Synchronous ipsilateral transitional cell and papillary renal cell carcinomas

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Abstract

Introduction

The coexistence of renal cell carcinoma and urothelial carcinoma of renal pelvis or ureter has rarely been described in literature. This paper discusses synchronous ipsilateral transitional cell and papillary renal cell carcinomas.

Case report

We present a case of a 69-year-old male who was admitted in Mansoura Urology and Nephrology Centre with a history of loin pain and occasional haematuria confirmed to be transitional cell carcinoma combined with papillary renal cell carcinoma.

Conclusion

In more than 31 years, this was the first reported case of synchronous renal tumour in Mansoura Urology and Nephrology Centre, Mansoura University, Egypt.

Introduction

Renal cell carcinoma (RCC) is the most common adult renal epithelial cancer, accounting for more than 90% of all renal malignancies1. Primary transitional cell carcinoma (TCC) of the renal pelvis or ureter is a relatively rare disease. It accounts for <1% of genitourinary neoplasms and 5%–7% of all urinary tract tumors2. The coexistence of RCC and TCC of renal pelvis or ureter is uncommon3. According to Choi et al4, 26 cases of synchronous renal carcinoma and TCC are reported in the literature. This paper discussed the first case of synchronous papillary RCC and pelvic TCC managed in Mansoura Urology and Nephrology Center.

Case report

A 69-year-old man presented with left loin pain and occasional total haematuria for 6 months prior to admission in the Urology and Nephrology Center. A palpable left renal mass was the main finding on his physical examination. Laboratory tests were unremarkable, except for the high serum creatinine (1.7 mg/dl). Serum total prostatic specific antigen was also elevated (8.7 ng/ml). Transrectal ultrasound and biopsy confirmed benign prostate enlargement. An abdominal computerized tomography scan (CT) revealed a large renal mass, about 15 cm in diameter. This mass occupied most of the lower and middle zones of the left kidney and was compressing the descending colon and sigmoid colon. No enlarged hilar or regional lymph nodes were detected. The other kidney showed no abnormalities.

On cystoscopy, there was no associated bladder tumour, and bone scan showed no evidence of metastasis. The patient had left radical nephrectomy via supracostal (above the eleventh rib) approach. On exploration, no visibly enlarged lymph nodes were detected. Liver surface was normal with no metastasis. There was a large renal mass attached to the transverse mesocolon and the descending colon was stretched and attached to the anterior surface of the kidney. Dissection of the kidney with its covering perirenal fascia was performed. Ligation of a single hilar renal artery was performed followed by the vein. The wound was closed in layers with suitable drain, and the post-operative period was uneventful. He was discharged in good condition 5 days after the surgery. No post-operative chemotherapy was administered. This patient will be followed up with abdominal CT, complete blood count, cystoscopy, urine cytology and prostate specific antigen assay every 3 months.

Macroscopically, the kidney was enlarged with irregular surface but with an intact capsule. The cross section revealed two morphologically distinct masses (Figure 1). The first mass was a well-demarcated large mass, which measured 8×8×6 cm and occupied the middle and lower poles. The mass was firm in consistency and light brown in colour. The second mass was a greyish-white papillary tumour measuring 2×1×1 cm and occupied the middle calyx. The adjacent renal tissue, renal vein, renal capsule and the ureter appeared normal. Microscopically, the brownish tumour showed type I papillary RCC, Fuhrman grade 1, with no vascular/renal capsular/perinephric fat invasion (pT2, Nx, Mx) (Figure 2). The papillary tumour in the calyx showed grade II papillary TCC, infiltrating the subepithelial layer of the renal pelvis (pT1, Nx, Mx) (Figure 3). The ureter showed no evidence of malignancy. There was no area of transition between these dissimilar tumours.

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Case report

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Figure 1: (a) Radical nephrectomy specimen demonstrating synchronous pelvic urothelial carcinoma (white arrow) and RCC (green arrow). (b) The TCC involving middle calyx (white arrow).

Figure 2: (a) Type I papillary RCC, with area of necrosis (H&E, 100×); (b and c) Type I papillary RCC, Fuhrman grade 1 with foamy macrophages within the core of the papillary structure (H&E, 400×).

Discussion

Rare cases of synchronous ipsilateral TCC of the renal pelvis and RCC have been reported in literature. The first report was by Graves and Templeton in 1921 and the most recent, to our knowledge, was by Choi et al. in 2009. Those patients were predominantly male (at a 2:1 ratio) with an average age of 65 years, and had haematuria at initial presentation (90%) with a left-side trend (at a 3:1 ratio). Out of 1806 radical nephrectomies performed so far in our Urology and Nephrology Center since inception in 1981, this was the first case of synchronous TCC and RCC in the same kidney.

von Eschenbach et al. reviewed more than 700 cases of RCC over a 30-year period at M.D. Anderson Centre, Houston, Texas, identifying only a single case of synchronous development of TCC and RCC in the same kidney (0.14%). These combined tumours had no tendency towards a specific histologic pattern of RCC compared with cases with a single type of tumour. The histological type of papillary RCC in this case is similar to cases reported by Yokohama et al. and Guarin et al. Contrarily, other combinations have also been reported. Ke et al. and Saavedra-Briones et al. reported synchronous clear RCC and TCC, while synchronous chromophobe RCC and TCC was reported by Choi et al. The renal pelvic tumour in this report was a low-grade TCC, which is similar to the observation by Gómez-García et al., who reported that the majority of patients with synchronous TCC and RCC present low-grade transitional tumours though cases of high-grade tumours have also been described.

The prognosis for a patient with dual malignancies is likely most influenced by the more aggressive of the two tumours. In this case, the RCC was in stage II, which translates
into a 5-year survival rate in more than 75%. The renal pelvis TCC was grade II tumour and pT1N0M0 (Stage 1), therefore the 5 year survival rate is 60%–90%. The prognosis in this case is expected to be good after radical nephro-ureterectomy.

**Conclusion**

This report showed that synchronous renal tumour is rare. This is the first report of its kind in over three decades at Mansoura Urology and Nephrology Center, Mansoura University, Egypt.

**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.

**References**