

Metachronous Metastasis To The Thyroid From A Renal Clear Cell Carcinoma, Initially Diagnosed As Papillary Renal Cell Adenoma, Coexisting With Parathyroid Tumors

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Citation

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Abstract

We report a rare case of a solitary metachronous metastasis of a renal clear cell carcinoma (RCC) in the thyroid, initially diagnosed as papillary renal cell adenoma, coexisting with parathyroid tumors. The patient had undergone 20 years ago radical left nephrectomy for papillary renal cell adenomas. Upon presentation, the initial diagnosis based on clinical and echo findings was multinodular goiter. Fine needle aspiration cytology of a growing non-functioning nodule of the right thyroid lobe revealed clear cells with oxyphilic granules suggesting RCC. Immunohistochemical studies further confirmed the diagnosis of RCC in our case. The coexisting parathyroid adenomas were assessed preoperatively by Tc-99m subtraction scintigraphy, intraoperatively by monitoring parathyroid hormone and postoperatively by histology.

INTRODUCTION

Metastatic cancers in the thyroid accounted for 0.1% of all thyroid nodular lesions that were investigated by fine needle aspiration (FNA) [1]. Usually, a metastasis in the thyroid gland is identified upon autopsy and only sporadic cases are encountered in the clinical setting [2], seldom presenting as a solitary and palpable nodule [3]. Moreover, a solitary late-RCC metastasis to the thyroid is especially rare, with very few cases published in the scientific literature [4,5].

On the other hand, small renal epithelial neoplasms are mostly incidentally found during autopsies. Since these lesions are not uncommonly associated with concomitant RCC, a number of investigators claim that some of these neoplasms might progress to RCC [6].

We report a rare case of a solitary metastatic lesion of RCC carcinoma to thyroid gland, initially diagnosed as papillary renal cell adenomas (PRCA), with the coexistence of parathyroid adenomas presenting as a multinodular goitre.

CASE REPORT

A 69 year old man was referred to our department for evaluation of a goiter diagnosed six months ago. He was euthyroid whereas he had no complaints that could be related to any thyroid disease.

His past medical history was remarkable in that he had undergone in 1984-left radical nephrectomy under the clinical and histological diagnosis of PRCA located in the upper and lower calyces of the left kidney (55 mm in greatest dimension)

A thyroid ultrasound demonstrated a hypoechogenic gland with two nodules, one in the lower and another in the middle portion of the right lobe, measuring 17 and 7 mm, respectively. A solid nodule measuring 6 mm was also detected in the left thyroid lobe. Tc-99m scintigraphy of the thyroid showed heterogeneity in the distribution of radioactivity. However, increased parathyroid hormone (PTH) levels were detected (PTH:211 pg/mL, normal values < 67 pg/mL) with normal concentrations in serum and 24 hour urine collections of calcium and phosphorus and also normal 1,25OH vitamin-D3 serum levels. Scintigraphic study with technetium-99m diethylenetriaminepenta-acetate (99m-Tc DTPA) was performed in the right kidney, detecting normal perfusion and glomerular filtration rate (GFR). No evidence of microalbumin linkage in the urine was detected.

Six months later, he returned for routine follow-up with an ultrasound of the thyroid revealing an increase in the nodule located in the lower portion of the right lobe, now measuring

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20mm and a cystic nodule measuring 6.8 mm. In the left thyroid lobe, a new cystic nodule measuring 7mm and an increase in the previous solid nodule now measuring 18x9 mm were detected in the lower pole.

Preoperative FNA cytology in the nodule located in the lower right lobe was suggestive of a thyroid follicular tumor. In the nodules located in the left lower lobe, FNA cytology showed only colloid follicles filled with oxyphilic cells. Performing Tc-99m/Tetrosomin subtraction scintigraphy an area of increased uptake in the lower pole of the left thyroid lobe was exposed, indicating possibly a hyperfunctioning parathyroid adenoma.

The patient underwent bilateral exploration for the removal of diseased parathyroid glands with subsequent total thyroidectomy.

According to the preoperative localization technique and gross morphologic criteria, two nodular masses, possibly parathyroids, located in the area of the left lower thyroid lobe, were detected measuring 2.3 cm and 1.2 cm in diameter, respectively. The intraoperative impression was that the glands were adherent to local structures. After their removal, quick intraoperative PTH hormone assay (QPTH) showed gradual normalization of PTH values. Histopathologic examination of the nodules established the diagnosis of parathyroid adenomas in the extracted nodules.

In the right thyroid lobe, a yellowish 1.7 cm nodule in the lower portion and a 0,5 cm nodule in the isthmus were detected. Histological examination, of the nodule in the right thyroid lobe showed RCC cells with no invasion to the surrounding connective tissues . The results of the immunohistochemical studies (Figure 1 A,B,C,D) supported the metastatic origin of the solitary lesion in the right thyroid lobe.

Extensive radiological examinations did not find any evidence of any other hematematic lesions.

Adjuvant therapy was not given, but no evidence of recurrence has been found in 16 months of follow-up.

Figure 1: In an immunohistochemical analysis, keratine Ae1-Ae3(A, x10), epithelial membrane antigen(B,x20), and vimentin(C,x10) showed positive staining ,whereas thyroglobulin (D,x10)showed negative staining in the clear cells of the resected thyroid tumor.

Figure 1

Figure 1a

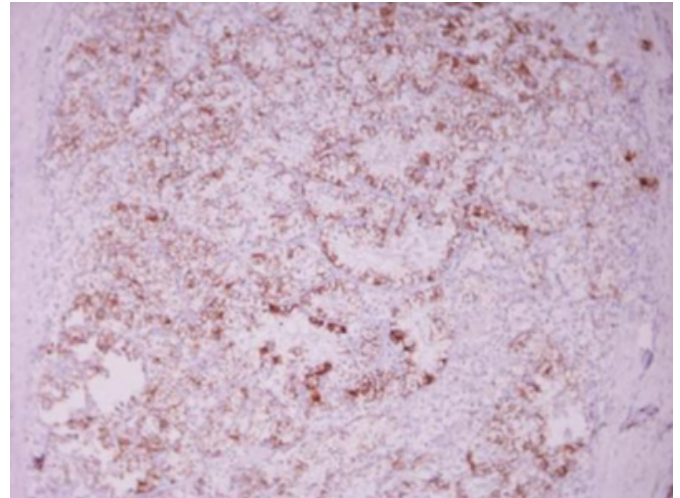


Figure 2

Figure 1b

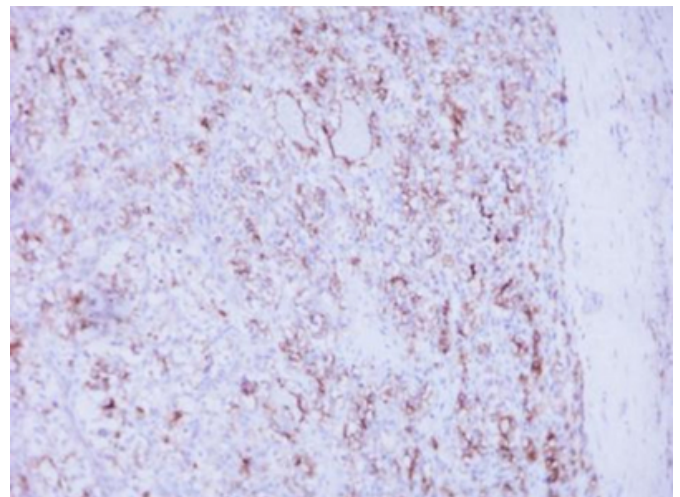


Figure 3

Figure 1c

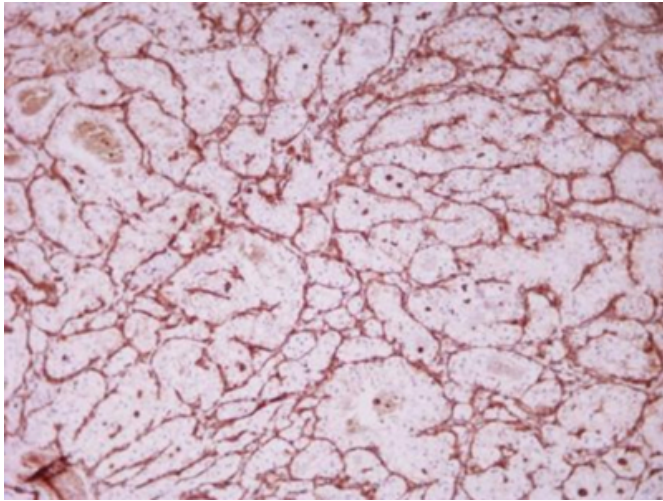
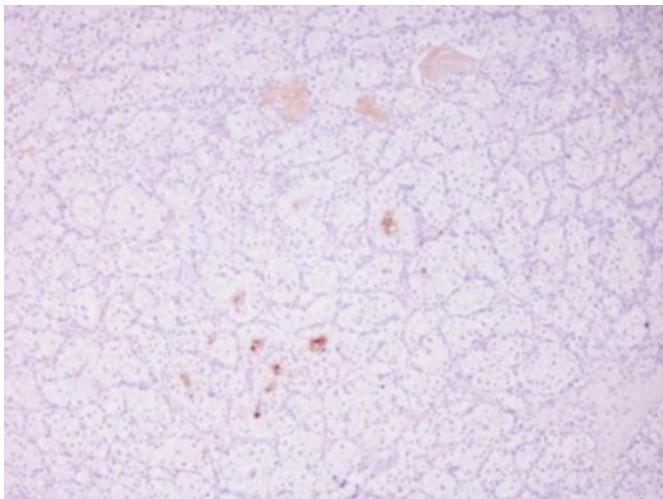


Figure 4

Figure 1d



DISCUSSION

In clinical practice, a correct diagnosis of a suspected metastasis in the thyroid is relatively difficult, since there are no specific clinical features and few characteristic findings of a malignant foci in thyroid on US, CT or isotope scanning seldom occur [7].

Based on our case and on previous documentation in the literature, repeated FNA cytology is warranted if the patient has a history of malignancy and a metastasis in the thyroid is suspected. [4].

Recent studies indicate a stronger link between PRCA and papillary renal cell cancer (PRCC) than with RCC [8], making the coexistence of RCC and PRCA a rare observable

fact. Although upon presentation, concomitant RCC was not documented in our case, our data does not proclaim that PRCA could progress to RCC even though the clinical course of our case suggests it.

The management of parathyroid tumors coexisting in our patient highlights the use of preoperative localization and intraoperative PTH monitoring as essential techniques in order to achieve the optimal success rate of cure for these patients.

CONCLUSION

A case of solitary metachronous metastasis of RCC to the thyroid, initially diagnosed as PRCA, associated with parathyroid adenomas, presenting as a multinodular goiter is described. Based on our case and on previous documentation in the literature, repeated FNA cytology is warranted if the patient has a history of malignancy and a metastasis in the thyroid is suspected. The management of parathyroid tumors coexisting in our patient highlights the use of preoperative localization and intraoperative PTH monitoring as essential techniques in order to achieve the optimal success rate of cure for these patients.

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