INTRODUCTION

Tubulocystic renal cell carcinoma (TC-RCC) is a recently described rare subtype of RCC, which has not yet been included in the World Health Organization (WHO) 2004 classification of renal tumors.[1] In total, less than 70 cases have been reported until date[2] and the literature describing their clinicopathological information, biologic behavior, immunohistochemical profile, ultrastructural features and the important differential diagnostic considerations is even more limited.[3,4] College of American Pathologists already recognized the new entity in the protocol for invasive carcinoma of renal tubular origin.[5] The most recent International Society of Urological Pathology (ISUP) Vancouver Modification of WHO 2004 classification popularly known as the ISUP Vancouver Classification of Renal Neoplasia recommends the inclusion of TC-RCC along with four other new distinct epithelial tumors in the classification system.[2] The concurrent P-RCC and TC-RCC has been documented many times[6] but the co-occurrence of CC-RCC and TC-RCC is very rare. To the best of our knowledge, this is the third case[7,8] of TC-RCC occurring with CC-RCC in a 62-year-old male.

CASE REPORT

A 62-year-old male presented with heaviness of left upper abdomen for last 9 months and dull intermittent pain in the left flank, off and on for last 5 months. There was no significant history of weight loss and hematuria during this period. History of fever with associated urinary complaints was also conspicuously absent. On clinical examination, there was mild pallor and mild tenderness in the left flank. There was no palpable superficial lymph node. The results of his routine hematological and biochemical examinations were within normal limits. Contrast-enhanced computed tomography (CECT) scan revealed a solitary heterogeneously enhancing well-delineated mass with a small area of cystic change in the upper pole of the left kidney without any noticeable infiltration of adjacent organ. Retroperitoneal lymph nodes did not appear to be enlarged on CECT. There was no feature of associated hydronephrosis or calculi. Further, no distant metastases were appreciated on CECT chest or bone scan. He underwent a left total nephrectomy without any significant post-operative complication.

On gross examination, the mass was well-circumscribed having two distinct parts separated by intact fibrous
capsule. The larger solid part of the mass was yellow to reddish measuring 4.5 cm × 3.8 cm × 3.5 cm confined to the cortical region of the upper pole of the kidney. Small areas of hemorrhage were noted in this area. The relatively smaller spongy multicystic part consisting of thin-walled translucent small to intermediate sized cystic structures containing clear serous fluid measuring 2.4 cm × 2.2 cm × 1.8 cm was restricted in the cortical region and corticomedullary junctional region. No solid components or hemorrhagic or necrotic areas were identified in this part. The whole mass was confined to the kidney. No renal capsule penetration or vascular invasion was appreciated macroscopically.

On histopathological examinations, the larger mass displayed solid nests of cells with abundant clear cytoplasm having well-demarcated distinct cell borders and hyperchromatic nuclei with inconspicuous nucleoli (Furhman nuclear grade 2) separated by a network of small thin walled capillaries. Nuclear pleomorphism was mild and noticed at places. Sarcomatoidoid features could not be appreciated in the sections. This part of the mass was clearly separated from smaller spongy part and from kidney tissue by distinct boundary [Figure 1a and b]. The smaller spongy lesion revealed an unencapsulated circumscribed mass composed of small to intermediate sized tubules with areas of cystic dilatation, dispersed evenly in a bland hypocellular fibrotic stroma [Figure 2a]. The tubules and cysts were lined by a single layer of flat, cuboidal to columnar epithelial cells with abundant eosinophilic or amphophilic cytoplasm, slightly irregular nuclear membranes and inconspicuous nucleoli (Fuhrman nuclear grade was 2). Cells also displayed focal hobnail configuration [Figure 2b]. No necrosis was seen and mitotic figures were extremely rare. There was no stratification or papillary configuration in the lining epithelial cells of the tubules and cysts. No areas displayed solid growth. Desmoplastic reaction or cellular ovarian like stroma was not appreciated in any part of the slides. The lesion also lacked the lymphovascular involvement, tumor necrosis, renal vein or adrenal involvement. Finally, the case was diagnosed as co-occurrence of TC-RCC and CC-RCC, Fuhrman nuclear grade 2, Stage T1bN0M0. The patient did not receive any adjuvant therapy and was alive and doing well after 3, 6 and 12 months of surgical resection with no evidence of recurrence or metastasis.

**DISCUSSION**

The histological features of the high-grade collecting duct carcinoma (CDC) of the kidney with hobnail cells occurring in the central region of the kidney were described for the 1st time in 1956 by Pierre Masson as “Bellinian epithelioma” or “carcinoma of Bellini (collecting) duct.”[1] The neoplasm which is distinctly different from classic CDC in many ways, was described as “low-grade CDC” by MacLennan et al. in 1997.[2] In 2004, Amin et al. coined the term “TC carcinoma of the kidney” based on its characteristic morphology.[3] The term should not be used in situations in which there is a TC pattern admixed with the usual elements of P-RCC or CDC.[2]

The major differential diagnosis of TC-RCC includes cystic nephroma, multilocular cystic RCC, oncocytoma with prominent tubules and cysts and mixed epithelial and stromal tumor of the kidney and lastly the CDC which is characterized by aggressive behavior and highly infiltrative growth pattern.[4,5,6] Interestingly, there were neither discriminating immunohistochemical markers nor conclusive evidence to identify a specific lineage of histogenesis for TC-RCC. The distinctive morphologic features of these tumors are enough for the diagnostic purposes.[7] The distinctive clinicoradiological features, typical gross and microscopic features supported the diagnosis in the present case.

TC-RCC appears to have a favorable prognosis and presents at the lower stage with very few reports of local recurrence or metastatic disease.[3] Further future evaluation of more cases is necessary for better understanding of the biology of this neoplasm and to ascertain its prognosis.

**REFERENCES**


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