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(CASE REPORT)

Papillary thyroid carcinoma revealed by renal metastasis: Case report and review of the literature

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Abstract

Differentiated thyroid cancer is the first endocrine cancer but remains rare, representing only 1% of neoplastic pathologies. Its discovery at the occasion of distant metastasis is even rarer but not exceptional.

We report the case of a 50-year-old woman with a papillary thyroid carcinoma in its vesicular variant revealed by renal metastasis at the anatomopathology of the nephrectomy specimen.

The review of the literature shows that vesicular cancer is the most frequent in cases of revealed metastasis. Etiopathogenically, renal involvement occurs mainly via the hematogenous route, rarely via the lymphatic route.

The treatment of metastatic CTD requires a multidisciplinary approach. In the presence of metastases revealing thyroid carcinoma, thyroidectomy is required, followed by lymph node dissection and isotopic treatment with iodine 131, which allows a white cervical map to be obtained with the direct destruction of iodine-binding metastases, followed by hormone therapy to slow down the thyroid axis. The treatment of metastases will depend on their location and characteristics.

The prognosis of differentiated thyroid carcinoma is very favorable, but worsens when it is revealed by a distant metastasis.

Survival is significantly better for patients with small volume and iodine-binding metastases.

Keywords: Papillary thyroid carcinoma; Renal metastasis; Case report; Survival

1. Introduction

Differentiated thyroid cancer is the first endocrine cancer representing 90% of endocrine malignancies, but remains rare representing only 1% of neoplastic pathologies.

Nevertheless, its discovery at the occasion of distant metastasis is very rare but not exceptional; its frequency is nearly 2% in Morocco.

The clinical manifestations are usually related to a pulmonary nodule or a bone tumor. These two locations are the elective locations of distant metastases of thyroid origin; the renal location is even rarer.

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The diagnosis is made on anatomopathological and immunohistochemical study of a biopsy or operation.

The incidence of distant metastasis of CTD is higher in cases of vesicular carcinoma (2, 3). It is significantly more common in women than in men and rarely affects children and adolescents, with a mean age of diagnosis of more than 50 years.

We report the case of a 50-year-old woman with a papillary thyroid carcinoma in its vesicular variant revealed by renal metastasis at the anatomopathology of the nephrectomy specimen.

The prognosis of differentiated thyroid carcinoma is very favorable, with an estimated 10-year survival of 80-95%, and only 5% of patients die of their cancer (4). However, the prognosis worsens when the cancer is revealed by distant metastasis, however, if properly managed, long-term survival can be as high as 43% (5).

2. Case report

50-year-old female patient, diabetic since 2012 under MTF 2g/d + diamicron 30 mg/d, who presents since 09/2019 with symptomatology made of an abdominal pain of insidious onset and moderate intensity accentuated at the level of the right flank with at morphological exploration: presence of cortical right renal mass oval with bumpy contours has exophytic development, hypodense of 43*37.5*53 mm. The patient underwent surgery in October 2019 (right nephrectomy), the anatomopathological study of which revealed a tumor proliferation of 4*4.5 cm encapsulated and whose morphological aspect is reminiscent of a well-differentiated thyroid tissue, the IHC complement is in favor of a follicular renal carcinoma of thyroid type.

Then a cervical ultrasound was performed showing 2 left lobar nodules of 8*6 mm and 7*4 mm classified EU-TIRADS 3, TSH = normal, the patient benefited from a total thyroidectomy on month 02/2020 without lymph node sampling whose anatomopathological aspect is in favor of a papillary carcinoma in its vesicular variant measuring 0. 5 cm on a background of nodular dystrophic goiter, the patient was put on Levothyrox=175 ug/d, then was lost of sight (seen the COVID), then came back in consultation the month 08/2020 with the requested assessment: TSH=15 / TG(us)=2.4 ng/ml and AC anti-TG<6.4 ui/ml.

Cervical ultrasound of control: evokes a local recurrence of 11 mm on the left side.

Thoracic-abdominal-pelvic CT: no other metastatic localization.

It is then a papillary carcinoma at very high risk given the presence of tumor recurrence on ultrasound.

The management consists of increasing the dose of levothyrox to slow down the TSH, surgery for recurrence with lymph node dissection, and discussion of IRA-therapy.

3. Discussion

Thyroid cancer is a relatively rare cancer, since it represents 1% of all cancers in the world, and less than 1% of the causes of death by cancer in both sexes in France. It is the most frequent cancer of the endocrine glands. According to Ben Raïs et al, papillary thyroid carcinoma accounts for 66% of CTDs compared with 22% for well-differentiated vesicular carcinoma and 12% for moderately differentiated vesicular carcinoma.

CTDs are usually revealed by thyroid nodules, their revelation by distant metastases is rare but not exceptional. Indeed, these metastases can produce various extremely misleading pictures where the thyroid disease is discovered only secondarily. From a pathophysiological point of view, it is classical to underline the preferential diffusion by the hematogenous route of distant metastases of CTD. However, there is also lymphatic spread from the cervical region to the mediastinum (pulmonary and sternal metastases) and to the base of the skull (bone metastases) (7).

The preferential locations of metastases are, in decreasing order of frequency, the lungs, bone, followed by mediastinal lymph node metastases, the brain, liver, kidney, and finally the skin, as well as the eye, myocardium, spleen, adrenal gland, pancreas, muscles, the mammary gland, and the subcutaneous cellular tissue.

The concomitant existence of metastases in several sites is variously assessed in the literature and varies from 50 to 100% of observed cases. The most frequent locations are the lung, mediastinum, and bone.

Renal metastases of thyroid carcinoma are very rare. A review of the literature shows that only three cases have been described (K.Y Lam (10), G.E Tur (11)). From an etiopathogenic point of view, renal involvement occurs essentially via the hematogenous route, rarely via the lymphatic route. Lam K.Y (10) suggests the possibility of diffusion of neoplastic cells through venous and lymphatic collaterals between the kidney and the thyroid. The lesion is most often single, but may also present as small multiple metastatic foci dotting one or both kidneys. In the majority of cases, these lesions are asymptomatic, and even when clinical signs are present, they are usually nonspecific. These may include abdominal pain, flank mass, dysuria, hematuria, or proteinuria. Alteration of the general condition is reported to be more frequent than in primary kidney cancer.

Several studies have found that vesicular cancer is the most frequent case of revealed metastases. The table below shows the distribution of histological types found by different authors.

Table 1 Distribution of histological types in CTD revealed by metastases

	Type vésiculaire	Type papillaire	A cellules de Hurthle
GHOBREL (14)	50%	10%	-
ASHOK (3)	40%	43%	16%
HAQ (19)	54%	41%	4%
SAMPSON (20)	49%	51%	-
Notre série	56,2%	43,7%	-

Treatment of metastatic TNCs requires a multidisciplinary approach. In the presence of metastases revealing thyroid carcinoma, thyroidectomy is required, followed by lymph node dissection and isotopic treatment with iodine-131, which provides a white cervical map with direct destruction of the iodine-binding metastases, followed by hormone therapy to slow down the thyroid axis (13, 14). The treatment of metastases will depend on their location and characteristics.

Regarding prognosis, there have been very few studies focusing on the prognosis of patients with CTD revealed by distant metastases.

The prognostic factors of metastatic thyroid carcinoma are according to the studies: (5, 10)

- Young age (less than 45 years) at tumor onset.
- Well differentiated histological form.
- Iodine 131 fixation.
- Small volume of metastases.
- Good response to iratherapy.
- A single bone metastasis that can be completely resected.
- Complete resection of the primary tumor

4. Conclusion

The revelation of differentiated thyroid carcinomas with distant metastases is rare. These can be linked to their thyroid origin by histology and especially immunohistochemistry.

Renal metastases of thyroid carcinoma are even rarer, occurring mainly by the hematogenous route, rarely by the lymphatic route.

The need for careful multidisciplinary management between: surgeons, endocrinologists, isotopists, pathologists, and radiologists.

The principles of treatment are identical whatever the metastatic location. There are 3 steps: surgical treatment of the metastasis; surgical treatment of the thyroid; and then adjuvant treatment (radioactive iodine, hormone therapy, external radiotherapy).

Total thyroidectomy, which simplifies postoperative surveillance, is becoming the procedure of choice for the thyroid body.

Systematic courage of the central lodge and possibly of the lateral chains would reduce the risk of lymph node recurrence, which is particularly high in CTD.

Surgical treatment of metastases gives good functional results and improves the quality of life even in the case of giant tumors or treated at the stage of severe mechanical complications.

Isotopic treatment is essential. Hormone therapy is systematically used in all patients treated for metastatic thyroid carcinoma.

Recurrence of the disease remains the main concern, which must be detected as early as possible.

From a prognostic point of view, the survival is clearly better for patients with small volume and iodine binding metastases.

Compliance with ethical standards

Acknowledgments

Thanking the patient for consent to describe her clinical case for the purpose of continuing education.

Disclosure of conflict of interest

The authors declare that they have no conflict of interests.

Statement of informed consent

Thanking the patient for consent to describe her clinical case for the purpose of continuing education.

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