

Unusual presentations of branchial cysts

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ABSTRACT

Branchial cleft cysts commonly present in the upper neck along the anterior border of the sternocleidomastoid muscle and are derived from the second branchial cleft. Their diagnosis is usually straight forward but sometimes due to unusual presentations they may be misdiagnosed and even mismanaged. A thorough knowledge of embryology and anatomy is essential in the diagnosis and surgical management of branchial cleft cysts.

Keywords:

Branchial cleft cyst, branchial arch

INTRODUCTION

Second branchial cleft cysts have been very rarely reported to extend into the lower part of the neck. Here we present two cases with rare presentations. First is a case of second branchial cleft cyst with intrathoracic extension. Second is a case of first branchial cleft cyst mimicking a parotid mass. First branchial cleft cysts are very uncommon and are often mistaken for parotid masses and when infected it may present as an abscess and may be inappropriately managed by incision and drainage.

On Inspection there was an ovoid swelling, 12 x 4 cm in the left lateral aspect of the upper and lower neck which was cystic in consistency, not warm, non tender and was transilluminant.

Contrast enhanced CT (CECT) showed a well defined, non enhancing lesion of about 12 x 4.2 x 4.0 cm in dimension extending from the level of C2 vertebra to the level of the aortic arch. No other abnormality was detected (Figure 2a)

CASE REPORT

Case No 1

A 11 year old male child presented in the OPD with history of swelling in the left side of the neck for 6 months which was asymptomatic (Figure 1)

Figure 1: Pre-operative image

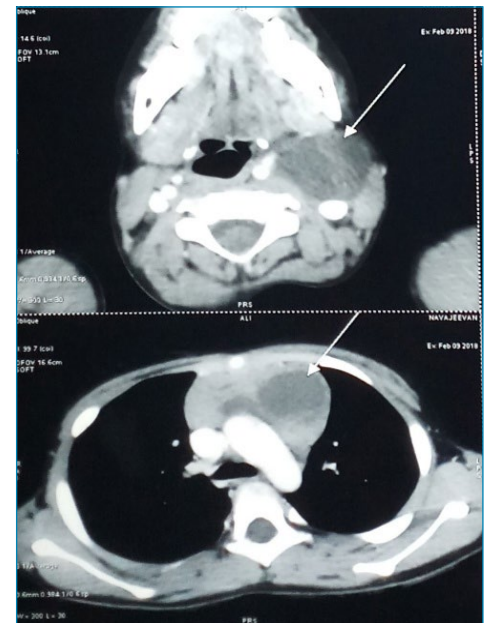
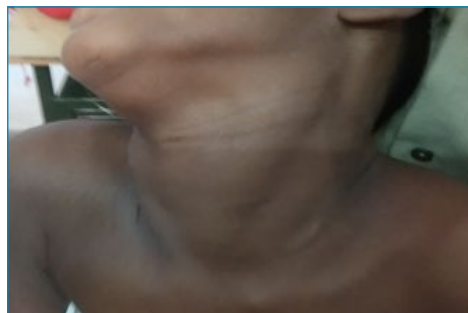


Figure 2a: CECT images of the branchial cyst in the neck with extension into the thorax

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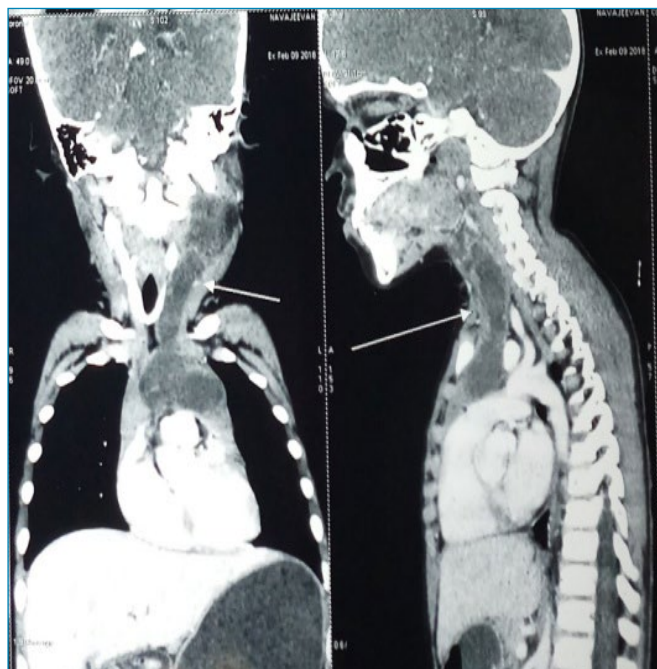
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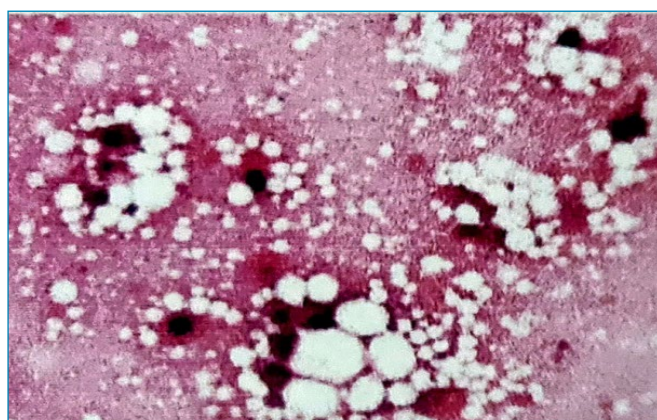
<https://www.jbcahs.org>

Figure 2b: MRI of the neck with chest showing the well defined cystic in the neck extending into the thorax upto the level of the arch of aorta



FNAC was done. 5 ml of a straw colored fluid was aspirated and it showed squamous cells with chronic inflammatory cells in a proteinaceous background (Figure 2c)

Figure 2c: FNAC of the cyst showing many cyst macrophages; few anucleate squamous cells mixed with chronic inflammatory cells in a proteinaceous background



Since there was intrathoracic extension, cardiothoracic surgeon's opinion was obtained and a decision was made to remove by cervical approach.

Intraoperatively the cyst was seen extending from behind the angle of the mandible to below the left clavicle extending intrathoracically. Adjacent vital neck

structures were identified and the cyst was carefully dissected from all attachments. First the cervical part of the mass was removed and the intrathoracic component was pulled into the neck and it was possible to remove the entire mass through the neck. The specimen was sent for histopathological examination which showed features of branchial cyst.

Figure 3: Post-Operative Image of the the specimen that was removed



Postoperatively the patient was followed up for 6 months and there was no recurrence of the swelling

Case No 2

A 14 year old male child presented with a swelling behind the angle of the mandible on the left side for 3 months which was asymptomatic. Patient had history of occasional minimal ear discharge which was serous in nature.

On examination the swelling was uniform, ovoid extending from the mastoid tip to below the angle of the mandible, cystic and fluctuant and not tender mimicking a parotid mass

On examination of the left ear, the tympanic membrane was normal and there was a minimal swelling in the floor of the external auditory canal.

USG and CT scan of the neck confirmed the location and the cystic nature of the swelling.

Surgery was planned. Using a modified Blair incision, the Sternocleidomastoid muscle was retracted and the swelling was found to be separate from the parotid gland and in posterior relation to the parotid (Figure 4a). The upper part of the swelling is found extending upto the External auditory canal and opening into it (Figure 4b). The Swelling was then removed en masse along with its attachment to the external auditory canal.

Figure 4a: Per-operative image of the cyst showing the lower extent**Figure 4b:** Per-operative image of the cyst showing its upper attachment at the external auditory canal

DISCUSSION

Branchial cysts or lateral cervical cysts are developmental cysts usually present in the lateral aspect of the neck deep to sternomastoid at the junction of upper one third and lower two-thirds.¹ It results from failure of obliteration of the second branchial cleft in embryonic development.²

Second branchial cleft cysts are more common. They usually manifest between 20 and 40 years of age.³ The first branchial cleft cysts (FBCC) are very rare (8%) which is located in close association with the parotid gland and the external auditory canal (Type 1) or in close association with the submandibular gland (Type 2).⁴ FBCCs can be easily misdiagnosed due to its rare occurrence and the unfamiliar clinical signs and symptoms. A history of multiple incision and drainage procedures for an abscess in the upper neck area is almost pathognomonic for type II FBCC.⁵ The diagnosis of BCC is mainly by clinical history and examination. The diagnostic procedures include CT, MRI, sonography and fine-needle aspiration. FNAC is very helpful in preoperative diagnosis. The aspirant appears as a variably thick, grey-yellow straw colored fluid. The criteria for diagnosis are the appearance of anucleate, keratinized cells, squamous epithelial cells, mainly mature, some metaplastic, in a background

of amorphous debris, and often inflammatory cells.^{3, 6} Histopathology in more than 90 percent the lining of a branchial cyst is generally stratified squamous epithelium but sometimes it is pseudostratified, columnar and ciliated.⁷ Complete removal by surgical excision of the cyst is the treatment of choice for the purpose of the prevention of recurrence.⁸

CONCLUSION

Branchial cyst of the second branchial cleft origin present as an asymptomatic mass in the upper part of the neck and easy to diagnose clinically. It rarely extends into the lower part of the neck. In our case the cyst was found to extend intrathoracically which is very unusual. The diagnosis of branchial cyst was made only after complete imaging study and after excluding all the other differential diagnosis. In the second case the swelling is in the upper part of the neck was mimicking a parotid mass and the diagnosis of branchial cyst was made after careful clinical examination and imaging. A high index of suspicion and a thorough knowledge of a possibility of unusual presentation of branchial cysts is necessary along with appropriate imaging studies to diagnose and manage branchial cysts.

CONFLICTS OF INTEREST

None

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