Case Report

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Coexistence of multiple clear cell papillary renal cell carcinoma with renal oncocytoma: a case report

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Introduction and importance: Clear cell papillary renal cell carcinoma (CCPRCC) is a new entity, previously known as unclassified renal cell carcinoma, and initiallly identified in patients suffering of end-stage kidney failure. It is extremely rare to see this new entity associated with others renal malignant lesions.

Case presentation: The authors report a case of a female 65-year-old suffering from end-stage kidney failure for 10 years, who presented with a double left renal tumor, composed by an oncocytoma associated to multiple CCPRCC, a very rare entity. A radical left nephrectomy was realized by lumbotomy, with an uneventful postoperative course. Histological examination was challenging. Immunohistological examination showed diffuse positivity of cytokertain 7. No local recurrence nor metastatic progression were found during the 12 months of follow-up.

Clinical discussion: CCPRCC, is a new entity, previously known as the unclassified rena cell carcinoma, is a malignant renal tumor, initially reported in patients at end-stage kidney failure. Oncocytoma is a well-known rare benign renal tumor. The association of both is rare, and should be kept in mind, especially when scanoguided diagnosis biopsy is realized. Histopathological confirmation may be challenging, given the recent identification of CCPRCC. The nuclei disposal toward the luminal surface is a characteristic pathological landmark of CCPRCC. Immunohistopathological examination is of great help, showing a distinctive profile: diffuse staining for cytokertain 7 and carbonic anhydrase IX.

Conclusion: CCPRCC is a new malignant pathological entity in renal tumors. It can be associated with other benign renal lesions. This should be taken into consideration while histopathological examination, mainly of scanoguided biopsy cores.

Keywords: kidney, oncocytoma, papillary

Introduction

Clear cell papillary renal cell carcinoma (CCPRCC) is a new entity, recently recognized in the new 2016 WHO classification system[1]. It has a unique morphological, immunohistochemical, and molecular profile that differentiates it from other renal cell carcinomas (RCC) especially clear cell RCC and papillary RCC. Oncocytoma is a rare benign renal lesion. Herein, we report a rare association of multiple CCPRCC within a renal oncocytoma in a 65-year-old female patient suffering from end-stage kidney failure. This work has been reported in line with the Surgical CAse REport (SCARE) 2020 criteria[2].

HIGHLIGHTS

- Oncocytoma is a frequent benign renal tumor, rarely seen in association with other types of renal tumors.
- Clear cell papillary renal cell carcinoma is a newly defined pathological entity.
- The association of both entities is an extremely rare condition.

Case report

A 65-year-old female patient was referred to our department for left flank pain, evolving for 3 months. The patient was at end-stage kidney failure, on hemodialysis for 10 years, with no residual diuresis. She had arterial hypertension. The patient denied gross hematuria. Clinical examination revealed no palpable abdominal mass or lumbar contact. No clinical or biological paraneoplasic syndrome was found.

An abdominal contrast-enhanced computed tomography was realized. It showed multiple suspicious left renal tissular and well encapsulated masses, measuring 30 mm in average, with areas of necrosis, and annular calcifications. One lesion measured 40 mm and showed avid contrast uptake except within a star-shaped central scar-like region. No renal vein or inferior vena cava thrombus was found. Perirenal fat was infiltrated. Controlateral kidney was unremarkable. No distant metastases were found (Fig. 1).

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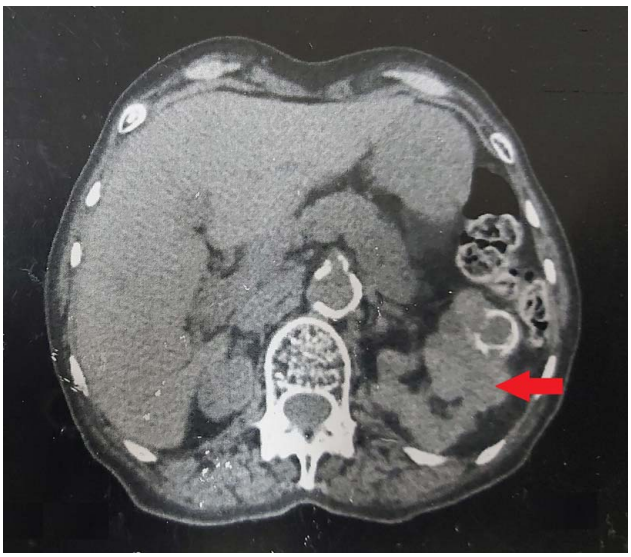

Figure 1. Abdominal contrast-enhanced computed tomography showing a left kidney, with multiple masses with annular calcifications, with an inferior polar mass showing a central scar (red arrow).

The patient underwent left radical nephrectomy by right posterolateral incision, without inconvenience (Fig. 2).

The postoperative course was uneventful. The patient was discharged on the third postoperative day.

Histopathological examination of operative specimens showed nests and tubular structures lined by cells with eosinophilic, granular cytoplasm, with edematous myxoid or hyalinized stroma. Nuclei are round and regular, with very rare mitotic activity. Other four lesions were depicted as tubulopapillar proliferation formed by cuboidal cells with clear cytoplasm and suprabasal nuclear alignment toward the luminal surface. Immunohistopathological stdies showed diffuse positivity for cytokeratin 7 (CK7). These findings concluded to the diagnosis of oncocytoma associated to multiple CCPRCC (Fig. 3).

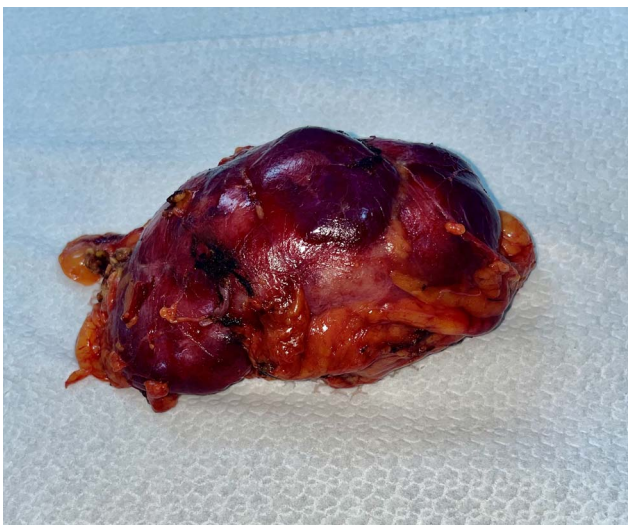

Figure 2. Operative specimens of left radical nephrectomy showing multiple masses.

No local recurrence or metastatic progression were found during the 12 months of post discharge follow-up.

Discussion

The prevalence of CCPRCC is about 1–4%, ranked in fourth most common RCC subtype, preceded by RCC, and chromophobe RCC3

First reports emphasized the important incidence of CCPRCC in patients suffering from end-stage renal disease. However, these tumors can also be seen in patients with normal kidney function, sometimes with a greater prevalence than the population of patients suffering from kidney failure[3].

Patients with CCPRCC were aged from 18 to 88 years, with a mean age of 66 years[4]. Patients with CCPRCC usually are asymptomatic, but may present with flank or abdominal pain[4]. Gross hematuria is rarely reported[3].

CCPRCC share some morphologic features with two other pathological entities: RCC and papillary RCC. Therefore, more strict diagnostic criteria should be developed to avoid misdiagnosis[3].

CCPRCC are frequently depicted as unique and small lesions, rarely exceeding 50 mm. Multifocality can be seen, mainly, with patients at end-stage renal disease. In this case, it is often associated with other renal tumors such as renal oncocytoma, clear cell RCC, papillary RCC, chromophobe RCC, multilocular cystic RCC, acquired cystic disease-associated RCC[1,4].

On macroscopic examination, the CCPRCC are well circumscribed and have a thick pink capsule with tan-red cystic cut surfaces.

Most small CCPRCCs show a low Fuhrman nuclear grade and display variable architectural patterns, including solid, acinar, cystic, tubular, and papillary patterns[1]. Two main architectural features are encountered: tubulopapillary or cystic organization. The papillae are lined by cuboidal or columnar cells with abundant clear cytoplasm and a low Führman nuclear grade. The nuclei disposal is made toward the luminal surface, which is a characteristic pathological landmark of CCPRCC. The absence of some features, points out the diagnosis for pathologists, such as areas of necrosis, mitotic figures, calcifications, lymphovascular, foamy macrophages, or renal sinus invasion[1]. The stroma varies from being minimal to occasionally prominent, myxoid to hyalinized, and rarely with organized amianthoid fibers or well-defined smooth muscle bundles presenting an angiomyomatous appearance without a prominent capillary network[3].

On immunohistochemical study, CCPRCC has a distinctive profile: strong and diffuse staining for CK7 and carbonic anhydrase IX, negative reactions for alpha-methylacyl-CoA racemase, CD10, and Transcription Factor E3[5].

Oncocytoma, a benign renal tumor, exhibits immunohistochemical positivity for E-cadherin and CD117, and negativity or focal positivity for CK7, alpha-methylacyl-CoA racemase, and CD10[1].

Although oncocytoma and CCPRCC are separate entities, they can coexist in the same or the contralateral kidney, in very rare cases. The association between oncocytoma and CCPRCC is hard to explain since there are only scarce previously reported cases[1]. Since they have different genetic backgrounds, it is not

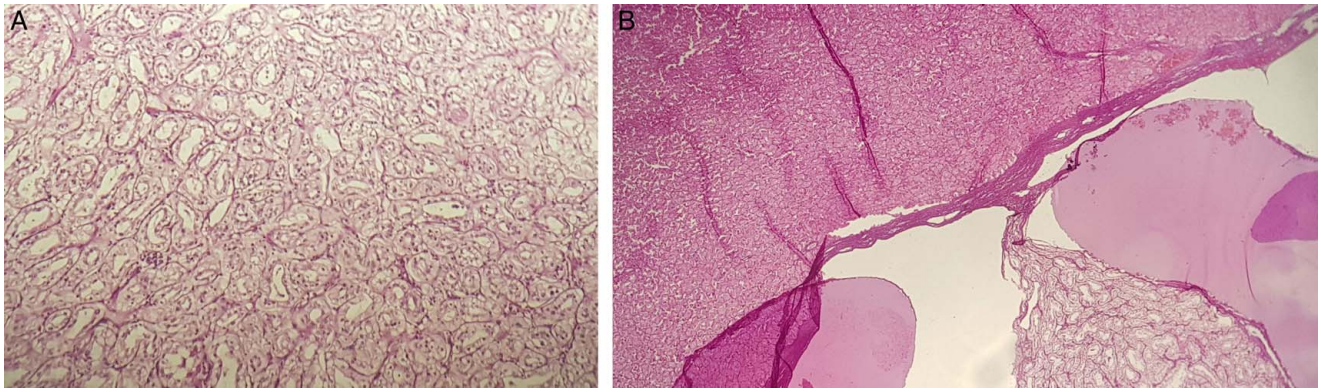

Figure 3. Tubulopapillar proliferation formed by cuboidal cells with clear cytoplasm and suprabasal nuclear alignment toward the luminal surface (HE × 60) (A) adjacent to nests and tubular structures lined by cells with eosinophilic, granular cytoplasm, with edematous stroma (oncocytoma) (HE × 40) (B).

possible to suggest a common pathogenesis. Most likely, they are collision tumors that happen to arise together at the same site by coincidence[1]. A particularity in these cases of combined hybrid tumors, consisting of benign and malignant lesions, is that malignancy can be misdiagnosed in case of biopsy, since it can miss either tumor component or the other[6]. Reports showed that oncocytomas may sometimes harbor malignant tumors, especially chromophobe RCC, or other malignancies. This should be used when a biopsy is used to direct management[6].

Conclusion

CCPRCC is increasingly reported as a renal tumor affecting, mainly, chronic nephropathy kidneys. Good knowledge of this new entity and the awareness of the possible rare association to other renal lesions, may help to avoid misdiagnosis.

Ethical approval

The approval of the current study has been granted by the medical committee of research ethics of Charles Nicolle Hospital. It is available for review by the Editor-in-Chief of this journal on request.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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References

[1] Park JH, Lee C, Suh JH, *et al*. Clear cell papillary renal cell carcinoma: a report of 15 cases including three cases of concurrent other-type renal cell carcinomas. Korean J Pathol 2012;46:541–7.
[2] Agha RA, Franchi T, Sohrabi C, *et al*. The SCARE 2020 guideline: updating consensus Surgical CAse REport (SCARE) guidelines. Int J Surg 2020;84:226–30.
[3] Rysz J, Franczyk B, Ławiński J, *et al*. Characteristics of clear cell papillary renal cell carcinoma (ccpRCC). Int J Mol Sci 2021;23:151.
[4] Kuroda N, Ohe C, Kawakami F, *et al*. Clear cell papillary renal cell carcinoma: a review. Int J Clin Exp Pathol 2014;7:7312–8.
[5] Williamson SR, Eble JN, Cheng L, *et al*. Clear cell papillary renal cell carcinoma: differential diagnosis and extended immunohistochemical profile. Mod Pathol Off J U S Can Acad Pathol Inc 2013;26:697–708.
[6] Paschos K, Chatziaggelou A, Chatzigeorgiadis A. Primary collision renal tumor of papillary renal cell carcinoma within an oncocytoma: emergency presentation of a rare entity. Hippokratia 2017;21:105–7.