

## Recurrent renal carcinoma mimicking a goitre: a case report

Vincenzo Davide Palumbo<sup>1,2,3</sup>, Giuseppe Damiano<sup>2</sup>, Maurizio Bellavia<sup>2</sup>, Giovanni Tomasello<sup>1,2</sup>, Gabriele Spinelli<sup>2,4</sup>, Silvia Ficarella<sup>2</sup>, Antonio Bruno<sup>2</sup>, Francesco Cupido<sup>4</sup>, Anna Martorana<sup>5</sup>, Giuseppe Buscemi<sup>1,2,3,6</sup>, Alida Abruzzo<sup>3</sup>, Attilio Ignazio Lo Monte<sup>1,2,3</sup>

<sup>1</sup>Dipartimento di Discipline Chirurgiche ed Oncologiche - Facoltà di Medicina e Chirurgia - Università degli Studi di Palermo; <sup>2</sup>AOUP "P. Giaccone" - Facoltà di Medicina e Chirurgia - Università degli Studi di Palermo; <sup>3</sup>Dottorato di Ricerca in Biotecnologie Chirurgiche e Medicina Rigenerativa nell'Insufficienza d'Organo - Università degli Studi di Palermo; <sup>4</sup>Dipartimento di Chirurgie Specialistiche - Università degli Studi di Palermo; <sup>5</sup>Dipartimento di Scienze per la Promozione della Salute e Materno Infantile "G. D'Alessandro" - Università degli Studi di Palermo; <sup>6</sup>Consorzio InterUniversitario per i Trapianti d'Organo, Roma, Italy

**Summary.** Although the thyroid is a high vascularised gland, it is not a common target of metastases from extraglandular cancer. We reported a case of a 70 year-old woman who underwent total thyroidectomy for multinodular goitre. In the patient's clinical history a nephrectomy was carried out 2 years before due to unspecified causes. The histopathological examination of the thyroid showed a pattern compatible with clear cell renal carcinoma metastasis. The patient's relatives revealed, when questioned again, that the nephrectomy was due to the presence of a clear renal cell carcinoma keep concealed to the patient. Thanks to a timely intervention, the mass was removed and a better survival was guaranteed to the patient.

**Key words:** thyroid metastases, clear cell renal carcinoma, total thyroidectomy

«GOZZO DA CARCINOMA RENALE RECIDIVO: UN CASO CLINICO»

**Riassunto.** Sebbene la tiroide sia una ghiandola altamente vascolarizzata, essa non è sede comune di metastasi di tumori extraghiandolari. In questo articolo riportiamo un caso di una settantenne sottoposta ad un intervento di tiroidectomia totale per gozzo multinodulare. Dalla storia clinica della paziente risultava una nefrectomia eseguita 2 anni prima per cause sconosciute. L'esame istopatologico della ghiandola asportata metteva in evidenza un pattern compatibile con una metastasi da carcinoma renale a cellule chiare. Ad uno studio più approfondito della storia della paziente, i parenti confessavano che la nefrectomia era stata conseguente all'insorgenza di un carcinoma renale a cellule chiare tenuto nascosto alla paziente stessa. Grazie ad un intervento tempestivo, la massa è stata asportata ed è stata garantita una migliore sopravvivenza alla paziente.

**Parole chiave:** metastasi tiroidee, carcinoma renale a cellule chiare, tiroidectomia totale

### Introduction

The thyroid gland is rarely a target of metastasizing tumours. Intrathyroid metastases represent about 1.4-2.5% of all thyroid tumours and 0.05-0.1% of all conditions that affect this organ (1). Conversely, the detection of intrathyroid metastases is relatively

common on autoptic examination, ranging from 1.25% to 24% (2). Tumours more frequently involving thyroid gland are clear cell renal carcinoma, bronchogenic carcinoma and breast cancer (1). Renal cell carcinoma represents 2-3% of all adult tumours and more than 40% of patients present metastases at diagnosis, the most common of which are localized in

bones and lungs. The presence of intrathyroid metastases of clear renal cell carcinoma makes it extremely difficult to distinguish it from thyroid clear cells carcinoma (3). Such further difficulty turns out to be complicated in those cases in which a period of time, more or less long, elapses between the nephrectomy and thyroidectomy.

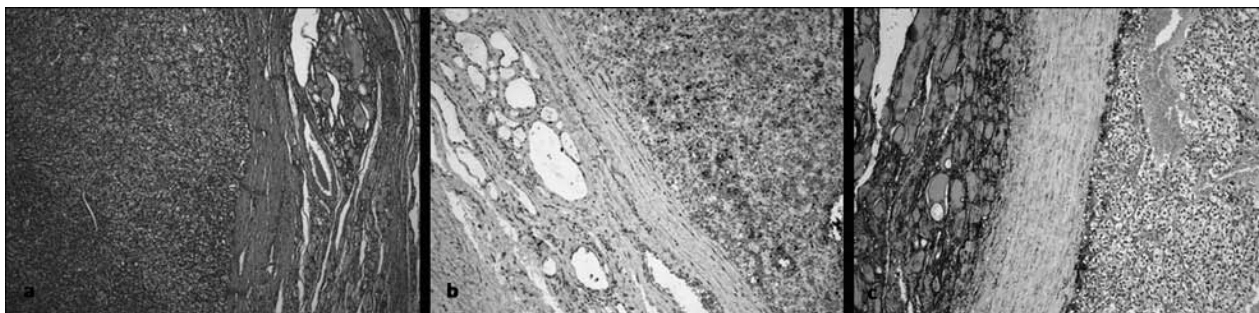
### Case report

A 70 year-old woman who had been suffering from multinodular thyroid goitre for four months, came to our care in October 2007. The patient presented normal hormonal and immunological patterns and ecotomographic examination of thyroid showed a “simple” multinodular goitre pattern, without signs of malignancy; for these reasons, and in relation to the whole clinical condition, fine needle aspiration biopsy or other morphofunctional assessments (scintigraphy) were not thought to be necessary. The clinical history of the patient provided the evidence of a chronic renal failure due to right nephrectomy which was performed in 2005 for unknown reasons. The patient began her haemodialysis treatment one year before admission; she suffered from hypertension, too. On physical examination, a volumetric expansion of the whole gland was put in evidence and, in particular, two nodular formations were noticed on the right and left lobe of the gland respectively, in absence of latero-cervical adenopathy. At the moment of hospitalization,

the patient reported a mild compressive symptomatology. After running the usual pre-operative routine test (chest X-ray, cardiologic and anaesthesiologic consultations, blood tests) a total thyroidectomy was carried out and the patient discharged on third day, waiting for histological report.

Histology showed an enlargement of the thyroid with a distorted shape, the left lobe being larger than the right one; the cross-section showed multiple firm and colloidal nodules occupying the gland. Furthermore, histological sections showed nodules with firm appearance surrounded by a complete fibrous capsule and characterized by a proliferation of large cells with abundant optically clear cytoplasm and well-defined margins, arranged in alveolar-tubular pattern (nests and cords). The nuclei showed mild to moderate atypia and single or multiple nucleoli. Few mitosis were observed. Within nodules several dilated vascular structures were visible, some of which showing angio-lymphatic invasion. The neoplastic cells were strongly immunoreactive for CD10, which is commonly expressed in renal cell carcinomas, and for vimentin. By contrast, Thyroid Transcription Factor-1 (TTF-1), thyroglobulin, cytokeratine 7 were completely negative in tumoral cell, and this ruled out a primary tumour of the thyroid (Figure 1).

Considering the morphologic and immunohistochemical findings along with patient’s medical history, a diagnosis of intrathyroid metastasis of renal cell carcinoma, clear cell type, was delivered. Contacting patient’s relatives for more information about renal



**Figure 1.** Histopathological picture of metastatic clear cell renal carcinoma in the thyroid: capsulated intrathyroidal nodule composed of nests and cords of large clear cell, with abundant optically empty cytoplasm, well-defined margins with moderate atypical nuclei (H&E; overall magnification 100 x) (1); clear cells are CD10 positive, while thireocytes are CD10 negative (strepta ABC overall magnification 100 x) (2); immunostaining for thyroglobulin shows that it is expressed by normal thyroid follicular whereas tumor cells are negative (strepta ABC overall magnification 100 x) (3).

disease, they declared that nephrectomy was due to clear cell renal carcinoma, concealed to the patient. After this clarification, it was easy to reach the right histological diagnosis of renal carcinoma thyroid metastasis, implanted in a frame of micro- and macro-follicular colloid goitre. The patient was then sent to an oncologic centre to undergo chemotherapy and follow-up. Total body CT scan and bone scintigraphy with technetium-99m-labeled diphosphonates, performed soon after the intervention, revealed no signs of metastases.

## Discussion

Many patients suffering from thyroid metastases present a local symptomatology not easy to distinguish from the one caused by gland primitive pathologies. Therefore, it makes evident as the differential diagnosis is extremely difficult. Furthermore, literature data show that repetitive lesions nest more frequently on altered thyroid parenchyma (4), making instrumental investigations (ecotomography, scintigraphy) incapable to distinguish secondary lesions from adenomatous nodules (5). Despite some authors claim the usefulness of cytologic exam when a past history of renal carcinoma is present, to date it does not represent the gold standard because (although it is easy executable and almost devoid of risks) it is responsible of many false negatives and it does not modify therapeutic strategy (6).

## Conclusion

In the case we described, the difficulty in reaching the right diagnosis of renal carcinoma thyroid secondarism was not only due to the rarity of this condition, but it was furthermore complicated by the low education level of the patient and her relatives. In fact, it was only thanks to the accuracy and experience of pathologist, that we could reach the right diagnosis and guarantee to the patient a better possibility of survival, subjecting her, after thyroidectomy, to the adequate diagnostic and therapeutic pathway. Although many authors state that prognosis for

patient suffering from secondary thyroid lesions is unfavourable, because of aggressive spreading of the disease, nevertheless, in many other authors' opinion, a radical thyroid surgical treatment may extend the patient's survival (7). Taking consideration of the above reported case, which arrived underestimated at the operating table, as many described cases (8), it is necessary to assure the total eradication of the gland (even for an only suspected malignant pathology) in order to guarantee the oncologic radicality and a better survival, sure to have carried out an optimal therapeutic choice.

## References

1. Mirallié E, Rigaud J, Mathonnet M, *et al.* Management and prognosis of metastases to the thyroid gland. *J Am Coll Surg* 2005; 200: 203-7.
2. Ryska A, Cap J. Tumor-to-tumor metastasis of renal cell carcinoma into oncocytic carcinoma of the thyroid. *Pathol Res Pract* 2003; 199: 101-6.
3. Civantos F, Albores-Saavedra J, Nadji M, *et al.* Clear cell variant of thyroid carcinoma. *Am J Surg Pathol* 1984; 8: 187-92.
4. Willis RA. Metastatic tumours in the thyroid gland. *Am J Pathol* 1931; 7: 187-208.
5. Atmani A, Valleix D, Blaise S, *et al.* Intrathyroid metastases from kidney cancers: two case reports. *Ann Chir* 2002; 127: 532-4 (in French).
6. Watts NB. Carcinoma metastatic to the thyroid: prevalence and diagnosis by fine-needle aspiration cytology. *Am J Med Sci* 1987; 293: 13-7.
7. Lin JD, Weng HF, Ho YS. Clinical and pathological characteristics of secondary thyroid cancer. *Thyroid* 1998; 8: 149-53.
8. Pitale SU, Sizemore GW, Bakhos R, *et al.* Renal cell carcinoma with metastasis to the thyroid gland. *Urol Oncol* 2000; 5:173-5.

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Address: Attilio Ignazio Lo Monte

Associate Professor of Surgery - Dipartimento di

Discipline Chirurgiche ed Oncologiche (DI.CHIR.ON.)

Coordinatore del Dottorato di Ricerca in Biotecnologie

Chirurgiche e Medicina Rigenerativa nell'Insufficienza d'Organo

Università degli Studi di Palermo

Facoltà di Medicina e Chirurgia

Via del Vespro, 129 - 90127 Palermo, Italy

Tel. +39 091 655 37 43

Fax +39 091 655 26 34

E-mail: attilioignazio.lomonte@unipa.it

