



A Benign Thyroid Nodule Recurring as Papillary Thyroid Carcinoma 25 Years After Partial Thyroidectomy: Case Report and Discussion of Potential Mechanisms

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INTRODUCTION

Malignant transformation of histologically benign thyroid nodules is exceptionally rare. However, sporadic reports describe the development of papillary thyroid carcinoma (PTC) decades after partial thyroidectomy performed for benign disease, raising important questions about dormant neoplastic potential and the long-term biology of thyroid follicular epithelium.

CASE PRESENTATION

A 74-year-old woman, with a history of left subtotal thyroidectomy for a cold nodule with no evidence of malignancy 25 years earlier, presented for re-evaluation following an incidental ultrasonographic finding. Imaging revealed a 7.3 × 6 × 5.3 mm hypoechoic nodule with irregular margins and mixed vascularity in the remnant lobe. Fine-needle aspiration cytology (Bethesda VI) confirmed malignancy. Completion thyroidectomy was performed, and histopathological examination demonstrated papillary thyroid carcinoma, tall-cell variant (pT1a, R0). There was no evidence of extrathyroidal extension or lymph node involvement, and the postoperative course was uneventful. Given the low tumor burden, clear margins, and absence of high-risk features, no additional adjuvant therapy was indicated. The patient remains disease-free at six months of follow-up, with undetectable serum thyroglobulin levels and normal neck ultrasound.

DISCUSSION

Potential mechanisms include: (1) an undetected microcarcinoma missed by earlier histopathologic evaluation, (2) reactivation of latent microscopic disease or clonal progression of previously indolent cells, or (3) a de novo carcinoma arising in residual thyroid tissue. The ipsilateral recurrence pattern favors the first two possibilities.

CONCLUSIONS

This case highlights that even long after surgery for benign thyroid disease, malignant transformation or delayed emergence of papillary carcinoma can occur. Lifelong surveillance through ultrasonography and thyroglobulin monitoring should be considered, particularly in patients with long-standing thyroid remnants.

