CASE REPORT

# Thymic Cyst: An Unusual Cause of Cervical Mass in Children: A Case Report

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## ABSTRACT

**INTRODUCTION**: Cervical thymic cyst is uncommon cause of neck cysts in children, more common in boys and on the left side of the neck, congenital typemore prevalent than the rare acquired types .

**CASE PRESENTATION**: We report a case of three years old boy who presented with soft, mobile, non tender cystic mass on left side of the neck. The cystic nature of the lesion was detected clinically and confirmed by CT-scan and MRI .Successful surgical excision through mid line sternetomy was done. The diagnosis was established by histopathological study

**CONCLUSION**: Congenital cervical thymic cyst is rare condition with an excellent prognosis especially if diagnosed early followed by prompt surgical excision by a surgeon who is familiar with anatomy and embryology of the thymic cyst

**KEYWORDS:** thymic cyst, sternotomy, children.

## INTRODUCTION:

The cervical thymic cyst is an uncommon differential among neck cysts in children[1]. Only about 100 cases had been reported in the literature [2].In review of 58 thymic lesions, only 11 cases diagnosed as thymic cyst [3]

The cyst is usually derived from thymopharangeal duct and may appear in the anterior mediastinum and /or as neck lesion but rarely thymic cyst also found after radiotherapy or in patient with HIV[4].

Thymic cyst is often misdiagnosed with cystic hygroma, thyroglossal duct cyst or the third/ fourth branchial cyst. However, definitive diagnosis is usually established by histopathological study [3].

The management of the cyst is usually surgical excision via thoracoscopy approach or by cervical or trans sternal approach[5].

We present a rare case of thymic cyst in a child on a purpose to explain our experience with this case and to discuss the clinical course, diagnosis and management of this interesting rare congenital anomalies.

## CASE DESCRIPTION:

A three years old boy was referred to pediatric surgery center with a painless mass at the left side of the lower neck for two years duration. The mass was soft , not tender bulge out during coughing. The overlying skin was intact (no sign of inflammation or sinus opening). The general condition of the child was stable and general physical examination was unremarkable. No sign of respiratory tract infection was present. No evidence of dysphagia was reported. Thorough laboratory tests were done and did not reveal any abnormality. Radiological assessment was conducted. **Chest x-ray** was unremarkable (figure 1). Neck **ultrasound** showed marked dilatation of left jugular vein up to 18 mm and on Valsalva maneuver 22 mm without sign of thrombosis or obstruction is seen. The ultrasound findings was more in favor of cystic hygroma.

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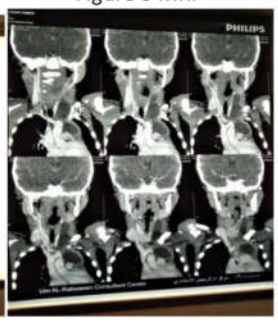
A native **CT-scan** of the chest and neck also demonstrated a cystic lesion suspected to be related to Left thyroid lobe (figure 2).

Later on, **MRI** was done. It showed a well defined cystic lesion with no contrast uptake, posterior to the common carotid artery lateral to the trachea extending down and deep in the anterior mediastinum below the tracheal bifurcation (figure 3).

Figure 1 CXR

Figure 2 CT-Scan

Figure 3 MRI



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The differential diagnosis included thymic cyst, cystic hygroma , third or fourth branchial cyst. The management was conducted by a team that consist from pediatric surgeon , cardio-thoracic surgeon and pediatric anesthetist. The risk was explained to the patient's relatives including recurrence and the need for post operative ICU with artificial ventilation .

To avoid a sudden expansion of the cyst with related obstructive symptom, a mid line trance sternal incision was performed, the cyst originated from the left lobe of the thymus was noticed (figure 4&5).

Figure 4

Figure 5

Dissection of the cyst from the surrounding left pleura laterally, innominate vein behind and continue upward to identify attachment to the left lower lobe of thyroid gland (figure 6)

Figure 6

The pleura was not opened ,the wound closed in classical manner with mediastinal drain, preoperative vital sign was observed (figure 7) and the patient fully recovered with admission to the ICU for 48 hours (figure8) and he went home 24 hours later (figure 9)

Figure 7 Figure 8 Figure 9

The cyst was sent for histopathological study. It showed a fibrous walled cyst lined flattened squamous epithelium. The underlying stroma showed scattered inflammatory cells. In addition, lobules of hyperplastic thymic tissue with many lymphoid follicles having reactive germinal centers and Hassell's corpuscles was seen as well. No atypical changes or ectopic thyroid or parathyroid tissue was noticed. The conclusion was a unilocular thymic cyst. See figure 10

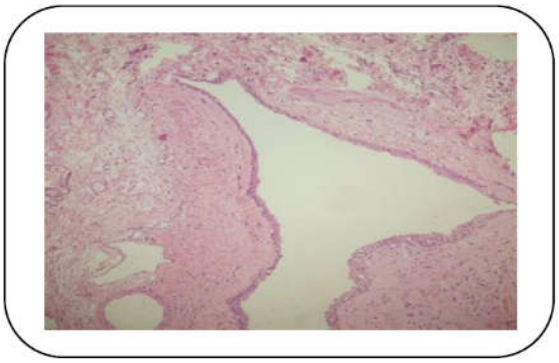

**Figure 10**

## DISCUSSION:

The primordial thymus is created from ventral of the bilateral third pharyngeal pouches during 6th week of development. Then thymic gland moves distally and medially connected to pharynx with thymopgaryngeal duct by 9th week, fuse both lobes and loose the connection to the pharynx [6,7].

The thymic cyst is more common in the left side(60-70)% with a male to female ratio 3:1.Most of the reported cases present at puberty [5,8,9].

The majority of cases (80-90 % ) of thymic cyst present as painless soft and nontender lateral cervical mass (as in the current case), usually unilateral [5].

Some of the thymic cyst extend to the mediastinum causing obstructive symptom like dyspnea and dysphagia with reported cases of complication like rupture and abscess[10].

CT-scan and MRI are the diagnostic tools to detect the relation of the cyst to the important vital structure, to differentiate from branchial cyst or lymphangiomas and to evaluate the mediastinal extension. [11,12,13]

Up to our best knowledge the chance for the thymic cyst to be malignant is not reported yet still surgical excision is the best the treatment first to be sure about diagnosis and second to avoid complication. [14]

The surgery carry a lot of tips and tricks to avoid post operative complication started by sternotomy, mid sternotomy or cervical incision which may depend on size and site of the cyst in relation to tracheal bifurcation, second trick is to securely ligate the thymic vein/veins drain to brachiocephalic vein and ligate the arterial supply from the inferior thyroid artery or subclavian artery (figure 6).keep in mind the third trick of avoiding injury to the recurrent laryngeal nerve or phrenic nerve specially in big cyst , in that case trace the phrenic nerve distally to the diaphragm and follow the track upward toward the cyst. [15]

## CONCLUSION:

Cervical thymic cysts are rare but should considered in the deferential diagnosis of lateral neck mass in children , never reported to have malignant changes yet surgery is the main treatment modality with definitive diagnosis depend on histopathology hence knowledge of all this information to the pathologist will prevent misdiagnosis , prognosis is excellent .

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**Conflict of interest:**

The authors have no conflict of interest to disclose .

**Disclosure:**

The material has never been published and is not currently under evaluation in any other peer-review publication.

**Consent:**

Written informed consent was obtained from the patient's parent for publication of this case report and accompanying images . a copy of that is available to be review by the Editor –in-chief of this journal.

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