CERVICAL THYMIC CYST – AN OVERLOOKED ENTITY

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ABSTRACT

Thymic cysts are one of the rare causes of neck masses in the paediatric age group. Patients may complain of neck swelling either central or lateral neck swelling. There is difficulty in diagnosing a cervical thymic cyst as it may mimic a branchial cleft cyst or a cervical lymphangioma. Definitive diagnosis of a thymic cyst requires histopathological examination of thymic tissue. We report a case of a 6-year-old girl who presented with painless lateral neck swelling for 2 months duration. Computed tomography (CT) scan showed a left branchial cyst with retropharyngeal extension. The patient underwent complete excision of the mass and histological examination was reported as a cervical thymic cyst. Postoperatively, she was able to be discharged after serial follow-ups with no signs and symptoms of recurrence.

Keywords: Cervical Thymic Cyst, Lateral Neck Swelling, Paediatric

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Introduction

A thymic cyst is an epithelium-lined cyst involving the thymus. It is a rare lesion that accounts for approximately 1-3% of all anterior mediastinal masses [1]. A cervical thymic cyst is a benign and rare cause of neck masses in children. It can be mistaken with other differential diagnoses of neck masses such as branchial cleft cyst, cystic lymphangioma or thyroglossal duct cyst. Clinical features, imaging, surgical findings, and correlation with histopathology examination of mass play an important role in diagnosing thymic cysts.

Case Summary

We report a case of a 6-year-old Malay girl who presented with lateral neck swelling for 2 months duration. The swelling was painless and gradually increasing in size. There was no fever, odynophagia, dysphagia, stridor, shortness of breath or night sweats. She also had no history of recent illnesses and no prior episodes of neck swelling or infection. She denied close contact with tuberculosis patients and had no intraoral swelling. She was active and had no history of noisy breathing. Clinically, she was comfortable, not tachypnoeic and had no audible stridor. There was the presence of a single swelling located at the upper 1/3rd of the left sternocleidomastoid muscle, measuring 2 x 3 cm.

The mass did not move with deglutition and tongue protrusion. It was soft, non-tender, mobile and with no overlying skin changes. She had a full range of motion of the neck. There was no cervical lymphadenopathy palpable. There were bilaterally enlarged tonsils with grade II, but were not inflamed and no medialization of the posterior pharyngeal wall. The uvula was centrally placed and the floor of the mouth was not raised.

Ultrasonography of the neck revealed a lobulated cystic lesion with multiple septae located at the left cervical region, between the left thyroid gland and left neck vessels. The left common carotid artery and left internal jugular vein were displaced laterally, but remained patent with full column Doppler colour flow within. The thyroid

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gland was not enlarged and had homogenous echogenicity and smooth echotexture with no focal lesion seen. It was diagnosed as a branchial cyst.

Before the excision of the mass, a CT of the neck was done. There was a minimally enhancing hypodense lesion (HU of 30-50) situated in the angle of the left mandible area measuring 1.9 (AP) x 3.6 (W) x 4.8 (L) cm as shown in Figure 1. Few enhancing septations were seen within the mass, however, no rim enhancement was noted. Inferiorly, the lesion was insinuating between the left thyroid lobe and left carotid vessels, displacing the left common carotid artery and left internal jugular vein laterally. No thrombosis, compression or infiltration of vessels was seen. Superomedially, it extended into the retropharyngeal and paravertebral region but did not extend into the superior mediastinum. No enlarged cervical nodes were seen. The parotid, submandibular and thyroid glands were normal. Based on these findings, the diagnosis of a left branchial cyst with retropharyngeal extension was made.

Excision of the mass with retropharyngeal extension was performed under general anaesthesia as shown in Figure 2. Intraoperatively there was a multilobulated mass measuring 5 x 6 cm found. Medially, the mass lay adjacent to the carotid sheath and into the retropharyngeal area. The mass was easily resected via blunt dissection and a sample as shown in Figure 3 was sent for histopathology examination (HPE). Microscopic examination revealed multiple thin cyst walls lined by cuboidal epithelium cells. The cyst was separated by thick fibrous septae and some of them contained cholesterol granulomas (Figure 4 and Figure 5). Hassal corpuscles were present within thymic tissue (Figure 4) and a few foreign bodies multinucleated giant cells and lymphocytes aggregate were seen. Thus, the diagnosis of the cervical thymic cyst was made post-operatively.

Figure 1. Contrast-enhanced CT scan axial section shows a non-enhancing mass involving retropharyngeal space and the coronal section shows the medial extent of the mass (red arrow pointed at the mass).

Figure 2. Lateral neck mass and resection of a cervical neck mass.
Figure 3. Final specimen post-excision.

Figure 4. Microscopic: Haematoxylin & Eosin stain x10: Section shows the presence of cysts containing cholesterol granuloma and Hassal corpuscles within thymic tissue.
Discussion

There are many causes of neck swelling in children. It can be divided into 3 categories: developmental, inflammatory/reactive, or neoplastic [2]. It can be further divided based on the location of the neck masses of the children. For example, the differential diagnosis for anterior to sternocleidomastoid muscles is a branchial cleft cyst, vascular malformations, reactive lymphadenopathy, lymphadenitis (viral or bacterial), sternocleidomastoid tumour of infancy, or lymphoma. Midline mass may suggestive of thyroglossal duct cyst, dermoid cyst or thyroid tumour.

The timing of when the neck mass was first noticed by parents or caretakers needs to be considered as it can provide a clue regarding the diagnosis. Neck masses that are present since birth or in the neonatal period are usually benign and result from developmental problems. In our case, parents noted the neck swelling when the patient was 5 years old, and it gradually increased in size.

The thymus gland is a paired organ, located at the superior mediastinum as a retrosternal organ. Embryonically, it arises from the third pharyngeal pouch and migrates from the pharyngeal pouch downward to the superior mediastinum. It is a primary lymphoid organ recognized as having both immune and endocrine functions. It acts as a site where T-lymphocytes mature before being released into general circulation. Over time, it will reach its maturity in utero and will regress and will be replaced by fat in early adulthood.

The cervical thymic cyst is a rare cause of neck swelling in children. It accounts for about 0.3% of all congenital cervical cysts in children [3,4]. It often to be mistaken as a branchial cleft cyst, vascular lymphatic malformation or thyroglossal duct cyst [5]. Other differential diagnoses for cervical masses in paediatric may include cystic dermoid cysts, epidermoid cysts, bronchogenic cysts (visceral cysts) and laryngoceles. The cervical thymic cyst usually presents as a painless mass in children between the age of 2 and 13 years old. It is more common in males up to 70% of cases present as left-sided neck mass compared to right side [4].

In terms of management of the cervical thymic cyst, it can be grossly divided into conservative management or surgical excision. In this patient,
there was a dilemma in diagnosing this cervical thymic cyst as the initial ultrasound of the neck was suggestive of the brachial cyst. However, we decided on surgical excision as the mass gradually increased in size and had a retropharyngeal extension which was supported by the ultrasonography and CT scan findings. The mainstay treatment of cervical thymic cysts is the complete removal of the mass. Overall, patients with cervical thymic cysts have a good prognosis as it is a benign lesion which rarely has a malignant transformation. As for this patient, the outcome of surgical excision was good as the histopathology examination of the mass did not reveal any malignant transformation, and the patient was asymptomatic post-operatively. The risk of recurrence is very low as there was complete resection of the mass.

The role of HPE is very important as a definitive diagnosis of cervical thymic cyst solely depends on HPE.

Conclusion
Cervical thymic cysts are a rare but important differential diagnosis of neck mass in the paediatric age group. A thorough evaluation of neck mass in children should include a detailed history taking, physical examination as well as imaging studies such as ultrasound and CT scan to make a correct diagnosis of lateral neck swelling in children. HPE of the mass plays an important role in diagnosing thymic cysts.

Conflict of interest
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Declaration of competing interest
None.

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