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Adrenal Metastasis of A Clear Cell Adenocarcinoma of The Kidney And Cortisolic Adenoma: An Unusual Association

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Abstract: *We report the original observation of the adrenal metastasis of a renal clear cell carcinoma on ipsilateral cortisolic adenoma in a patient aged 59 who had a radical nephrectomy. The preoperative assessment revealed an ipsilateral adrenal lesion measured at 20 mm having radiological features in favor of the benign character (lower density 10UH). Six months later, an abdominal CT scan revealed an increase of the adrenal mass size (31X42X53 mm). She was then heterogeneous and took the contrast. Hormonal balance and radiological suggest a corticosurrenaloma. A left adrenalectomy was performed. Histological and immunohistochemical study revealed that the mass was the metastasis of a the renal clear cell carcinoma among a cortisolic adenoma.*

Keywords: *kidney cancer, surgery, adrenalectomy; cortisolic adenoma; CT scan*

I. Introduction

The renal clear cell adenocarcinoma is the most common cancer of the kidney. It represents 3% of all malignant tumors in adults. His metastasis concern typically in order of decreasing frequency lung, mediastinum, bone, liver, contralateral kidney and / or adrenal, brain (COULANGE C.,and RAMBEAUD J.J., 1997)(LIEBER M.M. et al,1981).

The adrenal gland may be achieved either by contiguity or by metastasis. In approximately 2/3 of cases, adrenal metastasis are associated with other locations. Ipsilateral and contralateral metastases occur respectively in 17% and 11%. Adrenal metastasis rarely isolated: 1.8 to 2% of cases(Kessler O. J. et al,1998) . Its location within a cortisolic adenoma has not been described until now. in this regard , we report a case to clarify the clinical and the evolutionary aspects of this type of metastasis.

II. Case report

Mrs C.A., 59 years old had nine months ago a total and recurrent macroscopic hematuria with back pain that don't yiel to usual analgesics. Abdominal pelvic ultrasound was made founding a renal mass then, an abdominal CT scan performed confirms the presence of a tumor measuring 5 cm invading the entire right kidney. The staging was negative except for the presence of ipsilateral adrenal mass of 20 mm having radiological features in favor of benign character (an adenoma with alower density 10UH). A right nephrectomy was then performed. The histological examination revealed that the kidney mass was a renal clear cell adenocarcinoma (CK-, CD10, EMA +, vimentin +), classed on stage T1 (Fuhrmann classification). Six months later, an abdominal scan check revealed the increase of the of the adrenal mass size (which became 31X42X53 mm)(fig: 1). It was heterogeneous with highly contrast. The patient was then hospitalized for endocrinologic exploration and therapeutic decisions.

The clinical examination found an android obesity with a waist circumference of 102 cm. There were no signs of adrenergic, adrenocortical hyper secretion, hyperandrogenism or hypokalemia symptoms. Hypertension occured two years ago and well controlled hypotensive monotherapy was noted. He had no sign of renal tumor's recurrence or secondary location.

Hormonal assessment shows an hypercorticism (Table I). In front to these hormonal results, in addition to a suspect radiological (appearance of malignancy), the diagnosis of corticossurenaloma was retained. After a negative staging, the patient is referred for surgery and adrenalectomy was performed. The postoperative evolution was marked by a favorable normalization of adrenocortical function and the disappearance of the tumor lesion (Table I)

Histological and immunohistochemical study of the surgical specimen showed a proliferation of cells mainly clear among an adrenocortical adenoma with benign appearance (weiss score= 2). It was the metastatic location of the renal clear cell adenocarcinoma in a cortisolic adenoma(Fig 2 A and B)

III. Discussion

We report an original observation of adrenal metastasis of renal cell carcinoma on cortisolic adenoma that was initially considered as malignant adrenal lesion or primitive adrenocortical in front of the biological and hormonal factors and whose histological and immunohistochemical results helped to rectify the diagnosis.

Contribution of the scanner is well established in the characterization of adrenal masses and preoperative staging of renal masses in patients when renal cancer is suspected. Its role is equally important in monitoring patients after nephrectomy(Scatarige J.C. et al,2001)(Weigensberg IJ ,1971) Indeed, the early diagnosis of recurrence or metastasis is an important prognostic factor, guiding the treatment to surgery or immunotherapy(Motzer R.J., Bander N.H. and Nanus D.M.,1996)

The adrenal gland can be achieved either by contiguity or by metastatic process. The frequency of the synchronous achievement of the ipsilateral adrenal in a patient with renal cancer is between 2,7 and 7,1% of cases(]. O'DEA M.J.et al,' 1978) . Reached of the adrenal gland are most often associated with other metastasis. Isolated adrenal localization are rare and has been reported in few observations(.BARNEY J.D. and CHURCHIL E.J.,1939)(HASSEGAWA J. et al , 1988)(LEMMERS M.,1989) . These metastasis can occur between 6 months and 15 years after radical nephrectomy(Motzer R.J., Bander N.H. and Nanus D.M., 1994) Risk factors of adrenal attempt are related to stage and tumor site. Tumors bigger than pT2 stage expose to a higher risk of adrenal invasion. In the series of Moudouni et al(Moudouni S.M.,2003) the rate of metastatic adrenal tumors in pT1-2 in tumors and pT3-4 were respectively 0.9% and 13.4%. These data are also found in the series of Desio et al, wherein the respective rates were 1.3% and 6.4% (COULANGE C., RAMBEAUD J.J.,1997)

Upper pole tumors were responsible for 53% of adrenal metastases observed in the Moudouni et al. series(Moudouni S.M.,2003). In the series of Yokohama, 3 of the 4 tumors responsible of ipsilateral adrenal metastases were tumors of the upper pole, all staged pT3-4(Siemer S.,2004). In fact, the risk of metastasis is respectively 4.7%, 3.2% and 3.7% for tumors of the upper pole, the middle part or the lower pole. In case of diffuse tumor, the risk is 10.4% (Saidi J.A., Newhouse J.H., Sawczuk I.S.,1998)

The pejorative nature of the adrenal invasion is linked to its frequent association with lymph node involvement, multi-metastatic or with the presence of a sarcomatoid component in the renal tumor (Johnsen J.A., Hellsten S.,1997) The 5-year survival of patients with adrenal metastasis or isolated adrenal metastasis associated with other locations is respectively 61% and 20%(Siemer S., et al,2004)

However, in case of isolated adrenal metastasis, adrenalectomy improves the prognosis. In the Kuczyk et al study, the overall survival rate of patients with resected single adrenal metastasis was 51% at 10 years, comparable to those of patients without lymph node or metastasis (50% at 10 years)(Kuczyk M., Wegener G., Jonas U.,2005) The surrenalectomy is then recommended in case of morphological abnormality of the adrenal on preoperative CT or preoperative exploration and also in case of tumor staged T3- T4 (whatever its location in the kidney). In T1-2 tumors including the ones located on the upper renal pole of the kidney, adrenalectomy is not systematic(.SHALEV M ,1995) (MIDDLETON R.G.,1967)

Many unusual renal clear cell cancer's metastases have been reported, unusual not only by their location but also by their time of onset(Newmark J.R.,1994)(Saitoh H.et al,1982) No case looking like our patient case have been described. The endogenous hypercortisolism could have oriented the discussion to a paraneoplastic syndrome. However, the non-dependent ACTH hypersecretion character (Table I) and the histological results excluded this possibility. The coexistence of a secreting adrenal lesion is coincidental and not exceptional. By until now, no metastatic localization among an adrenal adenoma has been described to our knowledge.

This is difficult to explain. It could be due to an increased fragility entailed by hyper secretion of glucocorticoids in situ or by intratumoral neovascularization.

Knowledge of the mechanisms, risk factors, clinical and evolutionary forms of kidney cancer and adrenal lesions help clinicians to better interpret imaging aspects observed. This knowledge and the natural history of the disease permit to well manage the patient and thus preserve his prognosis.

Adrenal masses are common. They are usually benign and non secreting tumors of the adrenal cortex. However, a systematic paraclinical exploration dominated by imaging examination and standardized biological assessment are necessary to highlight the minority secreting lesions or primary and secondary neoplasia that require surgical management.

IV. Conclusion

The evolution of kidney cancer after nephrectomy is variable and sometimes unpredictable. CT is the ideal modality for the postoperative monitoring of the patients. Particular attention must be paid when they are realized taking account of the radiological aspect that can be observed.

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Figures

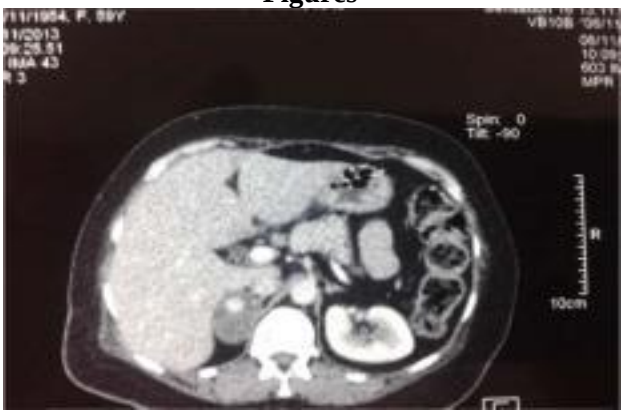

FIG 1- right heterogeneous adrenal mass

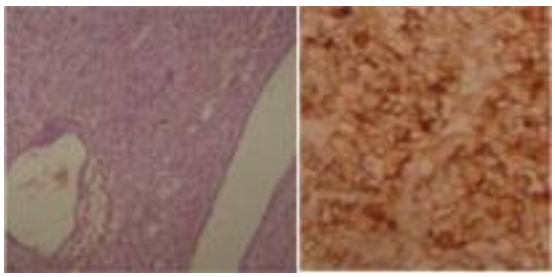

FIg 2 (A and B) : Microscopic examination of the nodular encapsulated adrenal with a specific immune marking membrane EMA + evoking clear cell renal carcinoma in a cortisolic adenoma

Table I : Biological results

PARAMETER	RESULTS (before and after surgery)	standards
Ionogram		
Natremia	136	135-150 meq/l
Kaliemia	3,9	3-5 meq/l
Cortisol 8H		**275-685 nmol/l**
00H		**55-190 nmol/l**
	268 **320-240.2** **209,76**	
Low dexamethasone suppression test (LDDST) :Before - After	dose 6	**20-80 pg /ml**
	Cortisol 0.6	0,2-27 pg/ml
	0,61	0,13-0,5 mg/ml
	24	18,9- 205 ng/dl
ACTH	,86	0,07-0,38 mg/24 h 0,57-2,63 ng/ml
17OHP		0,04-0,2 mg/24 h
Testosterone		
SDHEA		
Δ4		