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Case Report: Rare Presentation of Ectopic Thyroid Carcinoma within a Branchial Cyst

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Abstract

Branchial cysts are the most common congenital lateral neck masses, primarily arising from the second branchial cleft. While typically benign these cysts are often asymptomatic and are usually excised for cosmetic reasons. Ectopic thyroid tissue within a branchial cleft cyst is an exceptionally rare developmental anomaly. While branchial cleft cysts are typically benign, malignant transformation of ectopic thyroid tissue within these cysts is uncommon. This case report highlights a rare presentation of papillary thyroid carcinoma (PTC) arising from ectopic thyroid tissue within a branchial cleft cyst, emphasizing the need for thorough evaluation of cystic neck masses.

Case History

A 51-year-old female presented with a 30-year history of a progressively enlarging right neck swelling. The mass was non-tender, mobile, and not associated with pain. The patient had undergone surgery at the same site 20 years ago, but no documentation of the procedure was available.

On physical examination, a 20 × 5 cm smooth, round, non-tender mass was observed along the anterior border of the middle third of the right sternocleidomastoid muscle.

CECT Neck was advised to evaluate morphology and extent of the mass lesion. Biopsy was planned for histopathological diagnosis.

Diagnostic Evaluation with Imaging

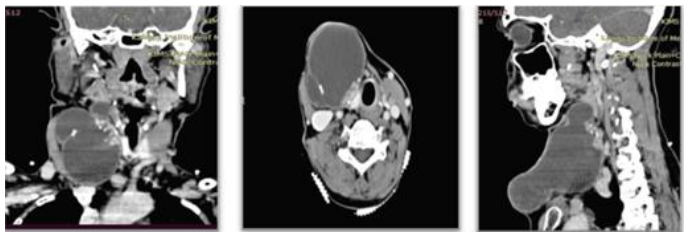

Figure 1:

Contrast-enhanced computed tomography (CECT) of the neck revealed a well-defined lobulated cystic lesion with a small, eccentric, enhancing solid component located posterior to the sternocleidomastoid. These findings raised suspicion of a third branchial cleft cyst with a potential malignancy. The thyroid gland appeared unremarkable. Additionally, multiple sub centimetric lymph nodes with loss of fatty hilum were noted.

Histopathological examination confirmed the presence of a branchial cleft cyst containing ectopic thyroid tissue. A

biopsy of the solid component revealed papillary thyroid carcinoma.

Preoperative thyroid ultrasound and neck CT showed no evidence of a primary thyroid tumor. Subsequently, the patient underwent total thyroidectomy and selective neck dissection. However, histopathological analysis of the thyroid gland did not reveal any malignancy.

Treatment: The patient underwent cyst excision under general anesthesia. Total thyroidectomy and selective neck dissection was performed at a later stage. However, histopathology of thyroid revealed no signs of malignancy.

Discussion

Branchial cleft cysts are congenital anomalies that are usually benign. However, the presence of ectopic thyroid tissue within these cysts is extremely rare. Even rarer is the development of papillary thyroid carcinoma in such ectopic tissue.

Papillary thyroid carcinoma (PTC) is the most common type of thyroid malignancy, yet its occurrence in ectopic thyroid tissue presents a diagnostic challenge. Clinically, these cystic masses can be mistaken for benign lesions. Imaging studies such as ultrasonography and CECT play a crucial role in identifying structural abnormalities suggestive of malignancy, such as calcifications or loss of fatty hilum in lymph nodes.

This case underscores the importance of considering ectopic thyroid tissue in the differential diagnosis of cystic neck masses. Early detection, thorough histopathological evaluation, and timely surgical intervention are crucial for optimal patient outcomes.

Conclusion

This case report contributes to the limited literature on papillary thyroid carcinoma arising in ectopic thyroid tissue within a branchial cleft cyst. It highlights the importance of recognizing this rare presentation and underscores the need for comprehensive diagnostic evaluation in cystic neck lesions.

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