Branchial cysts-adult presentation: A case report

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ABSTRACT
Branchial cyst typically presents as a soft tissue swelling in the anterior triangle of neck at the level of upper third of sternomastoid. Preoperatively an accurate clinical diagnosis and appropriate imaging is performed so that definite treatment can be carried out. We present a case of a 42 years old female patient, presenting with a left sided cervical swelling of one and half year duration, gradually progressive in size in the last three months. Computed tomography (CT) scan and MRI of the neck suggested a branchial cyst. She was successfully managed surgically without any recurrence. The aim of presenting this case is to highlight the rarity of the branchial cyst as a clinical entity in the differential diagnosis of the lateral neck masses in adult and to emphasize the importance of a proper surgical excision in order to avoid the recurrence in the management of branchial cysts.

Keywords: Branchial cyst, branchial arches, anterior triangle of neck

INTRODUCTION
There are 5 mesodermal arches separated by invaginations of ectoderm (clefts) and endoderm (pouches). Branchial cysts result from failed obliteration of branchial clefts. Second branchial cleft cyst is the most common type, which is found in about 95% of cases (Panchbhai and Choudhary 2012). Branchial cysts are common in the lateral aspect of the neck. They usually appear as a fluctuant swelling deep to the sternocleidomastoid muscle anteriorly. They are often present in the second and third decade of life. Clinical diagnosis is mandatory. Radiology may also help for proper localization of the cyst. Fine needle aspiration cytology (FNAC) can also facilitate the diagnosis. Excision is the treatment of choice to aid in diagnosis, for cosmetic reasons and to prevent possible infection of the cyst.

CASE REPORT
A 42 year old female presented with a solitary swelling in the left side of the neck of one and half year duration. Initially the swelling was small in size, and gradually increased with time to attain the present size. There was no pain in the swelling. General and systemic examination revealed no other abnormality. On examination an 8 cm x 6 cm swelling was found in the left anterior triangle of the neck. It extended from the anterior border of the left sternomastoid to the anterior border of the left trapezius.

Figure 1: CT scan showing branchial cyst

Figure 2: Per op picture of Branchial cyst

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The smooth, well-defined swelling was fluctuant and nontransluminant. On CT scan of the neck, a well-defined, non-enhancing 5.3x4.2x8.4 cm cystic lesion was noted in the left parapharyngeal space displacing the carotid vessels and IJV anteromedially. There was no evidence of lymphadenopathy and no vascular involvement was noted (Figure 1). The surgical excision of the cyst was planned. Per op, a well-circumscribed unilocular cyst was found adherent to the sternocleidomastoid and upper part of left Internal jugular vein (Figure 2). The internal jugular vein, carotid vessels, vagus nerve, hypoglossal nerve and superior thyroid artery were identified and the cyst was dissected out in toto. Histopathological study of the resected specimen revealed that the cyst wall was lined by squamous epithelium. A part of the cyst wall was also lined by columnar epithelium. Sub epithelial stromal showed infiltration of lymphocytes. These findings were suggestive of branchial cyst. The patient was followed up for one year and no evidence of recurrence was observed.

**DISCUSSION**

Hunczovsky in 1785 first described lateral cyst of the neck (Golledge and Ellis 1994). Several theories have been proposed regarding the origin of the branchial cyst. Rathke described pharyngeal pouches in 1828. Later on Ascherson first proposed the —Branchial theory and subsequently in 1886 proposed —Precervical Sinus Theory, suggesting that these cysts were related to the cervical sinus rather than the pharyngeal pouches (Golledge and Ellis 1994). King proposed the —Lymph node theory based on the findings of Lucke and Luschka. Bhasker and Bernier concluded the possible origin of the epithelium within the lymph node forming the lining of the cyst eventually led to the cystic transformation of the node. The extensive literature review suggests the terms —branchial cleft cyst and —cervical lymphoepithelial cyst are synonymous (Thomaidis et al., 2006; Glosser et al., 2003; McClure et al., 1998). The median age of presentation of these cysts is in the third decade. Our case presented in fourth decade. They are found more commonly in females (Titchener and Allison 1989). Classically they have been described to occur anterior to the upper third of sternocleidomastoid [7]. However they have been reported to occur in the other areas of the neck, in the oral cavity, within the salivary glands, the thyroid, in the mediastinum and within the pancreas. The diagnosis of branchial cyst in classical position is relatively simple. It is difficult to diagnose preoperatively at other sites. Preoperative ultrasonography and FNAC both aid diagnosis (Howard and Lund 2008). CT scan of the neck, not only confirms the diagnosis, but also determines the extent and anatomical relationship with adjacent structures (Bransetter. 2009; Woo and Connor 2007). The total accuracy of CT in the diagnosis of branchial cysts was found to be 90% (Coppens et al., 1990). Magnetic Resonance Imaging (MRI) has certainly more advantage than CT scan for evaluation of branchial cyst but with lower costs and with an easier imaging process CT is preferred very often. Branchial cysts arising from 2nd branchial cleft are usually found deep to the sternocleidomastoid muscle at the junction of its upper 1/3 and lower 2/3. In our case the cyst was located anterior to the anterior border of sternocleidomastoid. The radiological interpretation suggests well defined, non-enhancing cystic lesion in the left parapharyngeal space displacing the carotid vessels and IJV anteromedially. Considering the embryogenic origin as well as the clinical and radiological features of the cyst in our case, it was suggested that the cyst was originated from the second branchial arch. By interpreting the embryological basis for these defects, the location and the type of branchial cyst can be better evaluated radiologically [9]. Branchial cleft cysts are most commonly located along the anterior border and the upper third of the sternocleidomastoid muscle in the anterior triangle of the neck, some rare occurrences have been reported in the literature. Secondary enlargement of the cyst is common during upper respiratory tract infections due to enlargement of lymphoid tissue lining the cyst wall. Depending on its size it can cause dyspnoea, dysphonia, dysphagia and cosmetic deformity. There are a number of clinical entities, to be considered as differential diagnosis of branchial cysts in the neck, which include thyroglossal duct cysts, cystic hygroma, carotid body tumours, suppurative lymphadenitis, branchial fistulas or sinus, dermoid cysts, parotid swelling, tuberculous lymphadenitis, lipoma, neurofibroma, haemangioma, lymphangioma.
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pharyngeal diverticulum, laryngocele and plunging ranula etc. Lateral cysts of the neck containing malignant epithelium represent a diagnostic and therapeutic challenge. Much attention in the literature has been focused on the frequent relationship between a solitary cystic cervical metastasis and an occult primary tumour in the tonsil or the tongue base. It has been suggested that metastatic deposits from primaries in these sites have a particular tendency to undergo cystic transformation. Despite rigorous investigation however a high proportion of primary sites remain occult. Branchial cleft cyst carcinoma is extremely rare, compared to the far more frequent cystic metastases arising from primary malignancies. Management of branchial cyst is in form of surgical excision, indications of which are to prevent infections and cosmetic reasons. Surgical excision is the definitive treatment of the branchial cyst with no recurrence (Howard and Lund 2008). Recurrences are seen in large retrospective study where the overall recurrence rate was noted to be 4.9% after a 2 year follow-up period (Panchbhai and Choudhary 2012). In our case the patient was followed up for one year with no recurrence.

CONCLUSION
Branchial cyst presents with similar clinical picture with other pathological swellings of the neck. Thorough clinical and radiological diagnosis is necessary to predict the origin of branchial cyst. Complete surgical excision remains the mainstay of its treatment.

REFERENCES