



Metastatic thyroid carcinoma

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Abstract

Although metastases to the thyroid gland are common in autopsy studies, clinically significant metastases are rare. A 58-year-old Turkish patient, presenting with thyroid metastasis 2 years after undergoing left nephrectomy for renal cell carcinoma, is reported in this case report. Thyroid metastasis can be the initial presentation of renal cell carcinoma, or it may occur a long time after nephrectomy, which can lead to misdiagnosis of primary thyroid neoplasm. Radiographic features are not useful in making discrimination between the two, however a fine needle aspiration biopsy can be useful. The role of surgical therapy is controversial.

Although thyroid is a common target for metastasis, clinically significant metastases to the thyroid gland are rare.¹⁻⁴ Fourteen percent of renal cell carcinoma patients have systemic disease, but metastasis to the thyroid is rare.^{5,6} Here we report on a patient operated on 2 years previously for renal cell carcinoma and now presenting with a nodular goitre, which turned out to be metastasis of the primary neoplasm.

Case report

In July 2004, a 58-year-old Turkish man was referred to our department for a nodular goitre. His physical examination revealed a palpable thyroid gland. He had been operated on for renal cell carcinoma (left nephrectomy) 2 years previously and the tumour was now a 7 cm mass. Pericapsular invasion was not seen, but tumour thrombus at the renal vein was detected.

A thyroid ultrasonography (US) showed enlargement of the gland as well as multiple hypochoic, solid, well-defined mass lesions. Scintigraphy revealed a hypoactive nodule in the left lobe, and a hyperactive nodule in the right lobe.

Thyroid hormone levels were within the normal range of the laboratory's reference values. US-guided fine needle aspiration biopsy (FNAB) of the gland showed cytological findings suggestive of a follicular tumour. Adenomatous nodule and microinvasive follicular carcinoma discrimination could not be made. Cytological studies were evaluated without knowing the history of the patient.

There were large neoplastic cells with scant cytoplasm misdiagnosed as a follicular tumour. A bilateral total thyroidectomy was performed. Our patient had a multinodular goitre with a suspicious lesion revealed by FNAB. (We prefer near-total thyroidectomy for our patients with multinodular goitres.) This approach is supported by previous reports showing that a near-total thyroidectomy may prevent subsequent recurrent thyroid operations.⁷ When we viewed the suspicious lesion via a FNAB, we considered the preferred surgical strategy for this patient to be a near-total thyroidectomy.

The pathological examination of the specimen revealed five nodular lesions. The nodules had similar histopathological features; the renal cell carcinoma and immunohistochemical examination confirmed the diagnosis of metastasis of renal cell carcinoma (Figures 1 and 2). The tumour had vimentin and pancytokeratin expression, and thyroglobulin immunoreactivity was not observed.

The patient did not have any postoperative complications and was discharged from hospital on the postoperative first day.

Figure 1. Renal cell carcinoma in the left nephrectomy specimen (HE; x200)

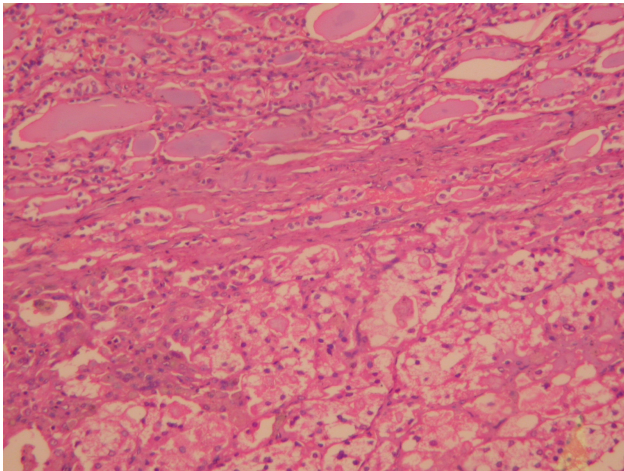
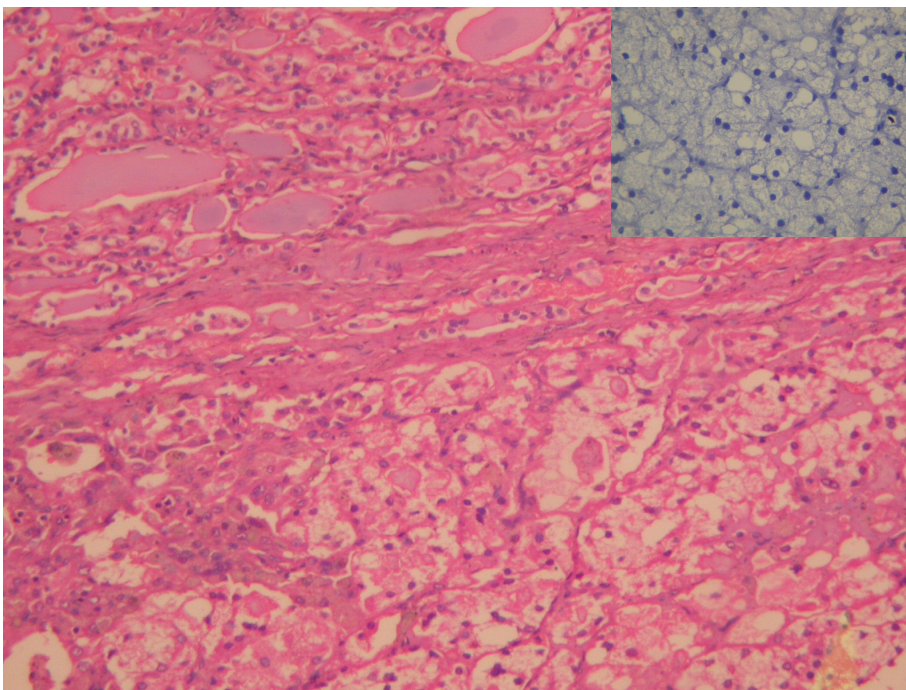


Figure 2. Metastasis of renal cell carcinoma to the thyroid gland (HE; x250); inset: negative immunostaining of thyroglobulin antibody (anti-thyroglobulin x200)



Discussion

Metastasis to the thyroid gland are found in about 3–24% of autopsies of patients who died due to malignancies at other primary sites. Metastatic carcinomas are not common in clinical practice but metastasis to the thyroid gland has been reported in renal cell carcinoma, breast cancer, lung cancer, gastrointestinal malignancies, malignant melanoma, sarcoma, haematologic malignancies, and other genitourinary cancers.^{3,8}

Renal cell carcinoma is often seen at the sixth decade and with male dominance; it tends to often show a slow progression in its clinical course with a late development of metastasis.¹⁻⁴

Metastases of renal cell carcinoma occurs in the respiratory system, skeletal system, lymph nodes, brain, liver, skin, and other sites such as at the thyroid gland.⁸⁻¹¹ In a study by Chen et al, 10 patients were reported with isolated thyroid metastasis during a 8-year period, of whom 8 had metastasis of renal cell carcinoma.⁴ Metastasis may be the initial presentation of the disease-mimicking primary thyroid neoplasm, which can be a diagnostic dilemma for both the surgeon and the pathologist.⁹

Patients with metastasis to the thyroid may present with symptoms related to the mass caused by the tumour, although many effects are asymptomatic. The time interval between the primary malignancy and the metastasis may be long enough to make a misdiagnosis of primary thyroid tumour.^{4,9}

If the patient has a history of carcinoma, metastasis of the neoplasm should be kept in mind, although high oxygen tension and iodine makes the thyroid gland resistant to metastasis. Radiographic differences are not useful since both primary tumours and metastatic lesions of the thyroid gland will appear as cold nodules on scintigraphy and as an inhomogenous, hypoechoic mass on ultrasonography. Therefore, fine needle aspiration biopsy can be useful in detecting an unsuspected malignancy.²⁻⁵

The appearance of metastatic disease in the thyroid gland is a sign of poor survival because it indicates disseminated disease. It has been reported that patients may benefit from surgery, however.^{6,8} In the study by Chen et al,⁴ mean survival was 34 months with thyroidectomy (with or without adjuvant therapy), which is longer than the 25 months mean survival time of patients treated with modalities other than surgery. Furthermore, after a median follow-up of 5.2 years, 60% percent of patients were alive and two patients were disease-free.

Factors that contribute to a favourable prognosis are a long interval between the occurrence of primary disease and the development of the metastatic focus; a solitary or isolated lesion; spontaneous regression of the metastatic lesions; necrosis in the resected specimen; and slow tumour growth.⁵

In cases of solitary metastasis, the 5-year survival rate from the date of nephrectomy is reported to be 30% to 70%, while it dramatically drops to 5% in cases of disseminated disease.³ There is no clear consensus on the role of surgical treatment of metastatic thyroid disease. Most authors recommend lobectomy/isthmusectomy when there is a solitary nodule or airway obstruction.⁴

Conclusion

In any patient with a history of malignancy, a new thyroid mass should be considered as a recurrence until proven otherwise. Fine needle aspiration biopsy can help discriminate between primary and metastatic neoplasms. Although metastasis is an indication of disseminated disease, some patients may benefit from aggressive surgery of metastatic solitary lesions.

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