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LATERAL ABERRANT THYROID HARBOURING PAPILLARY CARCINOMA: A DIAGNOSTIC CHALLENGE

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ABSTRACT **Background:** Lateral aberrant thyroid (LAT) refers to thyroid tissue located in the lateral neck, lateral to the jugular vein, in the absence of demonstrable thyroid pathology. It is a rare and controversial entity, historically considered to represent occult metastasis from a thyroid carcinoma. Malignant transformation within such ectopic tissue is exceptionally uncommon and poses a considerable diagnostic challenge. **Case Presentation:** A 30-year-old euthyroid male presented with a painless, gradually enlarging left posterior neck swelling of six months' duration, with no symptoms of thyroid dysfunction. Examination revealed a 6 cm fixed, cystic mass in the left posterior triangle that did not move with deglutition. Ultrasonography and contrast-enhanced computed tomography demonstrated a structurally and functionally normal thyroid gland, and fine-needle aspiration cytology suggested a benign accessory hyperplastic thyroid nodule. The patient underwent complete surgical excision, and histopathological examination unexpectedly revealed papillary thyroid carcinoma. Total thyroidectomy followed by radioactive iodine therapy was planned. **Conclusion:** Malignancy should be considered in the differential diagnosis of any isolated lateral neck mass, even when imaging and cytology appear benign and the orthotopic thyroid gland is normal. Histopathological examination remains the definitive means of distinguishing LAT from nodal metastasis, and early definitive management confers an excellent prognosis.

KEYWORDS : Lateral Aberrant Thyroid; Ectopic Thyroid; Papillary Thyroid Carcinoma; Lateral Neck Mass; Total Thyroidectomy.

INTRODUCTION

The term "thyroid gland" was first coined by Thomas Wharton in the seventeenth century to describe the gland lying in close proximity to the shield-shaped thyroid cartilage. Embryologically, the thyroid develops from a median anlage and two lateral anlagen. The median anlage begins as a thickening of the endodermal epithelium of the foregut, between the first and second branchial arches at the base of the tongue, at the site that later forms the foramen caecum [1,2].

These cells proliferate to form the thyroid bud and subsequently a diverticulum that expands and migrates from the base of the tongue to lie anterior to the trachea. The tract connecting the gland to the base of the tongue normally obliterates by birth. The two lateral anlagen, known as the ultimobranchial bodies, arise from the caudal aspect of the fourth pharyngeal pouch, are supplemented by migratory neural crest elements, and fuse with the median anlage as the gland descends. The median anlage forms the follicular cells, while the lateral anlagen contribute the parafollicular (clear) cells [3].

During this migration, part or all of the developing thyroid may fail to descend to its normal position, giving rise to ectopic thyroid tissue. Such tissue may be found anywhere from the base of the tongue to the diaphragm. Lingual, thyroglossal, and laryngotracheal sites are most frequent, while the oesophagus, mediastinum, heart, adrenal glands, and pancreas are rarer locations. Thyroid tissue situated in the lateral neck, lateral to the jugular vein, is particularly controversial and has been termed lateral aberrant thyroid (LAT), as it was historically presumed to represent metastasis from a thyroid carcinoma [4].

Case Presentation

A 30-year-old man, a non-diabetic and non-hypertensive occasional smoker and occasional drinker with no history of radiation exposure or significant family history, presented to the otorhinolaryngology (ENT) ward with a left posterior neck swelling. The swelling had appeared six months earlier and had gradually increased in size. He reported no symptoms of hypothyroidism or hyperthyroidism and was otherwise asymptomatic.

Clinical Examination: A mass measuring approximately 6 cm was palpable in the left posterior triangle of the neck, in the supraclavicular region along the medial border of the sternocleidomastoid muscle. It was non-tender, fixed, and cystic in nature, and did not move with deglutition. The remainder of the clinical examination was unremarkable.

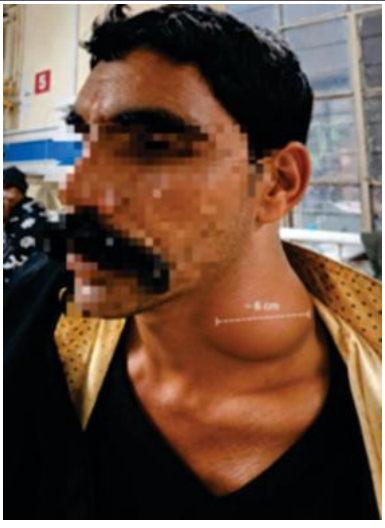

Figure 1. Clinical Photograph Showing the Left Lateral Posterior Neck Swelling, Approximately 6 Cm, in the Supraclavicular Region Along the Medial Border of the Sternocleidomastoid Muscle. (Patient Identity Has Been Masked.)

Ultrasonography of the Neck: Multiple hyperechoic nodular areas with good vascularity (measuring 9.0 × 10.0 mm, 14.0 × 24.0 mm, and 10 × 13 mm) were noted, suggestive of accessory thyroid nodules. The orthotopic thyroid gland was normal in echotexture and size. The parotid, submandibular, and sublingual glands were also normal.

Contrast-enhanced CT (CECT) Neck: Pre-operative cross-sectional imaging demonstrated a few submental, submandibular, and cervical lymph nodes, the largest measuring 14 mm. The thyroid gland was normal, and no surrounding structures were involved.

Fine-needle Aspiration Cytology (FNAC): Findings were suggestive of an accessory hyperplastic thyroid nodule.

Thyroid Function Tests: Free T3, free T4, and thyroid-stimulating hormone (TSH) were all within the normal reference range, confirming a euthyroid state.

The patient underwent complete surgical excision of the mass. Histopathological examination of the specimen was suggestive of papillary thyroid carcinoma arising within the left-sided thyroid

mass—an unexpected finding. Subsequently, total thyroidectomy followed by radioactive iodine (RAI) therapy was planned. (Biopsy no. 6840/25; Department of Pathology, GMC Kota, Rajasthan; Date: 18 December 2025).

Figure 2. Intra-operative Photograph Demonstrating the Well-Encapsulated Cystic Mass in the Left Lateral Neck, Exposed and Retracted During Complete Surgical Excision.

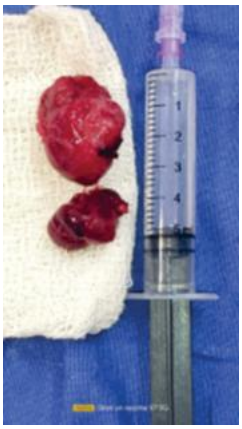

Figure 3. Further Intra-Operative View of the Lesion During Dissection and Complete Excision.

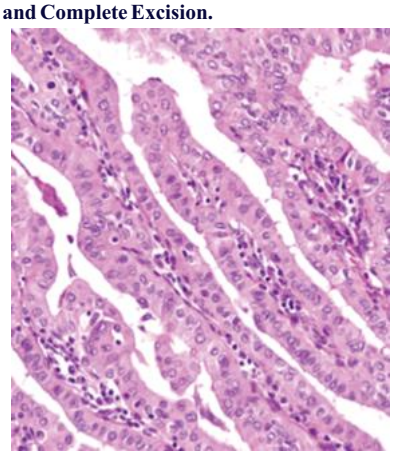

Figure 4. Photomicrograph (Haematoxylin and Eosin) of the Excised Specimen Showing Papillary Architecture with Characteristic Nuclear Features Enlarged, Overlapping Nuclei with Optically Clear Chromatin Consistent with Papillary Thyroid Carcinoma.

DISCUSSION

The origin of lateral ectopic thyroid tissue remains incompletely understood and controversial. One explanation is that several disease processes — including nodular goitre and chronic lymphocytic thyroiditis — can lead to detached fragments of thyroid tissue in the neck that are not associated with lymph nodes. Other authors propose that LAT originates from the lateral thyroid anlagen (ultimobranchial bodies) that fail to fuse with the median anlage during caudal migration [4,5].

The distinction between LAT and metastasis to cervical lymph nodes from a thyroid carcinoma can be made only on histopathological examination. The presence of lymph node architecture — lymphoid follicles, sinusoids, and a marginal sinus — is confirmatory of nodal metastasis. As these features were absent in our specimen, a diagnosis of LAT with malignant transformation was established [6].

Papillary thyroid carcinoma arising in ectopic thyroid tissue is exceedingly rare. Papillary carcinoma of a thyroglossal duct cyst (TGDC) was first described by Brentano in 1911, with only around 277 cases reported in the literature up to 2022. Malignant transformation occurs in fewer than 1% of TGDCs, papillary carcinoma being the most common type. It usually presents as an asymptomatic midline neck mass that may be rigid, fixed, irregular, and/or rapidly growing [7]. In our case, however, there was no midline swelling, and the lesion was located laterally and confirmed only on histopathology.

Treatment of malignancy in ectopic thyroid tissue typically involves surgical excision of the lesion and surrounding tissue, together with total thyroidectomy to ensure complete removal of any malignant cells, followed by adjuvant RAI therapy. The prognosis for papillary carcinoma in this setting is generally good, with a 10-year survival rate exceeding 90%; nevertheless, close long-term monitoring is necessary to detect recurrence or metastasis [8].

Because LAT is a rare entity, no formal management guidelines exist. The consensus approach is total thyroidectomy with ipsilateral central and selective neck dissection, as was performed in our case. The prognosis of LAT with papillary carcinoma (LAT-PTC) is generally favourable, with a 10-year survival rate of approximately 95%. However, the risk of recurrence and metastasis is higher when there is lymph node involvement or extrathyroidal extension; therefore, close follow-up with whole-body scintigraphy (WBS) and serial stimulated thyroglobulin (sTg) measurements is recommended [9,10].

CONCLUSION

Lateral aberrant thyroid is a rare embryological entity that can present as an isolated lateral neck mass with a clinically and radiologically normal thyroid gland, posing a significant diagnostic challenge. Despite benign-appearing radiological and cytological features, malignant transformation within ectopic thyroid tissue remains possible and should be considered in the differential diagnosis of lateral cervical swellings. Histopathological examination remains the definitive modality for distinguishing LAT from metastatic thyroid carcinoma involving cervical lymph nodes.

The present case underscores the importance of comprehensive evaluation and surgical excision of atypical lateral neck masses, particularly in young, euthyroid patients without overt thyroid pathology. Early diagnosis followed by appropriate definitive management — including total thyroidectomy and radioactive iodine therapy when indicated — is associated with an excellent prognosis and a favourable long-term outcome.

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