Testicular metastasis from renal clear cell carcinoma

E. Delchambre, J-L. Jorion, O. Rahier, T. Puttemans, E. Dardenne
Clinique Saint Pierre Ottignies

Introduction

Renal clear cell carcinoma (RCCC) = most common cancer of the kidney.
Metastatic disease = 20 to 30% of cases at diagnosis
Secondary lesions develop in 20 to 40% of previously treated patients.

Metastasis from RCCC: commonly found in lymph nodes, lungs, bones, liver and brain.

We present 2 cases of testicular metastasis from RCCC:
- synchronous metastasis
- secondary location some years after renal tumor was treated.

Case Report 1

A 69-year-old man presenting a small lesion in the right testis without any urinary symptoms.

Ultrasound showed a 12 mm intra-testicular hyperechoic heterogenous tumor with multiple cystic-like areas and hypervascularization on color-Doppler.
Thoraco-abdominal CT revealed a parenchymal tumor in the right kidney and a small lump in the medium right lung lobe.

Serum markers: normal.

The patient underwent a **right inguinal orchiectomy** and a **right radical nephrectomy**.

Histological examination: primary RCCC Furhman 3 + testicular metastasis, staged pT1bN0M1.

One and a half year later, the patient underwent thoracic surgery as pulmonary lesions extended with pleural carcinosis. Sunitinib was then introduced but stopped a few months later due to toxicity and replaced by Nivolumab with good response after 6 months.
Unfortunately, the patient died from road accident few weeks later.

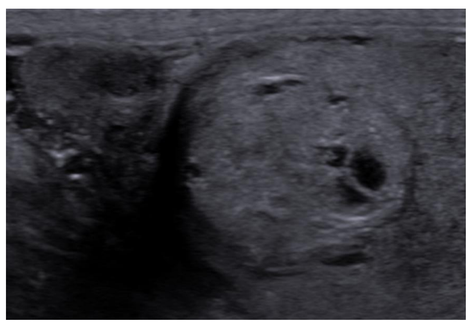

***Fig1:* Longitudinal US of the right testicular upper pole.**
The lesion is hyperechoic, heterogenous with some cystic-like areas and delineazeted by hypoechoic rim.

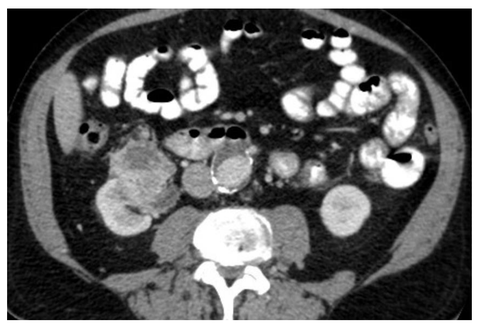

Fig 2: CT scan
Primary tumor
RCCC in the right kidney

Case Report 2

A 77-year-old man who underwent partial left nephrectomy for RCCC 5 years earlier and radiofrequency 3 years after then for local recurrence with millimetric pulmonary adenopathies that were stable since then.
He presented with a small mass in the left testis.

Ultrasound : hyperechoic, heterogenous tumor, containing multiple cystic-like areas
CT scan: pulmonary metastasis and mediastinal adenopathies

Serum markers: normal.

A **left orchiectomy** was then performed.

Histological examination confirmed the diagnosis of RCCC metastasis.

Thoracic lesions were not treated due to fragile heart condition of the patient.
3 years later, the patient rapidly developed large spread of the thoracic metastasis with pleural effusion and pneumothorax. Unfortunately, the patient's condition quickly deteriorated and he passed away within a few days.

Discussion

Testis is a rare site for metastasis (0.02 to 0.06% at autopsy in the oncologic population) but metastasis account for about 10% of testis tumors in patients above 60 years old.
Testicular metastasis commonly spread from prostate, lung, kidney, gastrointestinal or skin primary tumor.

If testicular metastasis more often occurs concurrently or precedes the diagnosis of RCCC, some rare case of delayed metastasis, such our 2nd case, have been described.

Differential diagnosis in old patients must include:
- ✓ lymphomas (1/3 of cases), especially with normal serum levels of alpha-foetoprotein and human chorionic gonadotropin,
- ✓ germ cells tumors (20%)
- ✓ spermatocytic seminoma (2%)

Why is testicular metastasis so rare?
The testes seem to be an hostile site for tumor to spread due to their environment:
- ➢ *Low temperature of the scrotum* do not provide good conditions for tumor cells to develop themselves.
- ➢ Moreover, *the Sertoli cells form some kind of blood-testis barrier*, aimed to protect spermatozoa, that can also protect testis from tumor invasion and growth.

Pathway of spread:
Several studies showed a trend in ipsilateral testicular metastasis from RCCC as in our 2 cases.
That can be explained by retrograde venous spread from the primary renal lesion to the testis via the spermatic vein.

FOCUS: Ultrasound

First choice examination for initial work up of testicular lesion
-> high sensitivity in tumor detection and in discrimination between intra- and extra-testicular lesions.

A specific ultrasound pattern has been described for RCCC testicular metastasis:
heterogenous hyperechoic lesion, incompletely bounded by an hypoechoic halo. multiple cystic-like, hypervascular (color Doppler). (very similar from ovarian metastasis of RCCC)

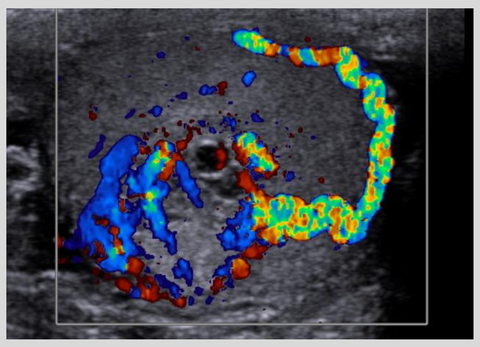

Fig 3: Hypervascularisation of the testicular RCC metastasis with colour Doppler.

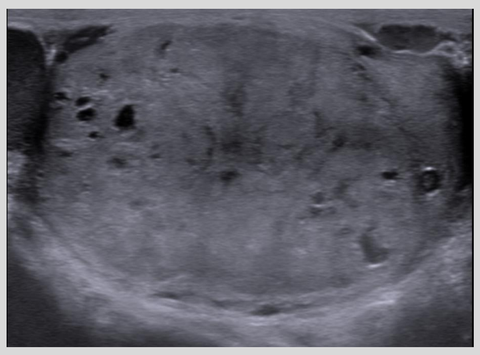

Fig 4: left testicular mestastasis from RCC in our 2nd patient. Same US characteristics as in fig 1.

Conclusion

- Testicular metastasis from RCCC is a **rare condition (**0,1-1%).
- Consequently, influence of testicular metastasis from RCC on **prognosis is unknown**
- Retrograde venous spread seems to be one of the main pathway for metastasis.
- **Ultrasound** is the best assessment for testicular tumors with high sensitivity.
  A specific ultrasound pattern has been described with hyperechoic, heterogenous, hypervascularized lesions containing pseudo-cystic zones.

➡ **Scrotal examination and/or scrotal ultrasound should be part of routine follow up in RCCC.**

1. Rouvinov K, Neulander E, Kan E, Asali M, Ariad S, Mermershtain W: Testicular Metastasis from Renal Call Carcinoma: A Case Report and Review of the Literature. Case Rep Oncol 2017; 10: 388-391
2. Moriyama S, Takeshita H, Adachi A, Arai Y, Higuchi S, Tokairin T, Chiba K, Nakagawa K, Noro A: Simultaneous Bilateral Testicular Metastases form Renal Clear Cell Carcinoma: A Case Report and Review of the Literature. Oncology Letters 2014; 7: 1273-1275
3. Adawi E: A Rare Intrascrotal Metastases from Renal Cell Carcinoma: A Case Report. Urologye Case Reports 2016; 4: 57-58
4. Kongnyuy M, Lawindy S, Martinez D, Parker J, Hall M: A Rare Case oh the Simultaneous, Multifocal, Metastatic Renal Cell Carcinoma to the Ipsilateral Left Testes, Bladder and Stomach. Case Reports in Urology 2016.
5. Libert F, Cabri-Wiltzer M, Dardenne E, Draguet A-P, Puttemans T: Ultrasonographic Pattern of Testicular Metastasis of Clear Renal Cell Carcinoma with Pahological Correlation. Journal of the Belgian Society of Radiology, 100 (1): 54; 1-3

BAU2018
Dolce – La Hulpe/Terhulpen 6 & 7 DECEMBER 2018
18TH ANNUAL CONGRESS
BELGIAN ASSOCIATION OF UROLOGY