



ORIGINAL RESEARCH PAPER

Radio-Diagnosis

A RARE CASE REPORT OF THYROID TERATOMA

KEY WORDS:

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CLINICAL HISTORY

A 3-month-old child presented to Civil Hospital Ahmedabad with a right-sided neck swelling since birth. However, the patient did not undergo any antenatal ultrasonography. The patient has complained of increasing swelling for one month, difficulty in breathing, and noisy breathing.

Imaging Finding

USG Findings:

A large solid cystic lesion with predominant solid components is noted on the right side of the neck, crossing the midline in the region of the thyroid gland.

The lesion exhibits multiple hyperechoic foci with posterior acoustic shadowing (indicating calcific foci) and multiple small echogenic areas (suggestive of fat areas).

The right lobe of the thyroid and isthmus are not distinguishable from the lesion. The lesion appears to compress and displace the left lobe of the thyroid laterally.

Both sternocleidomastoid muscles appear normal in thickness, and the right sternocleidomastoid muscle appears displaced anterolaterally.

Reactive lymphadenopathy is observed in the surrounding neck region. However, the lymph nodes show normal cortical thickness and preserved fatty hilum.

The lesion abuts and displaces the right-sided neck vessels anterolaterally, although it exhibits normal Doppler perceptible color flow.

Superiorly, the lesion extends to the level of the body of the mandible, and inferiorly it reaches the level of the thoracic inlet.

Contrast Enhanced CT Scan Findings:

A large, well-circumscribed, heterogeneously enhancing solid cystic lesion with a thin wall (thickness 1-2 mm) is observed. The lesion originates from the right lobe and isthmus of the thyroid, featuring multiple enhancing internal septations. Within the lesion, there are discernible areas of fat, soft tissue, multiple thin-walled fluid-density cystic spaces, and foci of calcifications

"Histopathology Report:

The specimen consists of mature elements from all three germ cell layers, admixed with immature elements. The mature elements include stratified squamous epithelium with sebaceous cyst, lobules of cartilage, adnexal structures, adipose tissue, goblet cells, muscle bundles, glands with mucinous epithelium, and foci of bone and glial tissue.

The immature elements consist of immature neuroepithelium forming pseudorosettes. The diagnosis is Immature Teratoma Grade 3."

DISCUSSION

Ultrasound (USG) examination revealed a paramedian solid cystic lesion with heterogeneous areas. Some areas exhibited posterior acoustic shadowing, suggesting possible calcifications, while others did not, hinting at potential fat content. Subsequent contrast-enhanced CT scan disclosed soft tissue, multiple thin-walled fluid-density cystic spaces, and focal areas of calcifications raising suspicion of a teratoma-like lesion.

The absence of a history of fever rules out the possibility of an infective lesion or cystic lesion with superadded infection.

There are no external skin openings, and the vascularity of the lesion could not be assessed due to excessive crying. Additionally, there is no evidence of significant lymphadenopathy in other areas. The thyroid profile is near normal.

Case Discussion and Differential Points:

Cystic Hygromas: Cystic hygromas, common neck tumors presenting at birth, typically have a characteristic location on the lateral aspect of the neck. Their fluctuant and lobular nature often aids in their distinction.

Congenital Goiters: Congenital goiters are usually symmetrical, with an enlarged thyroid mass retaining the bilateral lobes and isthmus configuration of the normal thyroid gland. A history of the mother's intake of goitrogenic substances during pregnancy may be relevant.

Teratomas: Teratomas can simulate congenital goiters or thyroglossal duct cysts, especially when arising from the central thyroid areas. Calcification in soft-tissue x-ray studies may suggest teratoma, though it can also occur in congenital goiter.

The presence of actual functioning thyroid tissue within the mass suggests a congenital goiter or functioning thyroid tissue within a thyroglossal duct cyst, which can be confirmed by a radioactive uptake scan.

A radioactive uptake scan, combined with protein-bound iodine evaluation, is useful in assessing thyroid function and distinguishing between types of congenital goiters that may present as an anterior neck mass.

Teratomas of the Neck in Newborns: Teratomas in the neck present as a mass in the region of the thyroid gland. Bale attempted to classify these tumors into:

- (a) Teratoma of the thyroid gland,
- (b) Teratoma in the region of the thyroid gland, replacing all or part of the gland, and
- (c) Teratoma probably in the region of the thyroid gland.

All patient data have been completely anonymised throughout the entire manuscript and related files.

Final Diagnosis

Neck teratoma in region of throid gland and replacing it (Bales (b) classification)

Differential Diagnosis List

Differentials in Neck Mass in Infants

1) Cystic Lesions:

- Midline:
 - Ranula
 - Thyroglossal cyst
 - Dermoid

Lateral:

- Brachial cyst
- Lymphangioma

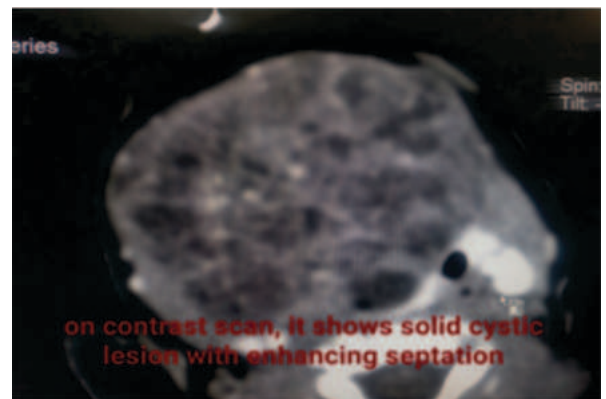
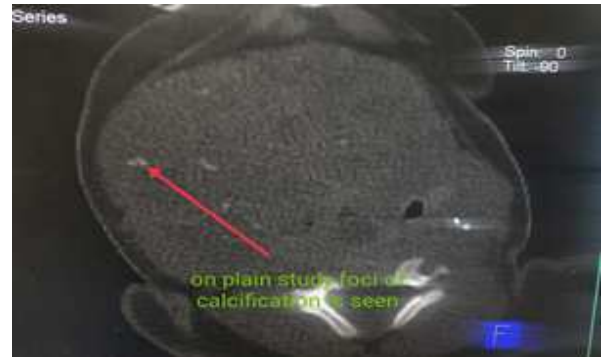
2) Solid:

- Lymph nodes:
 - Reactive
 - Lymphadenitis
 - Lymphoma

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REFERENCES

1. Patel RB, Gibson JY, D'cruz CA et-al. Sonographic diagnosis of cervical teratoma in utero. *AJR Am J Roentgenol.* 1982;139 (6): 1220-2. *AJR Am J Roentgenol* (citation) - Pubmed citation
2. Rothschild MA, Catalano P, Urken M et-al. Evaluation and management of congenital cervical teratoma. Case report and review. *Arch. Otolaryngol. Head Neck Surg.* 1994;120 (4): 444-8. *Arch. Otolaryngol. Head Neck Surg.* (link) - Pubmed citation
3. Hasiotou M, Vakaki M, Pitsoulakis G et-al. Congenital cervical teratomas. *Int. J. Pediatr. Otorhinolaryngol.* 2004;68 (9): 1133-9. doi:10.1016/j.ijporl.2004.04.018 - Pubmed citation
4. Elmasalme F, Giacomantonio M, Clarke KD et-al. Congenital cervical teratoma in neonates. Case report and review. *Eur J Pediatr Surg.* 2000;10 (4): 252-7. doi:10.1055/s-2008-1072369 - Pubmed citation