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 sternocleidomastoid 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. 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...
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
top 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
mucoa, 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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