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Brancial Cyst Type IV

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***Abstract*: Branchial cleft cysts are the most common congenital neck masses. The other name for Branchial cleft cyst is benign cervical lymphoepithelial cyst, which occurs on the lateral aspect of the neck. These cysts originate from remnants of the branchial arches or branchial pouches. The lesions presents as an asymptomatic circumscribed movable mass on the anterior border of the sternocledomastoid muscle. Many cases have been reported at the angle of the mandible, in the submandibular area and even in the pre-auricular and parotid areas. A solitary swelling with discharging sinus on the left side of the neck, in a 21-year-old female, Since childhood caused diagnostic dilemma with clinical presentation. Diagnosis was done after all the investigations and treated accordingly.**

***Keywords:* Branchial cleft cysts, discharging sinus.**

1. INTRODUCTION

The branchial cleft cyst is a developmental cyst of the lateral neck region. These are the most commonly hydrocoele of the neck, Hygroma colli, Branchial cyst, tumor of the branchial cleft, Lateral lympho-epithelial cyst,Benign cystic lymph nodes, Dermoid mon congenital neck masses.

[1] Other names are, Congenital cyst of the sheath of the internal jugular vein, and deep seated atheromatous tumor.[2] Lateral cysts of the neck were first described by Hunczovsky in 1785.[2,3] Ninety-five percent of branchial anomalies are second branchial anomalies.

These anomalies present as sinuses, fistulae and cysts. Branchial cleft cysts comprise approximately 75% to 80% of all branchial anomalies. 95% of these cysts are believed to arise from the second branchial arch.[4]

5% originating from first, third and fourth branchial arches. Branchial cleft cyst most commonly occurs, in the upper lateral neck along the anterior border of the sternocledo mastoid muscle. Proctor has shown that second branchial cleft cysts occur three times more often than second branchial sinuses or fistulas.[3]

2. CASE REPORT

A 21-year-old female came with a swelling on the left side of the neck with discharging sinus since birth [Figure 1].Patient had difficulty in mastication. On examination, solitary diffused swelling was noted on the right submandibular region. It was non-pulsatile, with smooth surface texture.

Surrounding skin was normal. It was not moving with protrusion of the tongue or on deglutition on palpation, surface temperature was not raised, nontender, soft in consistency, fluctuant, compressible, and not reducible. No secondary changes were noted.

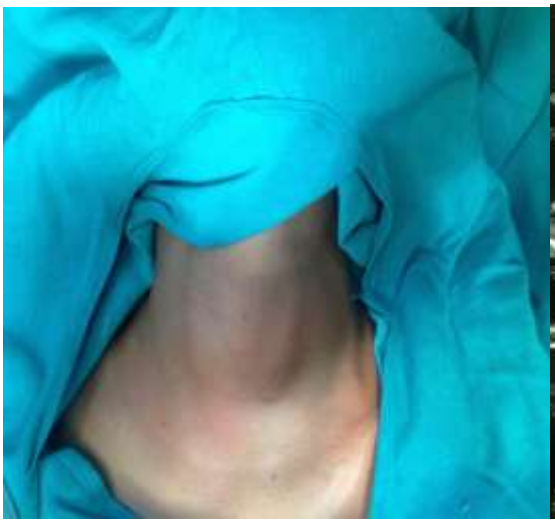

Figure 1

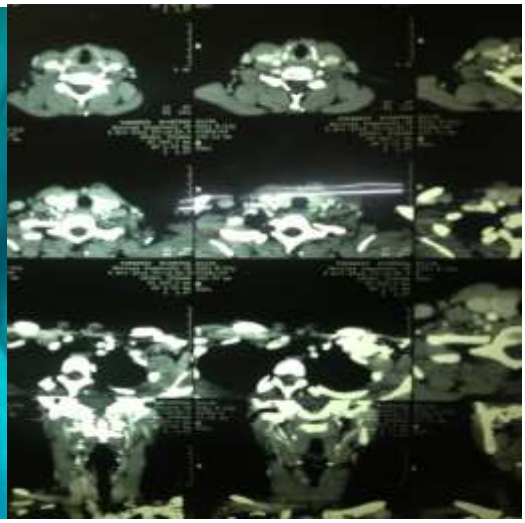

Figure 2

Differential Diagnosis considered as Plunging ranula, Tubercular lymphadenitis, Suppurative lymphadenitis, Hodgkin's Lymphomas, Metastatic neoplasia, Teratoma, Ectopic salivary tissue.

Mantoux test was negative FNAC suggestive of autoimmune thyroiditis Ultrasonogram suggested as thyroiditis & infected cyst anterior to sternocleidomastoid muscle left side.

CECT scan suggestive of cystic lesion in subcutaneous plane of neck on left side abutting left Sternocleidomastoid likely IV branchial cyst . A hypodense cystic lesion measuring about 1(TR) × 0.6 (AP) ×1.5 CM (CC) is seen in subcutaneous plane in anterior neck on left paramedian location abutting the left sternocleidomastoid and is about 9mm from the midline.

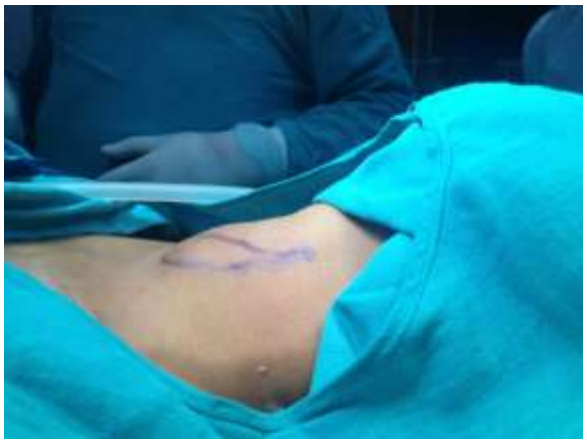

Figure 3

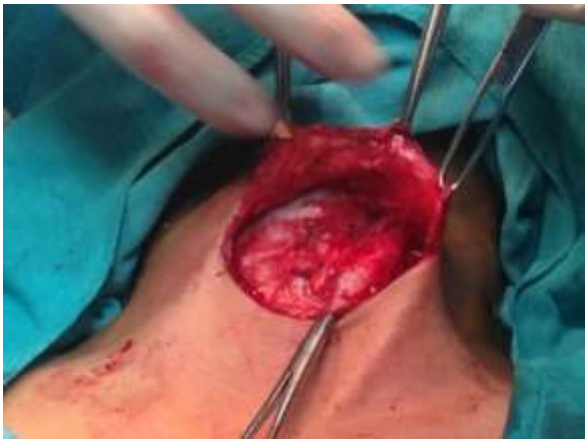

Figure 4

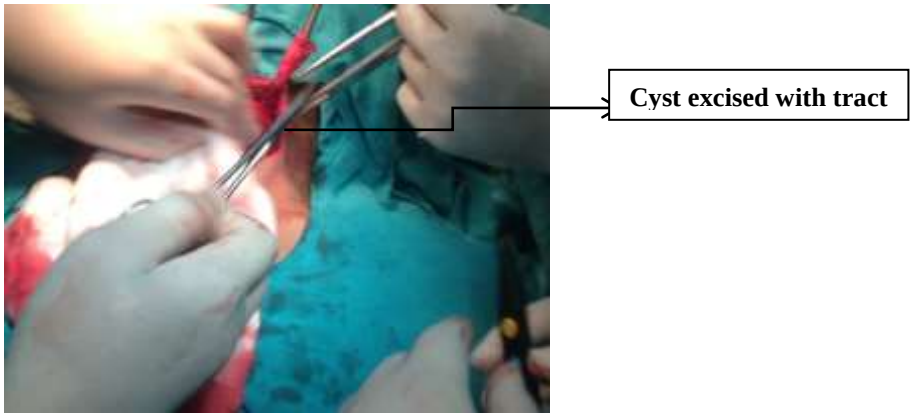

Figure 5

Submandibular incision was given and complete enucleation of the cyst had been done. And the cystic lining was sent for histopathological examination.(Figure 3,4,5)

Histopathology revealed grossly : greyish brown, soft to firm like structure, on microscopy , a central cystic structure lined by pseudo stratified squamous epithelium which is focally ulcerated . Wall is made up of fibrocollagenous tissue with dense subepithelial lymphoplasmacytic infiltration. Consistent with clinical diagnosis of Branchial cyst type 4 with sinus tract.

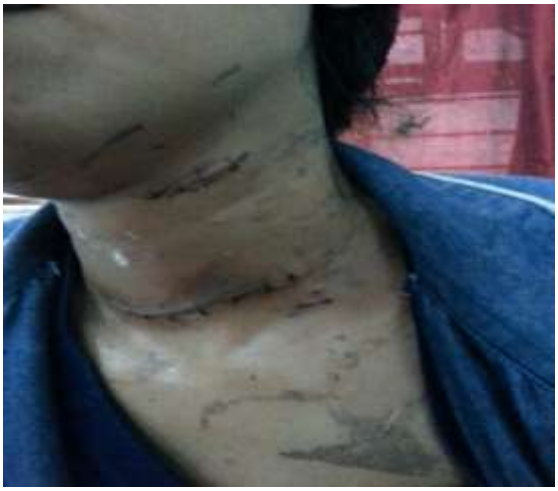

Figure 6 : POST OPERATIVE

3. DISCUSSION

Rathke described pharyngeal pouches in 1828. The cervical lymphoepithelial or branchial cleft cyst has a disputed pathogenesis. The etiological hypotheses are as follows:

1. Congenital theories: The classic theory that the cyst develops from remnants of the embryonic gill apparatus.

2. Lymph node theories: In 1949, King concluded that the cyst arises from cystic changes in parotid epithelium that becomes entrapped in the upper cervical lymph nodes during embryonic life.

3. Pre-Cervical Sinus Theory: The cyst develops from investigates of the cervical sinus rather than of the pharyngeal clefts or pouches.[3] King's criteria is that, any cyst arising outside the midline of the neck and having lymphoepithelial characteristics should be regarded as a branchial cyst.[3,5] Amot proposed the first classification for anomalies of the first branchial cleft. He designated that first branchial anomalies as a Type 1defect as any cyst or sinus in the parotid gland that is lined by squamous epithelium and which presents in early or middle adult life. Type 2 defects are those which, develop during childhood in the anterior triangle of the neck, with a communicating tract to the external auditory canal.

Bailey Classified 2nd Branchial cyst: 4 sub types:

Type I: Is anterior to SCM, beneath platysma muscle.

Type II: Is adjacent to ICA and often adherent to IJV: Most common

Type III: Extends between ICA and ECA to lateral Pharyngeal wall

Type IV: Lies against lateral pharyngeal wall and may Extend to skull base.[6,8]

This cyst frequently affects the young adults between the ages of 20 and 40 years. Regarding age At presentation, Telander and Deane found, in their Survey that sinuses and fistulas typically arise in The first decade of life and to a lesser extent in the Second decade, whereas cysts occur in the adolescent And adult which contradicts with present case. Cyst Appears as soft, fluctuant mass, that can be larger From 1 cm to 10 cm in diameter. The pattern of Inheritance is consistent with an autosomal gene having incomplete penetrance. 20-40% of patients relate its appearance to a recent upper-respiratorytract infection, odontogenic infection or even in pregnancy. Infection in the deciduous tooth might trigger the lesion. If large enough, the anomalies can cause a symmetry of the neck, as well as dyspnea, dysphagia and dysphonia.[7]

Larger cyst may displace the sternocledomastoid muscle posterolaterally, and the carotid and internal jugular vein medially.[7] When bilateral cysts/sinuses develop, there seems to be a familial tendency. Cyst appears more commonly in males than in females. 2/3rd of the branchial cyst occurs on the left side of the neck. 1/3rd found on the right side.

Investigations FNAC Is very helpful in preoperative diagnosis. The criteria for FNA cytology diagnosis of branchial cyst are:

a) thick, yellow, pus-like fluid b) a nuclear, keratinizing cells c) squamous epithelial cells of variable maturity and d) a back ground of amorphous debris.[7] Aspirate appears as a straw-colored fluid, that microscopically may exhibit squamous cells, polymorphonuclear cells, lymphocytes and cholesterol crystals. The sonomorphologic findings typically yield a rounded mass that has a uniform low echogenicity lacking internal septation, with no acoustic enhancement or motion. Treatment complete enucleation of the cyst is necessary. No recurrence has been noted. Branchial cyst carcinoma is extremely rare, compared to the far more frequent cystic metastases arising from primary malignancies. But in another situation, 13 cases of malignant second branchial cleft cysts in the literature had been noted that fulfill Khafif's modified criteria.

Histopathology:

More than 90% of branchial cleft cysts are lined by stratified squamous epithelium.

May or may not be keratinized. The wall of the cyst typically contains lymphoid tissue — germinal centers formation. Some authors have noted the presence of hair follicles and sebaceous and sweat glands within the cyst.

4. CONCLUSION

The branchial cleft cyst is a developmental cyst of the lateral neck region. Though it is a common lesion occurring in the head and neck region, the present case has a varied presentation and throws light on the diagnostic aspect for proper treatment planning of a brachial cyst. It is uncommon to suspect a lesion of such a type in dental fraternity and this often leads to mistaken diagnosis and improper treatment planning of the same. Hence, the present case is reported to broaden the differential diagnosis of swellings occurring in the lateral neck region.

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