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Branchial Cyst a Delayed Presentation - Case Report

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Abstract: ***A 60-year-old female patient came with complaints of a swelling over the left side of the jaw which was noticed one year ago and was slowly progressive in nature. Past history- Patient was a known case of hypertension on Tab Telmisartan 40 mg OD, type 2 diabetes mellitus on Tab Metformin 250 mg BD with diabetic bilateral lower limb neuropathy for which she was on a combination of Tab Gabapentin 300 mg and Tab Nortryptylline 10 mg OD and hypothyroidism on Tab Thyronorm om 12.5 mcg OD. After thorough preoperative work up and optimisation of patient parameters, an excision of the cyst was undertaken under general anesthesia. The post operative period was uneventful, drain removed on POD 2 and the patient was discharged on POD 6 after suture removal. The histopathological report revealed features suggestive of a Branchial Cyst (most probably arising from the 2nd branchial cleft)***

Keywords: Branchial Cyst, Delayed, 2nd arch, management

1. Introduction

The term branchial cyst was first used by Ascherson in 1832 (1). During the 4th and 5th gestational weeks, the head and neck structures develop from the branchial (or pharyngeal) arches, which consist of mesenchymal tissue bands separated by recesses known as pharyngeal clefts (2). Each arch is composed of muscle and cartilaginous components, as well as an artery and a cranial nerve. The pharyngeal clefts form on the outer ectodermal surface of the neck and line up with the pharyngeal pouches, which form on the inner endodermal surface. Any arrest in the embryologic process or failure of completion of the obliteration of these branchial clefts and pouches by mesenchyme will result in anatomical anomalies. Abnormalities of this complex structural process result in approximately 30% of congenital neck masses, and can present as cysts, cartilaginous remnants, sinuses, or fistulae.

A cyst results from a pharyngeal cleft that forms an epidermis-lined (squamous epithelium) cavity without the presence of a communication. The second branchial arch forms the hyoid bone and the tonsillar and supratonsillar fossas; anomalies arising from it represent the most common branchial anomalies (95%). Followed by anomalies of the first arch (1-4%), third arch and fourth arch respectively (3). 2nd branchial arch anomalies are located along the sternocleidomastoid muscle in the lateral aspect of the neck.

2. Case Report

A 60 year old female patient came with complaints of a swelling over the left side of the jaw which was noticed one year ago.

History of present illness:

Patient was apparently normal one year back when she had noticed a swelling over the left side of the jaw which was insidious in onset, slowly progressive in nature. It was not associated with pain/fever/ increase in size during eating. There was no history of weight or loss of appetite

Past history- Patient was a known case of hypertension on Tab Telmisartan 40 mg OD, type 2 diabetes mellitus on Tab Metformin 250 mg BD with diabetic bilateral lower limb neuropathy for which she was on a combination of Tab Gabapentin 300 mg and Tab Nortryptylline 10 mg OD and hypothyroidism on Tab Thyronorm om 12.5 mcg OD

History of previous surgery:

- Hysterectomy – 8 years ago
- Bilateral Knee Replacement – 2 years ago

No history of coronary artery disease/cerebrovascular disease/ bronchial asthma At this time of presentation patient was conscious with stable vitals

Patient was worked up pre- operatively and optimised prior to surgery

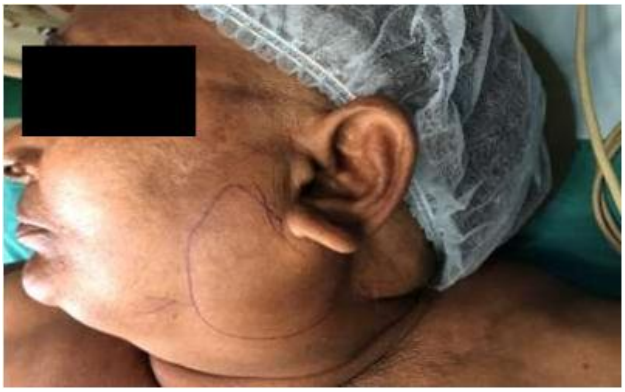


Figure 1: Swelling at the time of presentation.

A 6*3 cm swelling **(Figure 1)** palpable below the left ear at the angle of the mandible, non tender, cystic in nature, non-transilluminant, mobile, skin over the swelling – normal, well defined, no local rise of temperature and no in duration. Jaw movements – Normal

Oral Cavity Examination - Normal

Provisional Diagnosis

Branchial cyst Lymphangioma Lymphatic cyst investigations:

a) **HRUS of swelling:** Approx 7.5*1.9 cm well circumscribed ovoid homogenous, hypoechoic cystic lesion with fine internal echoes & septations resembling debris. The cyst shows posterior acoustic enhancement. On color doppler – internal vascularity noted within sepetation

b) **Hemogram:**
- Hemoglobin: 12.8 g/dl
- WBC: 9840/mm^3
- Platelets: 3,19,000/mm^3

c) **S. Creatinine:** 0.9 mg/dl

d) **Viral markers:** HIV, HCV, HBsAg – Non reactive

e) **Bleeding time:** 1 min 35 seconds

f) **Clotting time:** 3 min 40 seconds

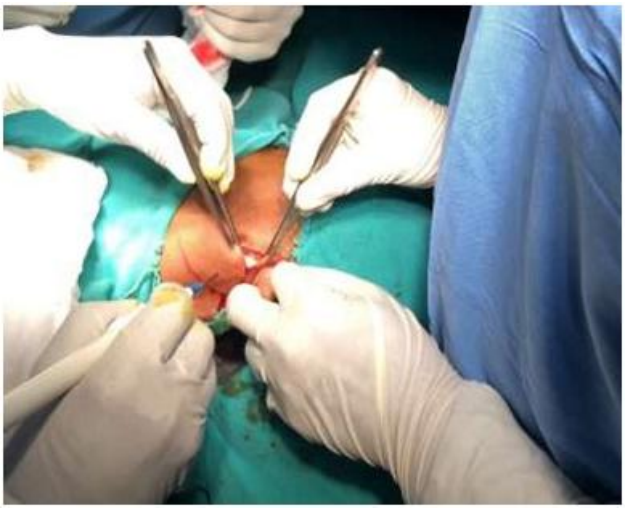
g) **Blood Group:** O positive

h) **2D echo:** Concentric LVH, mild PE, EF – 60%

i) **FNAC:** Cytological features are suggestive of branchial cyst

Operative Procedure:

Under all aseptic precautions, under general anesthesia, patient's neck in hyperextension and parts painted and draped. A lazy S (modified blair) incision starting in front of the left tragus extending till about 2 cm below the angle of the mandible near the anterior border of the sternocleidomastoid muscle. (Figure 2a) Incision deepened, layers dissected, buccal branch of facial nerve identified and protected.

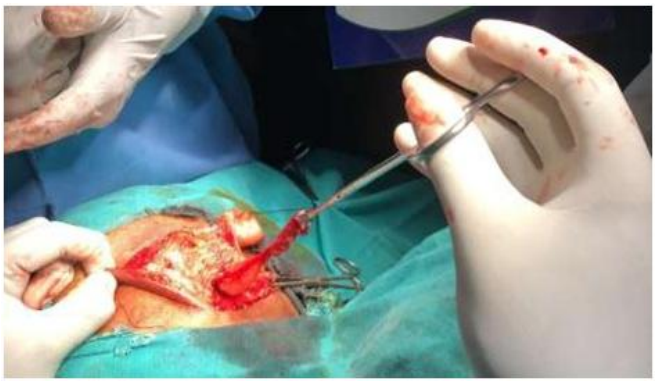


(a)

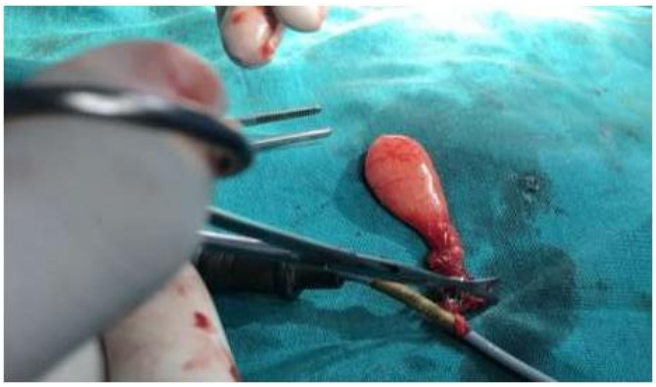
(b)

Figure 2: (a) A lazy S (modified blair) incision starting in front of the left tragus; (b) Deepening the incision and identification of the cyst

Sac identified and excised in total; it was sent for histopathological examination **(Figure 2b, Figure 3a & b)**. Retromandibular vein was identified and ligated with 1-0 silk. Hemostasis secured, a 12F RomoVac drain kept in situ and the layers closed with 2-0 vicryl interrupted sutures. Skin was closed with 3-0 ethylon in a subcuticular method.



(a)



(b) Figure 3 a & b: Sac identified and excised in total

The post operative period was uneventful; The drain was

removed on POD 2 and the suture removal was done on POD 6.

3. Discussion

Branchial cleft remnant accounts for the majority of branchial cleft anomalies. Clinically they can present as different morphologic patterns of cyst, sinus, or fistula. A branchial cleft cyst can first come to clinical attention most commonly in the second through fourth decades of life, and is rare in the neonatal period [(4)]. In contrast, a branchial sinus or fistula almost always presents in neonates or at early age [(5).]

Cystic type of these anomalies is common rather than fistula or sinus type. Cystic type can occur clinically from the first to forth branchial cleft. Cysts originating from the second branchial cleft are the most common among all of these. They are often infected after upper respiratory track infection and are found as rapidly expanding cystic mass on the neck [(6).].

True branchial cleft cyst is often lined with stratified squamous epithelium or ciliated columnar epithelium because it originates from the ectodermal side of the invagination of the cleft. The presence of lymphoid aggregates in the wall of the lesion is a frequent and typical characteristic to confirm. Keratin debris sometimes presents. Mucous retention cyst does not have epithelium-lined cyst wall in histopathologic study.

Clinical symptoms vary: Pharyngeal presentation of branchial cleft cysts is very rare

In adult cases with pharyngeal presentation, the disease is often initially diagnosed as parapharyngeal abscess [(7)].

The cyst could also occur at the nasopharyngeal level; which has also been reported [(8)].

Several theories have been proposed for the development of BCC, such as the branchial apparatus theory, cervical sinus theory, thymopharyngeal theory, and inclusion theory [(9)].

At present, the most widely accepted theory is that BCC result from incomplete obliteration of the branchial clefts and pouches during embryogenesis [(5)].

4. Conclusion

This case has been presented due to the abnormally late presentation of a branchial cyst arisin. The patient presented with a swelling slowly growing in size near the left ear with no sinus tract formation/ infections. The neck lymph nodes were not palpable

This indicates a complete cyst excision to be done to relieve the patient of her symptoms and achieve a good cosmetic result. Cyst excisions should be undertaken to prevent infections and subsequent sinus tract formations provided that the patient's co morbidities prior to operation are well optimized as is the procedure prior to any elective procedure.

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