Urology Case Reports 32 (2020) 101267

Contents lists available at ScienceDirect

Urology Case Reports

journal homepage: http://www.elsevier.com/locate/eucr

Oncology

Case of renal cell carcinoma associated with synchronous contralateral renal pelvic cancer and bladder cancer

Chawin Sukapiriya [a,*], Chanyoot Bandidwattanawong [b]

[a] Department of Surgery, Bangkok Metropolitan Administration General Hospital, Bangkok, Thailand
[b] Department of Medicine, Vajira Hospital, Navamindradhiraj University, Bangkok, Thailand

A B S T R A C T

Synchronous double primary RCC and TCC of the renal pelvis and bladder are extremely uncommon. Proper management is a medical dilemma, and no standard treatment strategy has been agreed upon for this rare situation. Our case involved a large mass in the right kidney and multiple masses in the left renal pelvis, ureter, and bladder. Aggressive management was adopted, including multiagent neoadjuvant chemotherapy, cystectomy and nephroureterectomy, which resulted in an excellent outcome, although our patient will require life-long hemodialysis.

Introduction

Synchronous renal cell carcinoma (RCC) and transitional cell carcinoma (TCC) occur relatively uncommonly. Although RCC and TCC share the same common risk factors, such as smoking, double primary malignancies are rarely reported. Field cancerization due to chronic exposure to tobacco fumes is the accepted explanation of both synchronous and metachronous malignant tumors. We herein report a case of synchronous RCC and TCC with details of the histopathology, treatment, and outcome.

Case report

A 67-year-old man presented with intermittent gross hematuria that he had experienced for three years. Three years ago, when he first recognized there was an issue, he visited a university hospital in Bangkok for medical attention. A CT scan at the time revealed a right renal mass, severe left hydronephrosis, and a polypoid mass within the urinary bladder. He underwent left percutaneous nephrostomy and transurethral resection of the bladder tumor. The pathological results demonstrated low-grade noninvasive papillary TCC. The presumptive diagnosis at that moment was concomitant TCC in the bladder and left ureter with RCC in the right kidney. The patient refused radical surgery and agreed to only supportive treatment, including changing his nephrostomy catheter every three months and intermittent bladder irrigation when gross hematuria occurred. A year later, he developed dysuria and hematuria and received multiple courses of antibiotics, presumably due to chronic pyelonephritis. He was still remarkably in good condition. In addition to moderate anemia, blood chemistries were otherwise unremarkable. A CT scan of the abdomen with contrast showed an enlarged mass of approximately 6.5 × 6.1 × 7.4 cm at the lower pole of right kidney, a heterogenous soft tissue lesion in the superior aspect of the renal pelvis that was 2.7*2.1 cm in size with perilesional fat stranding, an abnormal tortuously dilated left ureter with soft tissue thickening at its distal part and multiple masses within the urinary bladder with perivesical fat stranding (Fig. 1). A CT scan of the chest was unremarkable. A diuretic renogram revealed that the MAG 3 clearance of the left and right kidney were 5.479 and 113.5 ml/min, respectively. A cystoscopy examination was performed and revealed multiple large friable masses within the urinary bladder. The patient's care was discussed by a multi-disciplinary care team (MDT). The team agreed on the fact that the large masses in both the bladder and renal pelvis were not amenable to surgery with curative intent. The patient received four cycles of neoadjuvant methotrexate, vinblastine, doxorubicin, and cisplatin (MVAC) and was later sent to consider radical surgery. Four months after the first course of chemotherapy was started, the follow-up CT scan showed that the masses in both the left renal pelvis and urinary bladder had regressed. Aggressive transabdominal surgery, including right radical nephrectomy, left total nephroureterectomy and radical cystectomy, was performed. The pathological report revealed the following findings: 1) a well-circumscribed yellowish mass with hemorrhage and necrosis measuring 8 × 7.5 × 6.5 cm located in the lower pole of the right kidney, histologically consistent with grade 3 ***clear cell renal cell carcinoma*** with a 4-mm perinephric soft tissue margin; 2) a

* Corresponding author. Department of Surgery, Bangkok Metropolitan Administration General Hospital, 514 Luang Rd, Pom Prap, Pom Prap Sattru Phai, Bangkok, 10100, Thailand.
E-mail address: chawin100@hotmail.com (C. Sukapiriya).

https://doi.org/10.1016/j.eucr.2020.101267
Received 7 May 2020; Received in revised form 17 May 2020; Accepted 18 May 2020
Available online 19 May 2020
2214-4420/© 2020 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

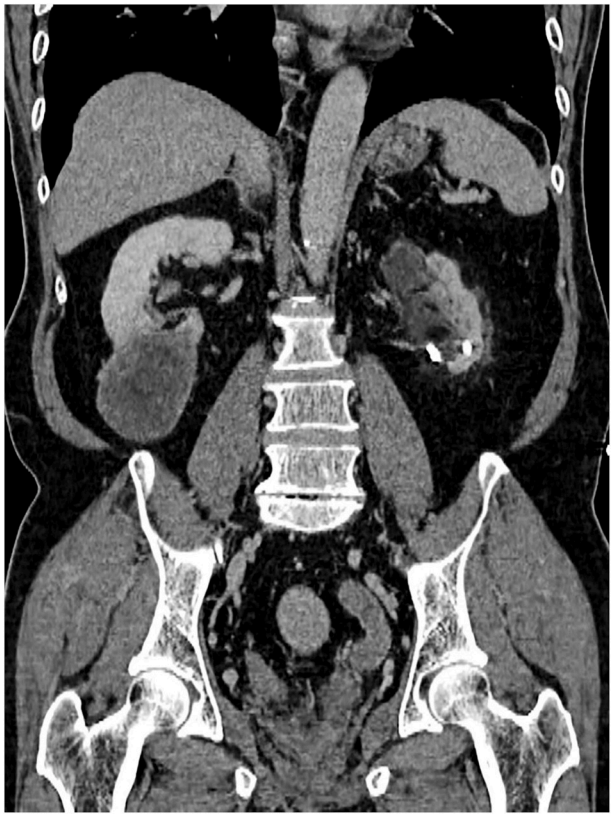

Fig. 1. Coronal CT image showed heterogenous mass at Right lower pole of kidney and heterogenous soft tissue lesion in the renal pelvis with perilesional fat stranding.

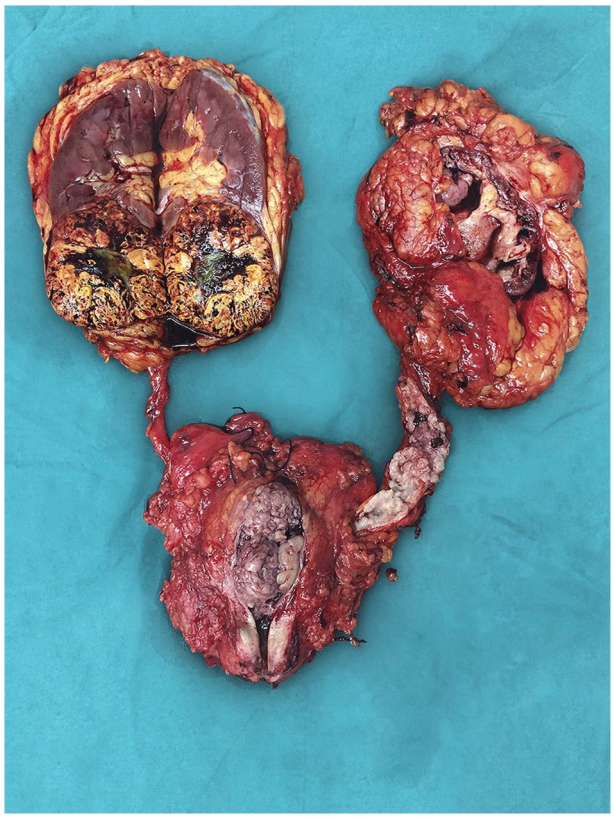

Fig. 2. The specimen shows well-demarcated golden yellow mass with central hemorrhage located at middle and lower pole of right kidney. Note an ill-defined exophytic tumor involving left renal calyx extending into the left ureter and urinary bladder. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

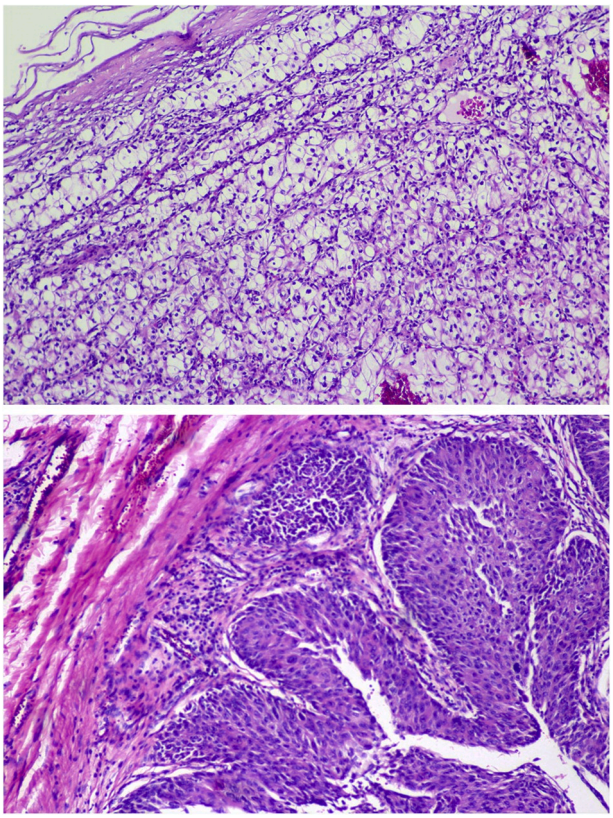

Fig. 3. Upper-clear cell carcinoma-Showing sheet of malignant polygonal shape cells with conspicuous nucleoli and clear cytoplasm (hematoxylin-eosin, original magnification×100). Lower -carcinomatous urothelial cells invading into the muscular layer (hematoxylin-eosin, original magnification×100).

tan brown polypoid mass within the left renal pelvis invading the entire left kidney and extending into perinephric fat, histologically consistent with muscle-invasive ***urothelial carcinoma*** without lymph node metastasis; and 3) multiple soft tissue masses occupying nearly the entire bladder wall, which were histologically consistent with muscle-invasive ***urothelial carcinoma*** without lymphovascular invasion (Figs. 2 and 3). After the operation, he underwent hemodialysis. Currently, he attends regular medical visits, requires regular hemodialysis and is still disease-free.

Discussion

Synchronous double primary cancers of both RCC and TCC of both the renal pelvis and bladder are extremely uncommon. According to the literature review, we found only 10 cases. For instance, Villegas[1] reported two autopsy cases, while Gillis et al.[2] were the first to report RCC with contralateral renal pelvic cancer in living patients. Proper management is a medical dilemma, and no standard treatment strategy has been agreed upon for this uncommon situation.

According to prior case reports, TCC is usually treated with total nephroureterectomy. However, treatment for RCC varies from more invasive, such as radical or partial nephrectomy, to less invasive, such as tumor enucleation, embolization, or even active surveillance depending on the size, site and degree of aggressiveness of the tumor. Ando et al.[3] also reported the additional use of postoperative chemotherapy for such synchronous double primary cancers. Another case reported by Soda et al..[4] involved RCC in the right kidney and contralateral synchronous TCC in the left renal pelvis and bladder.

Our case was involved synchronous double primary cancers, similar to the case presented by Soda. The management of TCC was primarily considered due to its more aggressive nature. According to Leow JJ et al.,[5] neoadjuvant chemotherapy with a platinum-based regimen for upper tract TCC led to favorable pathologic downstaging rates with benefits regarding overall survival. In addition, radical surgery in this case would result in permanent kidney loss, and the adjuvant chemotherapy dose may be have been too low and compromised the survival outcome since an adjusted dose was required after hemodialysis.

Fortunately, after four cycles of neoadjuvant MVAC, the size of the tumor shrank dramatically. The patient underwent bilateral radical nephrectomy and radical cystectomy with an uneventful postoperative recovery. Currently, he remains alive and depends on regular hemodialysis.

Conclusion

We presented an interesting case of right RCC and urothelial carcinoma of the left renal pelvis and bladder. Aggressive management includes multiagent neoadjuvant chemotherapy, cystectomy and nephroureterectomy, which resulted in an excellent outcome, even though our patient requires life-long hemodialysis.

Declaration of competing interest

No.

Acknowledgements

Jintavalee Srisomboon, Phanop Limlunjakorn, Suebpong Angchoun

References

1. Villegas AC. Bilateral primary malignant renal tumors of dissimilar histogenesis: report of 2 cases and review of the literature. *J Urol*. 1967;98:450–455.
2. Gillis DJ, Finnerty P, Maxted WC. Simultaneous occurrence of hypernephroma and transitional cell carcinoma with development of transitional cell carcinoma in the opposite kidney: case report. *J Urol*. 1971;106:646–647.
3. Ando M, Arisawa C, Okano T. A case of renal cell carcinoma associated with synchronous contralateral renal pelvic cancer and bladder tumor. *Int J Urol*. 1996;3:310–312.
4. Soda T, Nishimura K, Kobayashi Y, et al. A case of synchronous contralateral renal cell carcinoma and urothelial carcinoma. *Hinyokika Kiyo*. 2009;55:491–494.
5. Leow JJ, Martin-Doyle W, Fay AP, Choueiri TK, Chang SL, Bellmunt J. A systematic review and meta-analysis of adjuvant and neoadjuvant chemotherapy for upper tract urothelial carcinoma. *Eur Urol*. 2014;66:529–541.