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Metastasis from renal cell carcinoma to thyroid presenting as rapidly growing neck mass



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ABSTRACT

INTRODUCTION: Renal cell carcinoma (RCC) is commonly known as the “internist’s tumor” because of its unpredictable behavior. Metastasis to the thyroid gland is rarely found in clinical practice.

PRESENTATION OF CASE: We report a rare case of non-thyroid malignancies NTM from renal cell carcinoma 1.5 years after radical nephrectomy in a 58-year-old man with a rapidly growing neck mass.

DISCUSSION: Malignant melanoma, breast carcinoma, lung, and skin cancer are the most common sources of non-thyroid malignancies (NTM). Although metastases of NTMs to the thyroid gland are uncommon in clinical practice, it should be considered in patients with a history of prior malignancy and a new thyroid mass.

CONCLUSION: Isolated thyroid metastasis should be considered in patients with a previous history of cancer and newly developing thyroid mass.

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1. Introduction

Renal cell carcinoma (RCC) is well known for its unpredictable and diverse behavior, which is why it is called the “internist’s tumor”.¹ The bones, lymph nodes, and lungs are the most common metastatic sites, while the thyroid gland and the head and neck region are the rarest for manifestation of RCC metastasis.^{2,3} The most common primary sources of non-thyroid malignancy (NTM) are the skin, lung, and breast.⁴ Although NTMs are rarely found in clinical practice, they are found in 1.9–24.2% of autopsies.⁴ We present a very rare case of metastatic RCC to the thyroid gland in a patient who was referred to our clinic because of a neck mass 1.5 years after a left nephrectomy.

2. Case presentation

A 58-year-old man was referred to our hospital because of a rapidly growing left-sided neck mass and neck pain from three months ago. He had no accompanying symptoms, such as stridor, hoarseness, or dysphagia. He had an unremarkable past medical history until 1.5 years ago, at which time he underwent a left nephrectomy for stage *T1bN2M0* poorly differentiated RCC (Fig. 1).

In physical examination, a firm and painless 8 cm × 6 cm mass was palpable on the left thyroid lobe, and multiple small (1–3 cm) firm masses were palpable on the left anterior triangle. He had lost more than 30 kg in weight during the previous four months.

He was euthyroid, and all of his laboratory evaluations were within normal limits.

Neck ultrasonography revealed a well-defined marked hypoechoic nodule measuring 9 cm × 7 cm in the left lobe of the thyroid gland without a peripheral halo margin, micro calcification, or cystic component (Fig. 2). The right lobe of the thyroid gland was normal. Abdominal ultrasonography showed multiple hypoechoic round nodules, measuring 1–3 cm, in the right and left lobes of the liver.

Fine needle aspiration cytology showed monolayered sheets of malignant glandular cells with granular cytoplasm, slightly pleomorphic nuclei and intranuclear pseudoinclusion, and conspicuous nucleoli, suggesting a metastatic renal cell carcinoma (Fig. 3). Histopathology confirmed diagnosis.

3. Discussion

Metastasis to the thyroid gland is rarely found in clinical practice. A recent study showed that 1.9–22.4% of patients with generalized malignancies had metastasis to the thyroid gland following an autopsy evaluation.⁴ With the exception of lymphoma and leukemia malignant melanomas, the most common tumors

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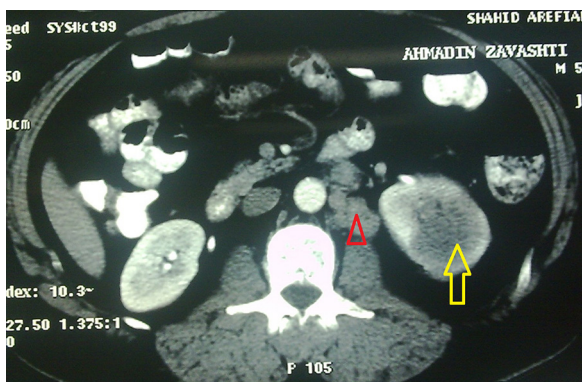


Fig. 1. Computed tomography shows a hypodense mass in the lower pole of left kidney (yellow arrow) with paraaortic lymphadenopathy (red arrowhead).

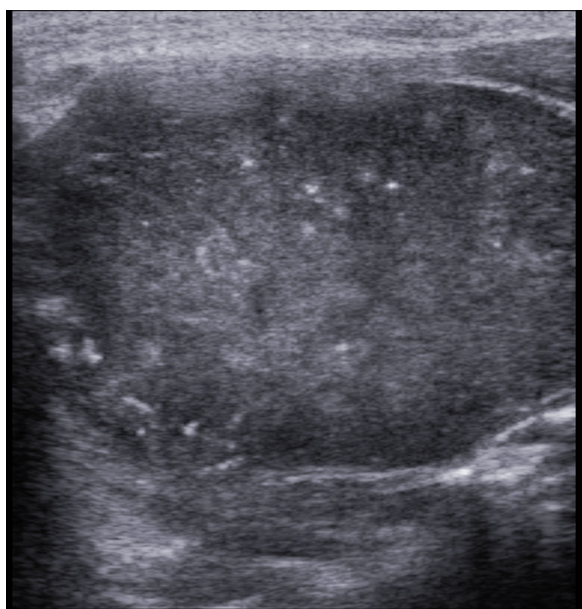


Fig. 2. Ultrasonogram shows a well-defined marked hypoechoic nodule in the left lobe of the thyroid gland without a peripheral halo margin, micro calcification, or cystic component.



Fig. 3. Fine needle aspiration cytology showed monolayered sheets of malignant glandular cells with granular cytoplasm, slightly pleomorphic nuclei and intranuclear pseudo-inclusion.

metastasizing to the thyroid gland are breast carcinoma and lung and skin cancer, while renal cell carcinoma is the rarest NTM.⁴

It has been proposed that because of the high iodine and oxygen concentration and the abundant high-velocity bloodstream in the thyroid gland, which prevent tumor cells from being fixed, the thyroid gland has a low frequency of clinical metastatic carcinoma, but if the above-mentioned concentration is altered because of a goiter or thyroiditis, the thyroid gland becomes more vulnerable to metastatic growth.⁵

Although metastases of NTMs to the thyroid gland are uncommon in clinical practice, it should be considered in patients with a history of prior malignancy and a new thyroid mass.⁶

A neck mass, weight loss (caused by hypercalcemia), dysphagia, and hoarseness are the most common clinical findings for an NTM, but asymptomatic presentation is also common.⁷

Takashima et al.,⁷ in a series of 11 cases, showed that NTMs were solitary ($n = 5$) or multiple ($n = 6$), and they showed that more than 50% were less than 2 cm in diameter. NTMs appeared as hypoechoic or markedly hypoechoic nodules and typically had well-defined margins without haloes and no calcification, and they sometimes had cystic portions.

NTMs from RCC may present even 20 years after radical nephrectomy.⁸

Hegerova et al.⁹ published their experiences over the last 30 years and showed that FNA is a sensitive and specific method for detecting metastases to the thyroid.

A previous study revealed that surgical resection could not increase median survival rate.⁹

In conclusion, an NTM secondary to RCC is a rare and rapid growth of a newly developing thyroid nodule in patients with a previous history of RCC, and isolated thyroid metastasis should be considered along with a primary thyroid tumor.

Conflict of interest

None.

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None.

Ethical approval

Ethical approval has been provided.

Author contribution

Afshin Mohammadi was responsible for collecting the data and writing the manuscript. Syed Babak Mosavi helped in carrying out FNA and collecting the data. Mohammad Ghasemi-rad contributed in collecting the data and editing.

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