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Differentiated Thyroid Carcinoma with Inoperable Retropharyngeal Lymph Node Metastasis: Case Report and Review of the Literature

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Abstract

Retropharyngeal lymph node metastases (RPLNM) of differentiated thyroid carcinomas (DTC) are rare and pose diagnostic and therapeutic challenges, particularly when they are inaccessible to surgery. We report the case of a 58-year-old female patient followed up for papillary thyroid carcinoma complicated by persistent retropharyngeal lymph node metastasis, which was non-iodine-fixing and non-hypermetabolic, for which non-surgical management was chosen. This case illustrates the limitations of conventional imaging and treatment modalities and highlights the value of a multidisciplinary approach.

Keywords: *papillary thyroid carcinoma, retropharyngeal metastasis, persistent disease, stereotactic radiotherapy, clinical case.*

1. Introduction

Differentiated thyroid carcinoma is characterized by a high propensity for cervical lymph node metastasis, mainly affecting the central and lateral compartments of the neck. However, retropharyngeal lymph node involvement remains rare, with an estimated incidence of between 0.4 and 0.5% of cases[1]. These locations are most often observed in the context of persistent or recurrent disease after surgery and lymph node dissection[2].

The management of retropharyngeal metastases is not clearly codified in international guidelines, particularly those of the American Thyroid Association (ATA), due to their rarity and the heterogeneity of clinical situations[3]. We report a case of retropharyngeal metastasis of a papillary thyroid carcinoma inaccessible to surgery, with a targeted review of the literature.

2. Clinical Observation

The patient is a 58-year-old woman who is being treated for well-controlled type 2 diabetes with metformin (HbA1c at 6.8%) and has no degenerative complications.

She had been followed for two years for papillary thyroid carcinoma revealed by cervical lymph node metastases. A total thyroidectomy combined with central and right jugular-carotid lymph node dissection was performed. The pathological examination concluded that there was a papillary carcinoma of the right lobe of the thyroid measuring 1.2x0.8 cm without capsular invasion or vascular embolism. Lymph node metastasis (8N+/18 N sampled) was present, with the largest nodes measuring 4 cm in the long axis. Classified as pT1N1Mx. Initial postoperative thyroglobulin (Tg) was elevated at 676.6 ng/mL, with negative anti-thyroglobulin antibodies.

An initial course of radioactive iodine (RAI) therapy was administered one month after surgery. The post-therapeutic scan showed cervical residues with no distant fixation sites. The patient was placed on suppressive therapy with a target TSH level of < 0.1 mIU/L.

The course of the disease was marked by the persistence of detectable and increasing thyroglobulin (29 then 46 ng/mL). A PET scan showed no hypermetabolic foci, apart from a small non-fixing pulmonary nodule.

Given the biological persistence of the disease, a second course of RAI was administered 6 months after the first course. Thyroglobulin levels under suppression therapy were 894 ng/mL, with a post-RAI scan showing only a small residual mass in the left neck, with no other iodine-fixing foci. Additional morphological assessment by cervical-thoracic-abdominal-pelvic CT scan revealed a cluster of retropharyngeal and right retrostyloid lymph nodes measuring 35 × 23 × 23 mm. It infiltrates the prevertebral fascia. It also encompassed the internal carotid artery over 180° in certain areas (Figure 1). The PET scan confirmed the absence of metabolic hyperfixation in these lesions.

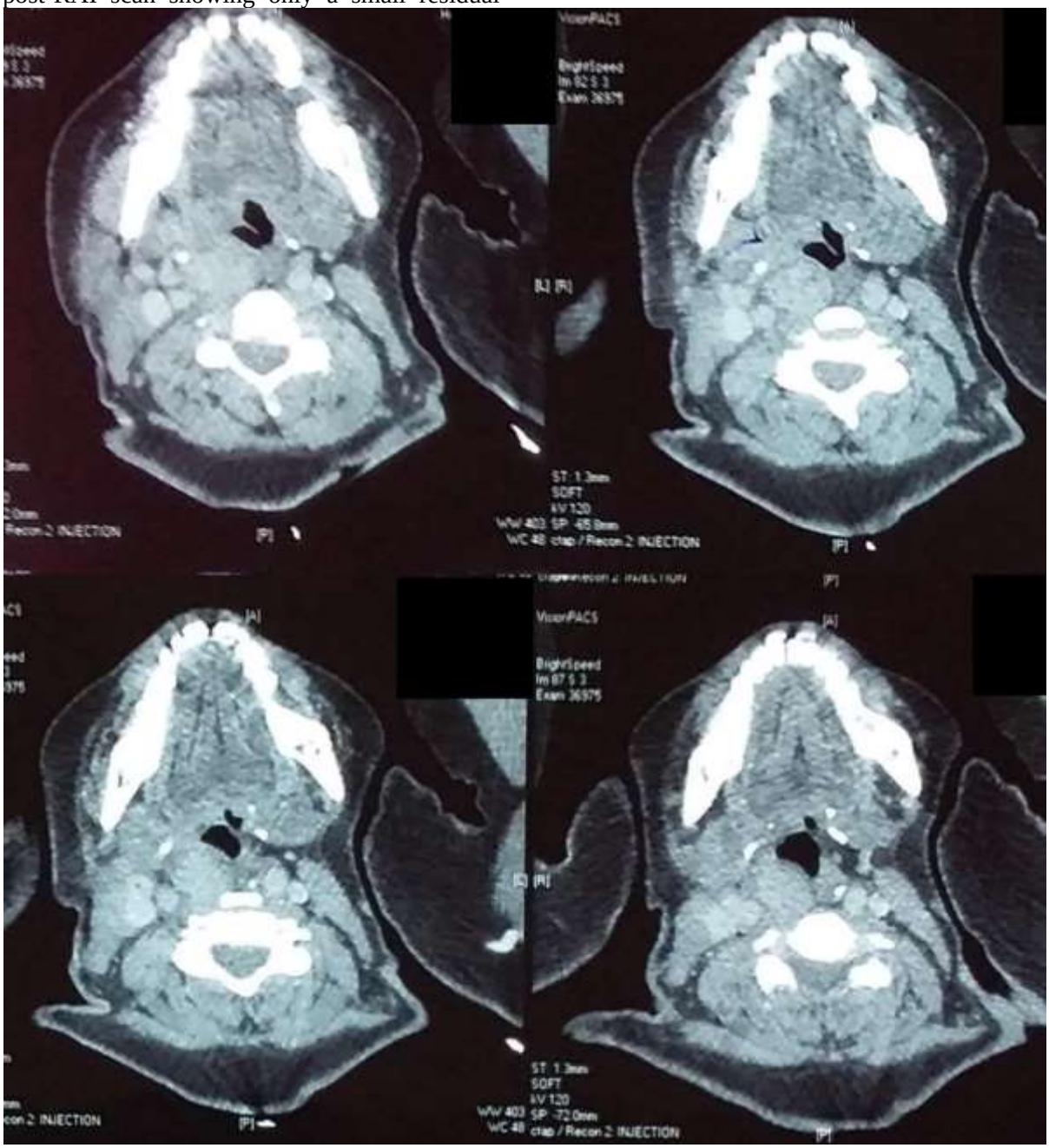

Figure 1. *CT scans showing retropharyngeal lymph node metastases in the patient.*

After multidisciplinary discussion, this retropharyngeal metastasis was deemed inaccessible to cancer surgery. A biopsy under direct laryngoscopy was performed, confirming the thyroid origin of the lymph node metastases. Stereotactic targeted radiotherapy was administered, with the lesion remaining stable. The patient is being kept on strict suppression therapy, with close monitoring.

3. Discussion

Retropharyngeal lymph node metastases in DTC are rare and often diagnosed late. Their pathophysiology is based on alternative lymphatic drainage pathways, particularly from the upper pole of the thyroid or after remodeling of the lymphatic pathways following lymph node dissection. [4], [5].

Several series have shown that these metastases occur preferentially in the context of persistent or recurrent disease, often associated with an isolated elevation of thyroglobulin without obvious morphological correlation [2], [6]. In our case, the discrepancy between the marked elevation of Tg and the negative functional tests (post-IRA scan, PET scan) clearly illustrates this problem.

The reference imaging techniques are mainly contrast-enhanced cervical CT and MRI, with ultrasound being of little use due to the deep location of the lesion [2], [7]. PET scans may be negative, particularly in well-differentiated lesions or those with low metabolic activity, as observed in our patient.

Surgery remains the standard treatment when technically feasible, with transcervical or transoral approaches described in the literature [1], [7]. However, in cases of surgical inaccessibility or major functional risk, alternative treatments must be considered.

Non-surgical options include IRA therapy (often ineffective in cases of non-fixation), external or stereotactic radiotherapy, and more recently, targeted systemic therapies in refractory forms [8]. In our observation, stereotactic radiotherapy allowed satisfactory locoregional control with lesion stability. The ATA 2025 recommendations do not provide a specific strategy for retropharyngeal metastases, emphasizing the need for individualized and multidisciplinary management [3].

4. Conclusion

Retropharyngeal lymph node metastases of differentiated thyroid carcinomas are a rare entity, often revealed by an isolated elevation of thyroglobulin. Their management remains non-standardized, particularly when surgery is not possible. Stereotactic radiotherapy is a relevant therapeutic option in unresectable cases, allowing satisfactory local control. This case highlights the importance of prolonged monitoring and a personalized approach.

5. Conflict of Interest

The authors declare that they have no conflicts of interest.

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