Double jeopardy? Renal-sparing management of simultaneous ipsilateral renal cell carcinoma and urothelial carcinoma

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Abstract

The occurrence of renal cell carcinoma (RCC) and urothelial carcinoma (UC) synchronously in the same kidney is exceedingly rare. All reported cases have been managed with either nephroureterectomy or nephrectomy. We report on a patient who required renal-sparing management of his double malignancy, including open partial nephrectomy of his pT1a RCC and endoscopic laser ablation of his low-grade Ta renal pelvis UC. After 4 years, the patient is in good health and disease-free under strict surveillance. It, therefore, would appear justified to combine partial nephrectomy for RCC and endoscopic management of UC in the same kidney of an appropriately selected patient.

Introduction

Nephron-sparing surgery has become the standard treatment for small renal masses (<4 cm),[1] although it is still considered an underused procedure. Endoscopic management of low-grade, non-invasive urothelial carcinoma (UC) of the renal pelvis is not new, but is not as commonly practiced as nephron-sparing surgery for renal cell carcinoma (RCC). This is likely due to the uncertainty of biopsy of these lesions, and the technical challenges of ensuring complete tumour ablation. Nonetheless, both strategies are critical for preserving renal function and mitigating long-term risks of subclinical chronic renal insufficiency. We report on a patient who required renal sparing for both UC and RCC.

Case report

A healthy 63-year-old male with a body mass index of 27.3 and a 40-pack/year smoking history was found to have a left lower pole, 2.5-cm heterogeneous solid echogenic mass on abdominal ultrasound performed for follow-up of previous renal calculi. Abdominal computed tomography (CT) showed that the solid endophytic heterogeneous mass was enhancing (Fig. 1). Biopsy confirmed Fuhrman nuclear grade I/IV clear cell RCC. He had no gross hematuria or other symptoms. His serum creatinine was 61 µmol/L and his estimated glomerular filtration rate (eGFR) was 119 mL/min. The patient was counselled on the various treatment options for this lesion, including percutaneous ablation and partial nephrectomy. He chose to undergo active surveillance for the mass on clinical trial.

On abdominal CT scan 6 months after the initial diagnosis, the patient was found to have a 20 × 7 × 12-mm filling defect in the left renal pelvis and lower pole calyx (Fig. 2). Retrograde pyelogram confirmed the filling defect. Upper tract cytology was non-diagnostic, but suspicious for low-grade UC. Laparoscopic nephroureterectomy was offered to the patient, but he adamantly preferred renal preservation, and he elected to have endoscopic Holmium laser ablation of the lesion. Biopsy confirmed low-grade non-invasive (Ta) UC. Three months later, a small residuum was ablated on second look ureteroscopy. The patient was subsequently disease-free on surveillance ureteroscopy for 20 months. He required repeat ablation for a tiny papillary growth in the left renal pelvis after this time, and has been disease-free for 5 months since then under surveillance ureteroscopy.

After 20 months of active surveillance of the small renal mass, it showed steady growth in 4- to 6-month intervals from 2.5 cm to 3.0 cm to 3.3 cm to 3.6 cm with no evidence of venous extension, lymphadenopathy or metastasis (Fig. 3). Surveillance was deemed no longer appropriate. He underwent open left partial nephrectomy without complication. The organ-confined 3.5-cm Fuhrman nuclear grade III/IV clear cell RCC was resected with negative margins.

More 4 years after detection of the original renal mass, the patient is healthy and being followed with regular surveillance ureteroscopy. His serum creatinine is 72 µmol/L (eGFR 95).

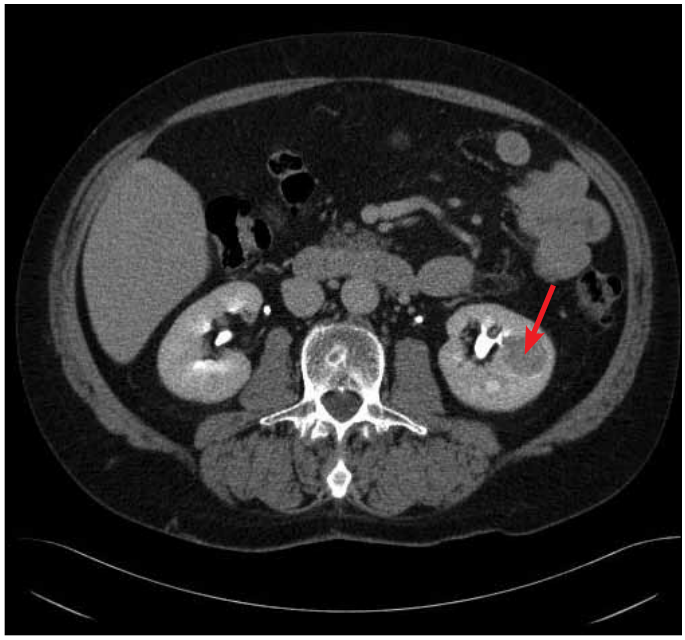

Fig. 1. Contrast-enhanced axial abdominal computed tomography scan: A 2.5-cm left lower pole renal mass is shown best on the delayed phase (arrow).

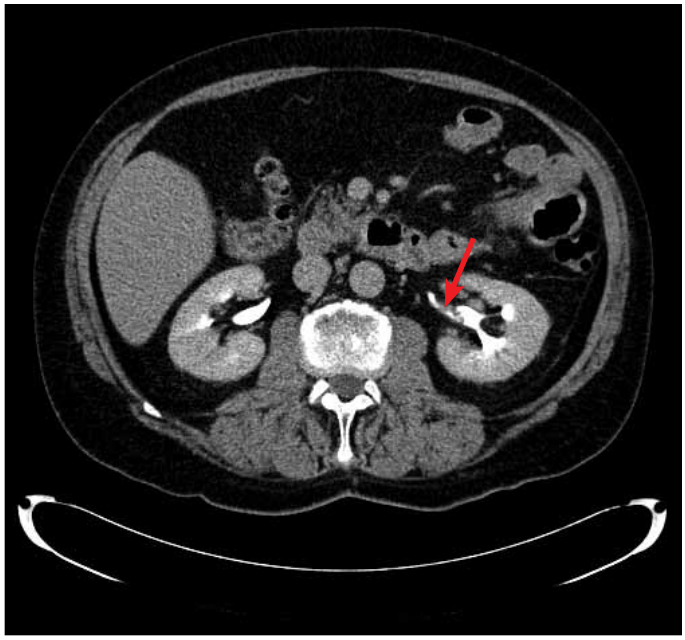

Fig. 2. Contrast-enhanced axial abdominal computed tomography scan: On the delayed phase, a new 20×7×12-mm filling defect in left renal pelvis is shown (arrow).

Discussion

The occurrence of RCC and UC synchronously in the same kidney is exceedingly rare. In a review, 24% of patients with synchronous ipsilateral RCC and UC were smokers.[2] There are about 100 cases reported in the English, Spanish, Japanese and Korean literature.[2-8] None of them were managed with organ preservation. Rather, radical nephroureterectomy or nephrectomy was performed for definitive treatment. Respecting our patient's strong desire for renal preservation, his 2 cancers were treated as separate entities according to current guidelines, including endoscopic laser ablation of his low-grade Ta renal pelvis UC and open partial nephrectomy of his pT1a RCC.

There is no question that a partial nephrectomy has become a standard to manage small renal masses,[1] especially when considering that this surgery was performed before publication of the European Organization for Research and Treatment of Cancer (EORTC) randomized trial that demonstrated a benefit of radical over partial nephrectomy.[9] Even with the controversial results of the EORTC trial, nephron preservation continues to be a major focus of RCC management to preserve renal function and avoid the long-term detrimental effects on cardiovascular health.[10,11]

Endoscopic management of UC is less well-established. There are fewer reports and it does not appear to have been adopted as widely, but it is likely an underused technique.[12] The gold standard for the management of upper tract UC is radical nephroureterectomy with bladder cuff removal,[13] but this is almost certainly over-treatment of patients with small, biopsy-proven low grade UC. Conservative surgery, including ureteroscopy and laser ablation, has shown a similar 5-year disease-specific survival rate compared to nephroureterectomy,[14] although there is likely an increased risk of recurrence,[15] which necessitates long-term and stringent surveillance. Therefore, the 2009 European Association of Urology (EAU) guidelines suggest that conservative man-

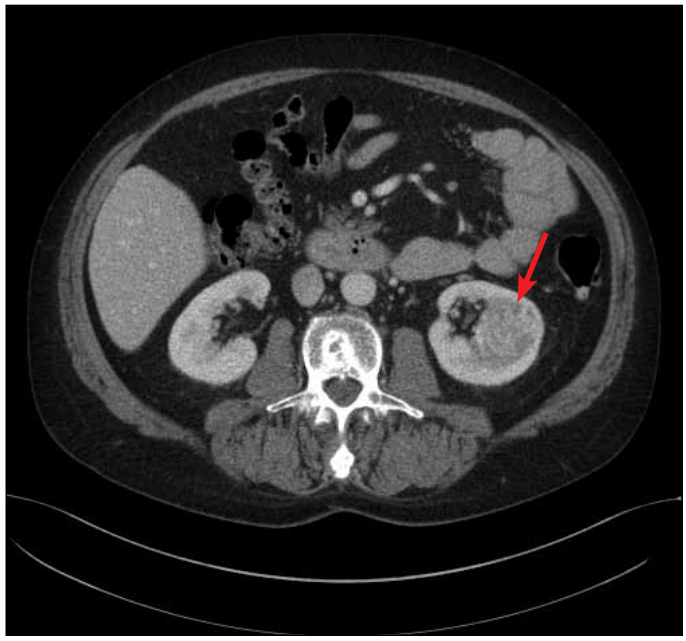

Fig. 3. Contrast-enhanced axial abdominal computed tomography scan: A 3.6-cm left lower pole renal mass is shown (arrow).

agement may be considered when the tumour is unifocal, small, low grade with no evidence of an infiltrative lesion on CT urography and the patient has an understanding of close follow-up.[16]

It therefore would appear justified to combine partial nephrectomy for RCC and endoscopic management of UC in an appropriately selected patient.

Conclusion

RCC and UC occurring synchronously in the same kidney is exceedingly rare. We present a case which was managed with partial nephrectomy for the RCC and endoscopic Holmium laser ablation of the low-grade papillary UC. We believe that it is justified to proceed in this fashion provided both lesions alone would be suitable for renal-preserving surgery, and provided that the patient is willing to accept the necessary surveillance and the inherent increased risk of recurrence related to the UC.

Competing interests: None declared.

This paper has been peer-reviewed.

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