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Research Paper

A second branchial cleft cyst, a case report

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Abstract:
First branchial cleft anomaly is a rare disease of the head and neck. Because of its rarity, first branchial cleft anomaly is often misdiagnosed and results in inappropriate management. In this article, we present a case of type II first branchial cleft anomaly. A middle-aged man who had suffered from swelling on lower jaw visited our department with the chief complaint of a swelling. He underwent complete excision of the lesion with preservation of the facial nerve. The patient recovered well and had no recurrence at 1-year of follow up.

Keywords:
Branchial cleft cyst, cervical lymphoepithelial cyst, first branchial anomaly

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Highlights:

- Branchial fistulas and cysts are uncommon anomalies of embryonic development.
- Second Branchial cysts (BCC) are classified into four types.
- Most second BCCs comprise the first three types, while type-IV cysts are extremely rare.
- Branchial anomalies remain asymptomatic and can present later in life.
- The treatment of branchial cyst is complete surgical excision to prevent recurrence.

I. Introduction:

First branchial cleft anomalies are thought to originate from the branchial apparatus that did not completely obliterate during head and neck embryogenesis. The incidence is estimated to be about one per million population/year.[1,2] Although frequent, 95% of these cases are attributed to second branchial cleft lesions, while third and fourth remnants are quite rare.[3,4] The anomalies account for <8% of all branchial anomalies and the patients are diagnosed at the average age of 19 years old. The delay between initial presentation and adequate treatment is 3.5 years. There is no obvious familial tendency. Female patients are twice as frequently affected than male with a tendency to occur on the left side.[5]

The anomalies are often distributed in the lateral neck below the external ear canals, above the hyoid bones, anterior to the sternocleidomastoid muscle and posterior to the submandibular angles. The spectrum of developmental abnormalities includes cysts, sinuses, fistulas and various combinations of these entities.[6]

The principle of management includes early diagnosis, controlling the infection status and complete excision without facial nerve injury. Prognosis for the patients is generally good.

II. CASE REPORT

A 19 year old male patient reported to the Pravara Medical hospital with complaint of swelling in the lower jaw since 4-5 months. On clinical examination, a swelling was seen below the left side of the angle of the mandible which was measuring 4 x 2 x 1 cm and extending 4 cm below the base of the mandible and obliquely 5 cm from the angle of the mandible. The mass was just anterior and deep to the sternocleidomastoid muscle [Figure 1]. On palpation it was soft in consistency, fluctuant and painful. The patient was operated and the excised tissue was grossed. The gross finding showed that the tissue was measuring 6 × 3 x 0.9 cm and cut section was partially brownish in colour. Histopathological findings of the specimen showed skin lying by stratified squamous epithelium with a tract lying by granulation tissue. No atypia/granuloma seen. [Figure 2].

Impression of the study was infected Branchial cyst.
To rule out tuberculosis Ziehl–Neelsen stain was previously done and there was no evidence of Koch bacilli. Based on all these findings a final diagnosis of infected branchial cyst was given. He underwent complete excision of the lesion with preservation of the facial nerve. The patient recovered well and had no recurrence.

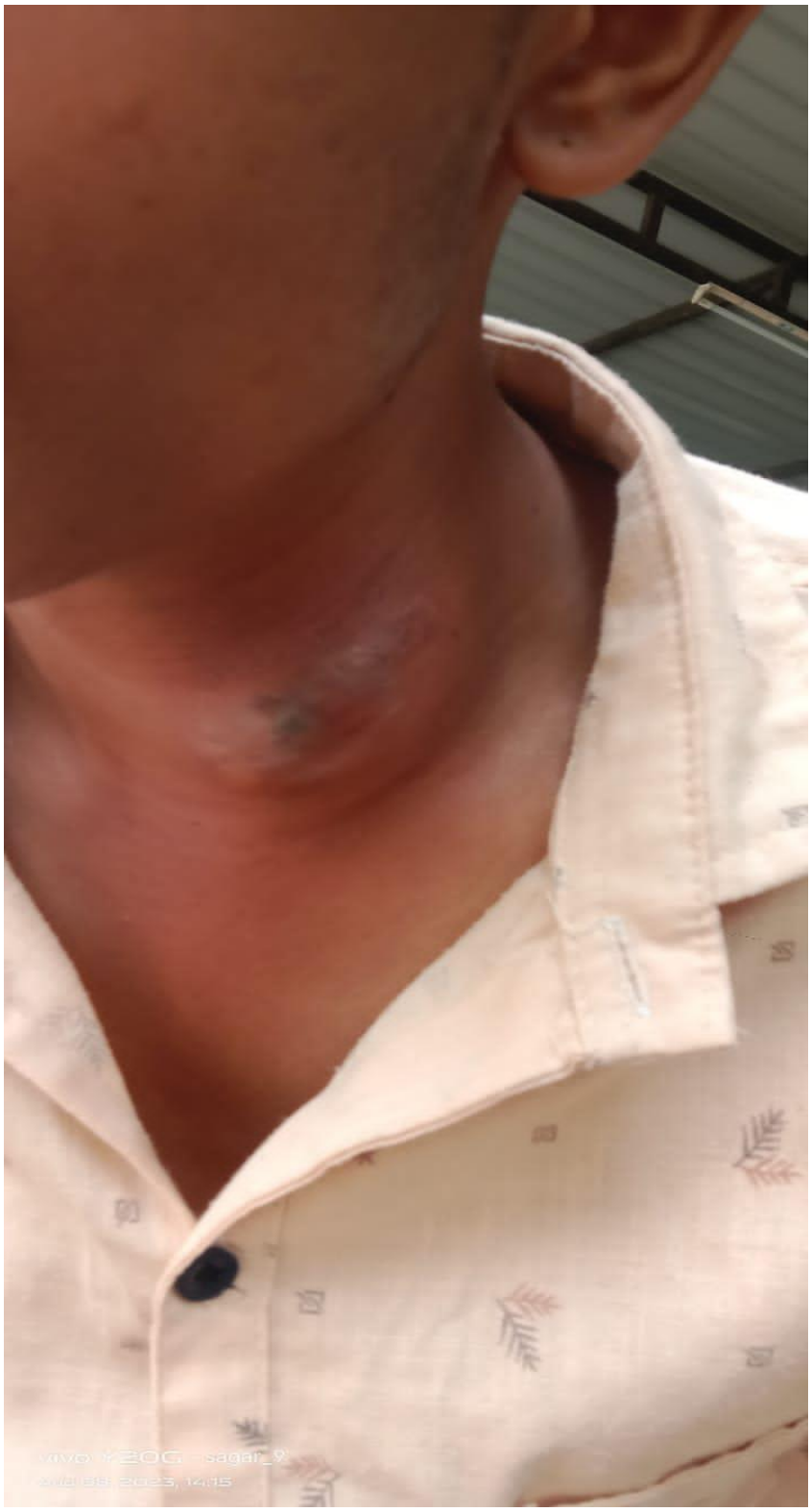

Figure 1
Clinical image showing swelling in the neck

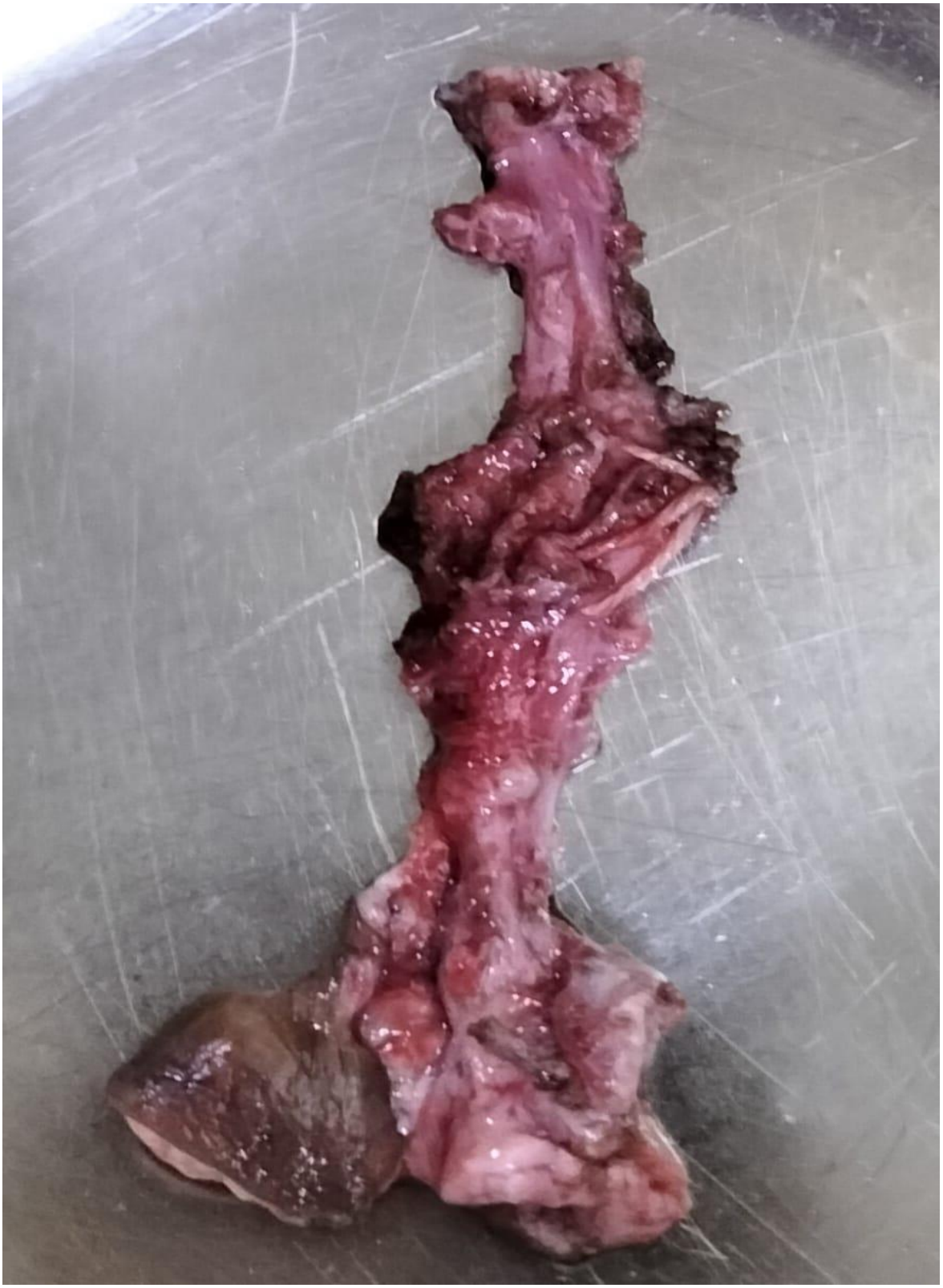

Figure 2
Gross specimen of the excised lesion

III. Discussion:

Brachial cleft cyst is a common cause of soft tissue swelling in the neck of a young adult. They generally occur unilaterally and are typically seen in the lateral aspect of the neck. It is clinically apparent in late childhood or early adulthood. In older adults with this presentation, it is important to exclude metastatic lymphadenopathy, lymphoma or tuberculosis.[7]

First described by Bailey in 1929, the second BCC is a remnant arising from incomplete degeneration of the second branchial arch, as it develops over a long period of time and occurs clinically and progressively later, making diagnosis difficult.[8]

The Bailey classification divided anomalies of the second branchial arch into four groups . Type I is the most superficial type, just below the superficial fascia of the neck, in front of the sternocleidomastoid muscle. Type II, the most common type, is found under the cervical fascia medial, anterior, and lateral to the cervical vessels. Type III extends into the pharynx between the internal and external carotid arteries, while the very rare type IV is located lateral to the pharyngeal wall and medial to the carotid artery.[9]

IV. Conclusion

Branchial anomalies remain asymptomatic and may appear later in life. They can be misdiagnosed. It is mandatory to confirm the extent of the tract before surgery is considered. Computed tomography and magnetic resonance imaging of the neck are helpful in diagnosing the cyst and its anatomical extensions. Adequate history and physical examination are required to detect other abnormalities such as craniofacial syndromes. Treatment for a branchial cyst is complete surgical removal to prevent recurrence. Early removal of these lesions improves the patient's quality of life. Because they are rarely malignant, early diagnosis and treatment can have better outcomes.

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