Case Report: Cervical Thymic Cyst

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Abstract:

This is a case report of a patient who presented with a swelling in the neck, which proved to be a cyst related to the thymus gland, and so we can add another cause for the list of lateral neck swellings. The embryology, histopathology and differential diagnosis of cervical thymic cyst are reviewed.

Key Words: *Cervical, Thymus, Cyst.*

Introduction:

Around the fourth week, the embryo develops a series of bars in the wall of the pharynx, these are known as branchial arches, these arches are separated by four branchial pouches internally and four branchial grooves (clefts) externally, each pouch is lined by endoderm while the cleft by ectoderm, these pouches and grooves are separated by a layer of mesoderm . The thymus develops from the third pharyngeal pouch. (1) & (2)

In 1938 ,Speer(3) postulated five possible origins of cervical thymic cysts; *embryonic* remnants of branchial clefts, thymic tubules ,or thymopharyngeal ducts; *sequestration* of involuted area of thymus ;*degenerating* Hassall's corpuscle ;;*mesenchymal element* arrested in various stages of thymic development ; and *neoplastic* changes in lymphoid or reticular tissues of solid cervical thymic tissues.

In this paper we are presenting a case of cervical thymic cyst with explanation of its embryology, pathology, and its treatment, with review of literature.

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Case Report

A thirteen years old male , presented with a left neck swelling of three months duration, which had increased in size gradually .There were no associated symptoms, no fever , and no weight loss.

On Examination: The patient was well built; there were no pallor, jaundice, nor cyanosis. Pulse rate was 64/min.Blood pressure 110/70 mmHg.and temp.37.2^{0C}.The neck shows a swelling in the left side about the anatomical position of the left lobe of the thyroid gland. The swelling was cystic in nature, not fixed and moves with deglutition, no other cervical swellings were detected. See (Fig 1). Examination of the chest and abdomen showed no abnormality.

Investigations shows normal complete blood picture. Thyroid scintigraphy reveals slightly enlarged gland with uniform uptake of radiotracer; no activity in the palpable extra thyroidal neck mass was noted. See (Fig.2). Cytology for the thyroid gland swelling, the aspirates revealed benign follicular epithelial cells with colloid no malignancy. Chest X-ray was normal, there were no mediastinal mass.

Operation: Under general anesthesia a collar incision in the neck was made with more extension to the left side, exploration of the thyroid gland showed a cystic mass well defined from the left thyroid lobe, excision of the mass was done together with left thyroid lobectomy.

Radivac drain was left in, which was removed the following day. Specimen was sent for histopathology. Post operative recovery was uneventful. See Fig (3& 4).

Gross examination of specimen:

1. Cystic piece of tissue measure 4x3cm. Cut section shows yellow color and contains multilocular small cysts.
2. One piece of thyroid tissue measures 2x1.5cm.

***Histology*:**

1. Cyst wall which is lined by flattened squamous epithelium of non descriptive type, presence of thymic tissue in its wall which shows involutional cystic tissues with secondary infection and formation of cholesterol granuloma, picture is of thymic cyst. No malignancy is seen.
2. Normal thyroid tissue.

Figure (1): Cervical thymic cyst.

Figure (2): Thyroid Scintigraphy, the marker points to the site of the mass.

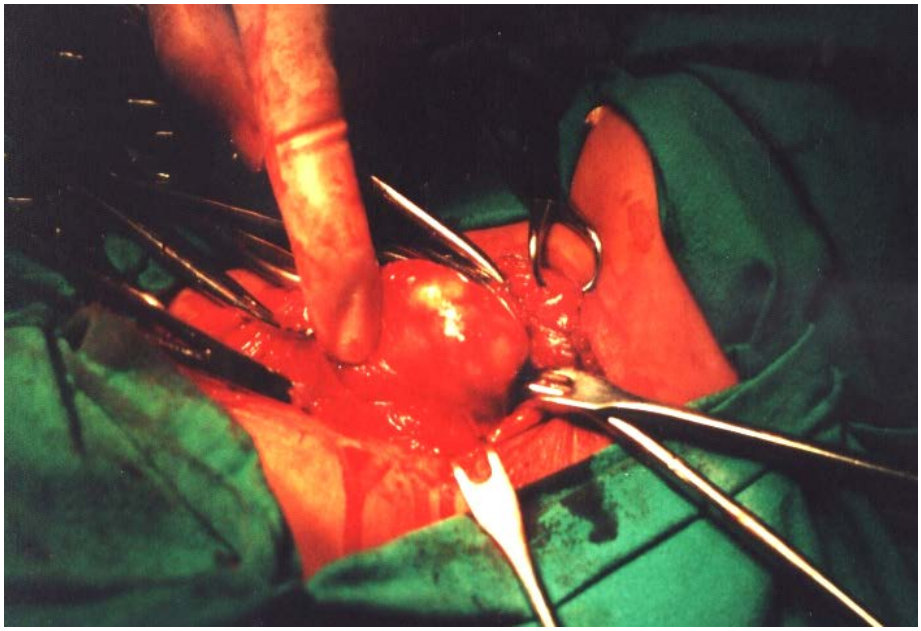

Figure (3): Cervical thymic cyst exploration at operation.

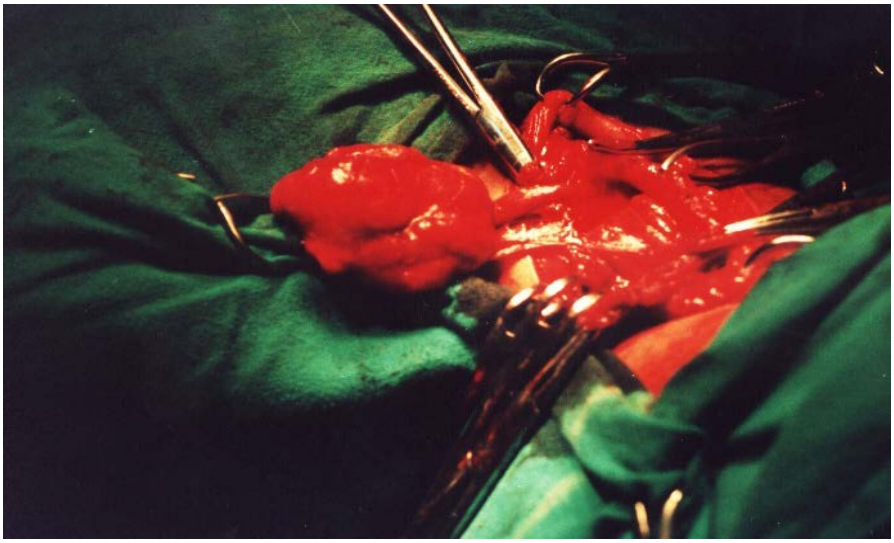

Figure (4): Cervical thymic cyst dissection at operation

Discussion:

Around the fourth week, the embryo develops a series of bars in the wall of the pharynx, these are known as branchial arches, these are separated by clefs and pouches. (2)

During the sixth foetal week the third pharyngeal pouch on each side expands into a solid dorsal and a hollow ventral portion.(1)

The ventral wings soon elongate medially and caudally to become the tubular thymopharyngeal ducts .The connections between the ducts and the pharynx is severed during the seventh week of development, at the same time epithelial proliferation result in the obliteration of ductal lumina and the formation of solid cord which soon give rise to side branches of thymic lobule.

By eighth foetal week, the two thymic primordia meet in the midline, join t he parietal pericardium and continue their descent into mediastinum.By ninth week the migration of the gland continue to its final position. The parathyroid three which develop from the dorsal wing of the third pouch separate from the caudal tips of thymic primordial to remain at the inferior thyroid pole. (4 &5)

Thymic cyst can occur any where in the neck or mediastinum, the form can be seen anywhere along a line extending from the angle of the mandible to the, manubrium sterni.The only distinguishing feature at the microscopical level is the presence of thymic tissues in the wall .The epithelial lining may be squamous or columnar. (6)

Some thymic cysts are of developmental origin and originate from a remnant of the third branchial arch-derived thymopharyngeal duct, other are probably acquired and of either degenerative or reactive in nature arising from cystic dilatation of Hassell's corpuscles. (7 & 8)

It should be remembered that Hodgkin's disease and less frequent Non Hodgkin lymphoma and seminoma can be accompanied by prominent secondary cystic changes of thymic parenchyma. Fifty percent of cervical thymic cysts extend into mediastinum either directly or by connection to a vestigial remnant or a solid cord. (9)

The diagnosis of cervical thymic cyst depends on the findings of thymic tissues remnants with the pathognomonic Hassal's corpuscles.

Differential diagnosis include the more common branchial cleft ,thyroglossal duct cysts, cystic hygroma, dermoid cyst, cystic teratoma ,cystic metastasis and others. Cystic hygroma are detected in children less than 2 years old while cervical thymic cysts are detected at age of 12 years and branchial cyst at age of 20 years.

In review of 72 cases of cervical thymic cyst ,Guba *et al* (10) reported that 75% of patients were younger than 20 years of age .The average age of presentation was 12 years .The cyst occur on the left side in 70% . A review of literature reveal that 90% present with painless swelling ,only 6% present with symptoms of mechanical obstruction ,such as dysphagia or dyspnea.(10 & 11)

Conclusion:

A mass in the neck in a child, cervical thymic cyst should be considered, it is usually asymptomatic and surgery is diagnostic and therapeutic.

References:

1. Sadler T.W.Langman's Medical Embryology, 8th.Ed.Lippincott Williams & Wilkins 2000, 352-355.
2. Hamilton WJ, Boyd JD, MossmanHW.HumanEmbryology, 4th. Ed.Cambridge W. Heffer, 1972, 151-192
3. Speer FD.Thymic cyst .NY Med Coll Flower Hosp Bull 1938;1:142 -150
4. Carpenter Rj.III.Thymic cyst of the neck with prolongation to the thymus gland, Otolaryngol Head Neck Surgery 1982; 90:494-496.
5. Zarbo RJ,McClatchy KD,Areen RG,et al. Thymopharyngeal duct cyst: a form of cervical thymus. Ann Otol Rhinol Laryngol 1983; 92:284-289.
6. Juan Rosai, Ackerman's surgical pathology, 8th. Edition, vol.1, Mosby 1996 page 440-441.
7. Mikal S. Cervical thymic cyst, acase report and review of literature .Arch surg 1974; 109:558-562.
8. Barat M,Sciubba JJ.Abramson Al.Cervical thymic cyst :case report and review of literature .Laryngoscope 1985;95:89-91
9. Nguyen, Quoc; deTar, Michael; Wells, Winfield; Crockett, Denis. Cervical thymic cyst: case report and review of litreture.Laryngoscope 1996; 106:247-252.
10. Guba AM, Adam AE, jaquesDA, et al Cervical presentation of cervical thymic cyst. Am j surg 1978;136:430-436
11. Reiner M Beck AR Rybak B,Cervical thymic cyst in children.AmJ Sug 1980 ;139 :704- 707 .