neck discomfort and left-sided otalgia. Clinical examination revealed a firm yet mobile mass. Ultrasound scan of the neck showed a cystic lesion in the left upper cervical region between the left sub-mandibular gland and left parotid gland, measuring 5cm x 4cm x 3cm in dimension. There was no evidence of oropharyngeal or vascular invasion. CT scan showed a possible type 2 branchial cyst lying lateral to the carotids without vascular invasion (Image 1a, 1b).

Prior to the scheduled surgery date, the patient developed an infection of the cyst and underwent USS guided aspiration to remove 50cc of purulent fluid that was sent for culture and antibiotic sensitivity while treating the patient with empirical intravenous antibiotics.

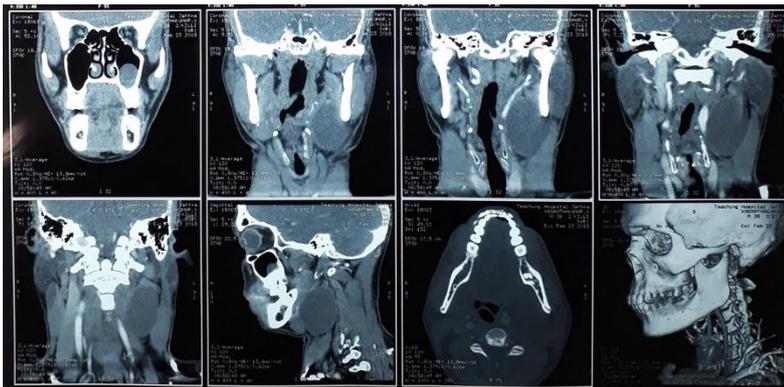


Image 1a - CT scan imaging – coronal and sagittal section

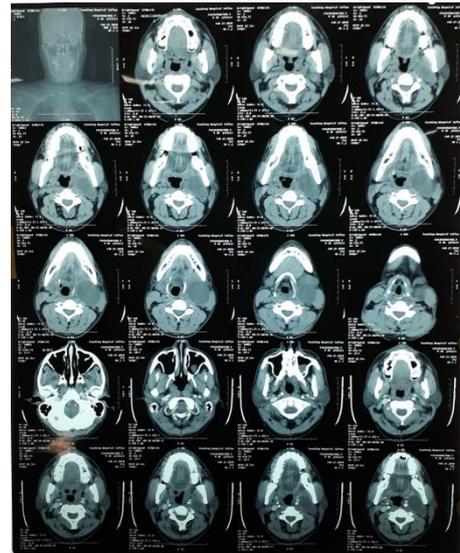


Image 1b - CT scan imaging – axial section

Consent was taken for a left-sided branchial cyst excision as well as for left-sided tonsillectomy. Before the procedure, the surgical site was marked while the patient was seated. Under general anesthesia, the surgical site was prepped and draped. Pre-operative antibiotics were given and the neck was positioned with a shoulder bag, extended and turned towards the right. A skin incision was made and careful dissection of the superficial fascia and platysma was done to protect the mandibular branch of the facial nerve. On exposure of the cyst, it appeared to have a thick wall with multiple adhesions proving difficult to dissect out. However, superior and inferior dissection was done by employing the tonsillar dissector to free the cyst from surrounding post-inflammatory fibrotic tissue. The left spinal accessory nerve, left hypoglossal nerve, left carotid vessels and left internal jugular vein were identified and preserved. The cyst was followed up to the carotid bifurcation. There was no extension of the tract to the pharynx noted. The cyst was completely

excised and hemostasis was achieved(Image2). A Redovac™ drain was inserted at half suction and routine layered closure was done with interrupted 3/0 Prolene™ for the skin.



Image 2 – Exposed branchial cyst

The patient was transferred to the ICU post operatively for observation. The drain was removed the following day. Antibiotics and analgesics were continued for 24 hours and the patient was then discharged on the 2nd post-operative day from the ward. On follow up (day 7), the surgical site had healed well and suture removal was done (Images 3a, 3b). Histological examination report confirmed a left sided branchial cyst.



Image 3 Post Op Day 7 – 3a Lateral view, 3b Front view

Discussion

During the second week of gestation, the branchial apparatus develops up until the end of the second month at which point, improper involution during embryonic life can give rise to a benign remnant – the branchial cyst. Second branchial cleft cysts contribute to 95% of all cases.^[ii,iii] They are classified based on the Bailey classification. Type I is located anterior to the sternocleidomastoid muscle and deep to the platysma. Type II lies adjacent to the internal carotid artery and internal jugular vein. The lesion extends between the internal

and external carotid arteries in type III. In type IV the lesion extends to the skull base. Branchial cysts occur in both sexes equally with the average age of presentation being between the second and fourth decade.^[iv,v] Ultrasound examination carries the advantage of being cheap and non-invasive for identifying the lesion. With the aid of a CT scan, further details of the cyst dimensions, its extent and relationship with surrounding structures can be established, thereby providing a strategy to surgically approach the mass.^[vi,vii] Infected cysts require intravenous antibiotics and a four-week period of nonintervention for the inflammation to settle before proceeding with surgery. Cyst wall rupture during surgical excision carries a high chance of recurrence (up to 50%) with this chance increasing further if the excision has to be repeated. A higher success rate/cure rate is achieved when complete excision is performed in the first sitting. Meticulous planning, patience and careful resection are the hallmarks of success in this type of lesion. Sometimes we have to take one step back (having to postpone surgery during infection) in order to take a leap forward, (complete excision of the lesion).

Conclusion

Surgical excision when there is a history of recent infection makes removal of these lesions extremely difficult. The best option is to wait a minimum of four weeks following infection and perform the excision, planning for multiple adhesions to vital structures. The operator found the tonsillar dissector to be very useful in these types of cases.

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