

*Case Report***Third Branchial Cleft Cyst Presentation in Adulthood: A Case Report**Srinjeeta Garg¹, Yuvraj L. Patil², Karan S Vayangankar³, Haritosh Velankar⁴¹PG Resident in ENT, ³Resident ENT, ⁴Professor and Head,
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*Received: 11/02/2014**Revised: 08/03/2014**Accepted: 27/03/2014***ABSTRACT**

Third branchial cleft cysts (BCCs) are rare entities that represent abnormal persistence of the branchial apparatus. Most cases of third branchial cleft cysts (BCCs) are diagnosed in childhood and show a marked preference for the left side. However, here we present this rare anomaly in a 40 year old female which presented as a fast growing swelling in adulthood.

Keywords: Third Branchial cleft cyst; Branchial cleft anomaly; Neck mass; branchial apparatus; adult female.

INTRODUCTION

Branchial anomalies result from the abnormal persistence of branchial apparatus remnants, and they present around each of the developed brachial derivatives. Most cases of third branchial cleft cysts (BCCs) are diagnosed in childhood and show a marked preference for the left side. Imaging is essential in the management of these lesions. For definitive diagnosis, the relationship of the anomaly to the superior laryngeal nerve must be determined intraoperatively. We present this rare anomaly in an adult female which presented as a fast growing swelling and describe its diagnosis and treatment.

CASE REPORT

A 40 year old female came to our outpatient department with complaints of an enlarging left neck mass over 15 days. She

was asymptomatic with no change in voice and no other co-morbidities. The swelling could be palpated in midline which moved with deglutition but did not moving with protrusion of tongue. The swelling was tense, did not move in vertical or horizontal plane and transillumination test was not positive. On indirect laryngoscopy, no abnormality was detected.

Ultrasound examination was suggestive of well-defined anechoic perilaryngeal cyst of 5x2.5x2 cm on the left side near midline, probably arising from pre-epiglottic space and extending through the thyrohyoid membrane externally to lie deep to the strap muscle and lateral to the thyroid cartilage. Thyroid glands appeared normal. Thyroid function test suggested euthyroid state. Thyroid scan showed no functional thyroid tissue in clinically palpable swelling.



Fig 1. Clinical Case.

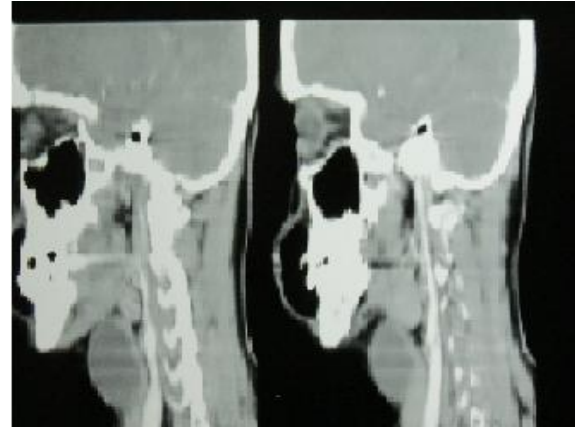


Fig 3. CT scan Sagittal.



Fig 2. Pre Operative.

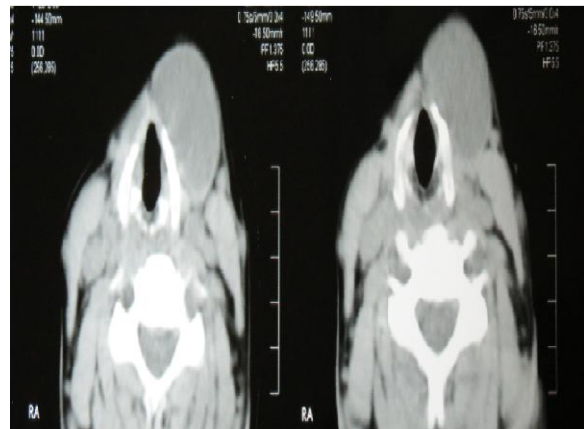


Fig 4. CT scan Axial.

On axial and spiral contrast enhanced CT examination, a well-defined, non-enhancing uncomplicated cyst (typically unilocular) measuring 5x2.5x2 cm was noted in the neck, extending from the level of C3 vertebrae up to the level of the thyroid, lying lateral to the left lobe of the thyroid. The cyst is typically displacing adjacent structures, but fascial planes are preserved. FNAC was consistent with features of branchial remnant cyst.

Surgical excision of cyst was done. It was noted that the cyst was adherent to thyroid cartilage and was seen to be superior to the superior laryngeal and hypoglossal nerves but inferior to the glossopharyngeal nerve and extending till base of pyriform sinus. The histopathology report was consistent with branchial cyst.

DISCUSSION

The branchial cleft cyst is a vestige of the branchial apparatus, which appears during the fourth week of gestation as 6 paired sets of arches, each with an associated internal pouch and external cleft.^[1] Most cases of third branchial cleft cysts (BCCs) are diagnosed in childhood and show a marked preference for the left side (97%).^[2]

The three pharyngeal arches and four pharyngeal pouches develop by the 4th week of embryonic life; the pouches are tube-like extensions of pharynx. Such anomalies have been classified as cysts, sinuses, or fistulas. A branchial cleft cyst is an epithelial-lined structure without an external opening, and it is usually located in the lateral areas of the head and neck.^[3] Sinuses

have an internal opening but no external openings, whereas fistulas have both internal and external openings.

Each arch has a corresponding condensation of mesoderm, artery, and nerve, with the third arch giving rise to the superior laryngeal constrictor muscles and portions of the hyoid bone, the internal carotid artery, and the glossopharyngeal nerve. The dorsal portion of the third branchial pouch forms the inferior aspect of the thyroid gland, whereas the ventral portion gives rise to the thymus.^[4]

A sinus extending from the cyst is the most common presentation. There are 95% of branchial cleft cysts that arise from the second branchial arch, with the remaining 5% arising from the first, third, or fourth arches, combined. The close proximity of the third and fourth branchial arches makes distinguishing these two abnormalities radiologically difficult.^[5]

The superficial location of some of these cysts makes them well-suited for sonography examination. For accurate diagnosis, the relationship of the sinus tract to the superior laryngeal nerve must be determined. Surgically third arch sinus/cyst arises from the base of the pyriform sinus, courses superior to the superior laryngeal and hypoglossal nerves but inferior to the glossopharyngeal nerve, and travels posterior to the carotid artery as in our case. Fourth arch sinuses arise from the apex of the pyriform sinus, course inferior to the superior laryngeal nerve, and track down the tracheoesophageal groove. Definitive treatment of third branchial cleft cysts is surgical excision.^[5]

CONCLUSION

Although third brachial cyst are rare especially in an adult ,their existence has to be kept in mind when dealing with patients presenting with neck mass or deep recurrent neck abscess especially on left side. Imaging is essential in the diagnosis and management of these lesions. The definitive treatment is surgical excision. The relationship of the cyst to superior laryngeal nerve and the pyriform sinus will differentiate between third and fourth branchial cleft cysts intraoperatively.

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