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CASE REPORT

Branchial Cyst: An Unusual Presentation as Intrathoracic Extension and Hoarseness of Voice

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ABSTRACT

Branchial cleft cysts usually present as a unilateral, fluctuant soft tissue swelling that is localized deep to the anterior border of sternocleidomastoid in the lateral aspect of the neck. They are often noticed late in childhood or early adulthood. It is important that clinical diagnosis and, in some cases, appropriate imaging is performed, so that definitive treatment may be carried out. The authors present an unusual case of a 35-year-old man who presented with hoarseness of voice associated with a lateral neck mass that extended retrosternally.

Keywords: Branchial cyst, Intrathoracic extension, Hoarseness of voice.

INTRODUCTION

Branchial cysts (also known as lateral cervical cysts) predominantly present in the lateral aspect of the neck. Typically a fluctuant swelling is felt deep to the sterno-cleidomastoid at the junction of its upper-third and lower two-thirds. They often present in the second and third decades of life. Diagnosis is usually made clinically. Fine-needle aspiration can also facilitate diagnosis. Radiology may also be helpful if the cyst is large, in an unusual localization or if the swelling pulsates. Excision is the treatment of choice to aid in diagnosis, for cosmetic reasons and to prevent possible infection of the cyst.

CASE REPORT

A previously fit and well, 35-year-old man presented to us with a 6 month history of a left-sided neck swelling and change in voice. He had no dysphagia or respiratory compromise. Past medical history was unremarkable and he was on no regular medications. He was a nonsmoker. On examination, a large (7×5 cm) left supraclavicular swelling was noted. The mass was firm in consistency. A separate mass was felt to the left of the sternocleidomastoid. There was no evidence of a fistula. No other masses or lymph nodes were palpated in the axillae or groin. Respiratory and abdominal examinations were normal with no evidence of organomegaly. The full blood count results were within the normal limits. The chest X-ray revealed a smooth rounded mass lying in the left paratracheal region. A hematological investigation was made, and a computerized tomography (CT) scan obtained. CT revealed a mass arising from the

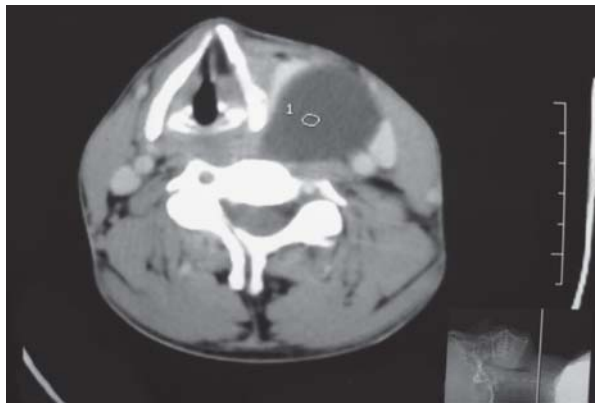

Fig. 1: Axial section CT scan neck demonstrates presence of mass pushing larynx to the opposite side

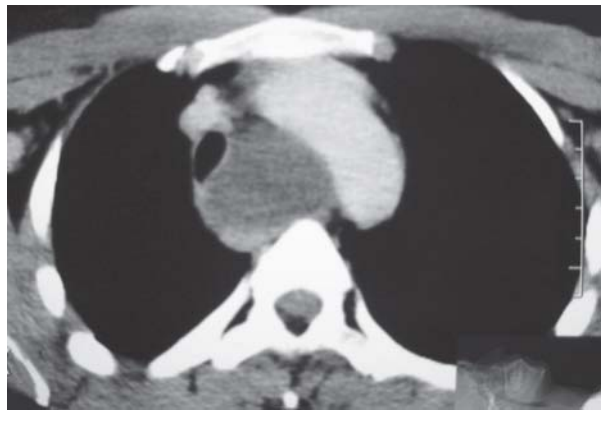

Fig. 2: Axial section of CT scan demonstrating close proximity of mass to arch of aorta

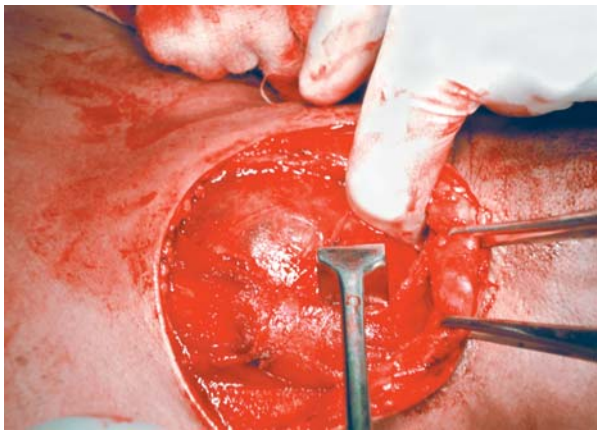

Fig. 3: Operative appearance

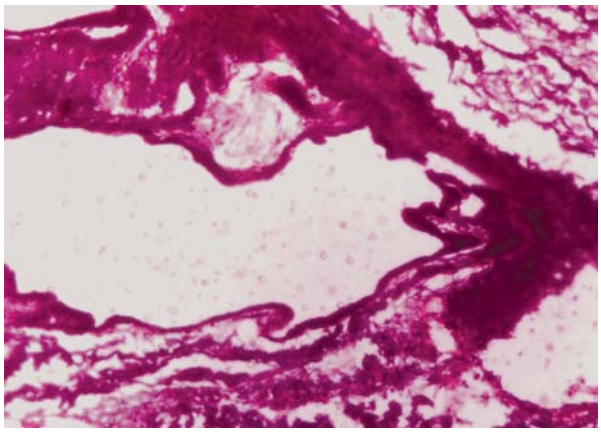

Fig. 4: Microphotograph showing fibrous cyst wall lined by a tall columnar epithelium with mucin filled vacuoles and focal squamous metaplasia (H&E x 125 x digital magnification)

neck at the level of the thyroid gland extending inferiorly through the left supraclavicular fossa into the left anterior mediastinum (Fig. 1).

Fine-needle aspiration cytology was suggested to facilitate diagnosis, and on aspiration clear fluid came out. Cardiothoracic surgeon was consulted regarding approach for excision and was decided excision through neck. Exploration of the left neck mass demonstrated a cystic structure lying deep to sternocleidomastoid pushing larynx and trachea opposite side and extending retrosternally in anterior mediastinum (Fig. 2).

The lesion appeared lobulated superiorly and lay deep to sternocleidomastoid. It extended inferiorly displacing the trachea to the right and extending into the anterior mediastinum to the level of the aortic arch. Exploration of the neck was done and complete excision of the cyst was carried out through neck. Operative findings were of a large cyst, which was adherent to jugular and carotid vessels with an obvious vascular pedicle feeding the cyst (Fig. 3).

The cyst extended down to the level of the aortic arch within the left anterior mediastinum. The cyst did not appear to have been recently infected. The patient made an uneventful postoperative recovery. Histology of the specimen confirmed the presence of a collagenous cyst wall lined by low columnar to cuboidal epithelium with mucin filled vacuoles (Fig. 4).

DISCUSSION

Developmental anomalies of the branchial apparatus are not uncommon. In fact, they account for 17% of all pediatric cervical masses, and they are the most common type of congenital cervical mass. Branchial remnants are derived from the first arch in 5 to 10% of cases. In 65 to 95% of cases, the anomaly is derived from the second arch.[1] Abnormalities derived from the third and fourth arches are quite uncommon—each less than 5% of the total.[2] Branchial cysts (BC) are thought, by some, to be an embryological remnant. Their exact tissue origin is unknown. Several etiologies have been suggested including branchial cleft mucosa, the cervical sinus, the third pharyngeal pouch and lymph node epithelium.[3] Branchial cysts are usually confined to the neck and are one of the differential diagnoses of neck swelling. Usually, diagnosis is made clinically from the location of the swelling and its consistency. Occasionally diagnosis is difficult due to the firm nature of the mass.[4] Constitutional symptoms are uncommon and usually represent infection within the cyst.[5] They may become tender, enlarged or inflamed, or they may develop abscesses, especially during periods of upper respiratory tract infection, due to the lymphoid tissue located beneath the epithelium. Spontaneous rupture of an abscessed branchial cleft cyst may result in a purulent draining sinus to the skin or the pharynx. Depending on the size and the anatomical extension of the mass, local symptoms, such as dysphagia, dysphonia, dyspnea and stridor may occur. Since, this cyst appeared to arise within the neck and to descend into the mediastinum, it does not shed much light on the potential etiology of these structures. It would be compatible either with branchial cleft remnant or a derivation from lymph node epithelium. There are few reports of direct extension of branchial cysts into the mediastinum.[6] Branchial cysts usually cause no immediate problem. This patient presented with symptoms, signs and investigations that were compatible with him having a cyst in his neck and mediastinum. However, surgical excision and subsequent histology revealed the mass to be a branchial cyst.

CONCLUSION

Branchial cysts are usually confined to the neck and are one of the differential diagnoses of neck swelling. Usually, diagnosis is made clinically from the location of the swelling and its consistency. Depending on the size and the anatomical extension of the mass, local symptoms, such as dysphagia, dysphonia, dyspnea and stridor, may occur. Since

this cyst appeared to arise within the neck and descend into the mediastinum, complete surgical excision can be done through neck.

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