Urology Case Reports 37 (2021) 101601

Contents lists available at ScienceDirect

Urology Case Reports

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

Oncology

The first case report of synchronous primary papillary type 2 renal cell carcinoma of kidney and transitional cell carcinoma of bladder

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ARTICLE INFO

Keywords:
Papillary renal cell carcinoma type 2
Synchronous tumor
Transitional cell carcinoma of bladder

ABSTRACT

Synchronous presentation of Multiple Primary Malignant neoplasms in genitourinary system is not a common event. Absolute majority of reported cases are concurrent outbreak of clear cell type renal cell carcinoma in the kidney and transitional cell carcinoma in ipsilateral renal pelvic. We reported concurrent presenting of two separate primary malignancies, urothelial cell carcinoma of bladder and papillary renal cell carcinoma Type 2 in kidney in a 59-year-old man for the first time.

Introduction

Multiple primary malignant tumors (MPMTs) are rare event which was described by Theodore Billroth in 1839 for the first time but diagnostic criteria were explained many years later. Till 2015, about 50 cases of synchronous renal cell carcinoma (RCC) and pyelocalyceal transitional cell carcinoma (TCC) in ipsilateral or contra lateral kidney was reported(1).Diagnosis of concurrent different malignancies in two organs of one system like bladder and kidney is rather rare than existence of them in one organ so management of these patients is complicated.

In the vast majority of reported cases the type of RCCs are clear cell and there is no report of papillary type 2 RCC except for our case.

Case report

A 59- year old man referred to our center with complaint of intermittent attacks of gross hematuria during the past three years and irritant lower urinary tract symptoms like dysuria, frequency and urgency. He was treated with ciprofloxacin because of bacterial cystitis in the last year and was never assessed for hematuria. He was a heavy smoker (30 pack/year) and opium addict. After correction of anemia, computed tomography imaging with intra venous contrast injection revealed a large (76 × 68 millimeters) enhanced solid-cystic mass (Bosniak IV) in lower pole of right kidney with extension to middle part and hilum of kidney and also there was another 49 × 37 millimeters enhanced tumor in anterior wall and dome of bladder (Fig. 1).

Since one of the most important differential diagnosis of renal mass was urothelial cell carcinoma in upper tract, at first step right ureteroscopy was done and no tumor was seen in right ureter, then urine sample of right kidney after catheterization was send for cytopathologic assessment and was normal with no evidence of malignant epithelial cell, then Trans urethral resection of bladder tumor (TURBT) was done and histopathology finding was high grade papillary urothelial cell carcinoma (TCC,T1NxMx) (Fig. 2).

Three weeks later re-TURBT confirmed the same diagnosis. Because of the size and location of the high grade tumor in the bladder, early cystectomy was the best option for him but he abstained from the surgery so, he was scheduled for only radical nephrectomy, paracaval and para hillar lymphadenectomy via an open inter costal flank extra peritoneal approach. Then patient was candidate for loading and maintenance dose of intravesical Bacille Calmette-Guérin (BCG) therapy. Histopathology and immunohistochemistry assessment revealed papillary renal cell carcinoma type 2 (Fig. 3).

Immunostain: the tumor cells were positive with EMA, AMACR and CD10, and negative with CK7.

During fifteen months closed observation and follow up of this patient there is no evidence of recurrence or metastasis of each kind of malignancies.

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https://doi.org/10.1016/j.eucr.2021.101601
Received 30 January 2021; Accepted 9 February 2021
Available online 11 February 2021

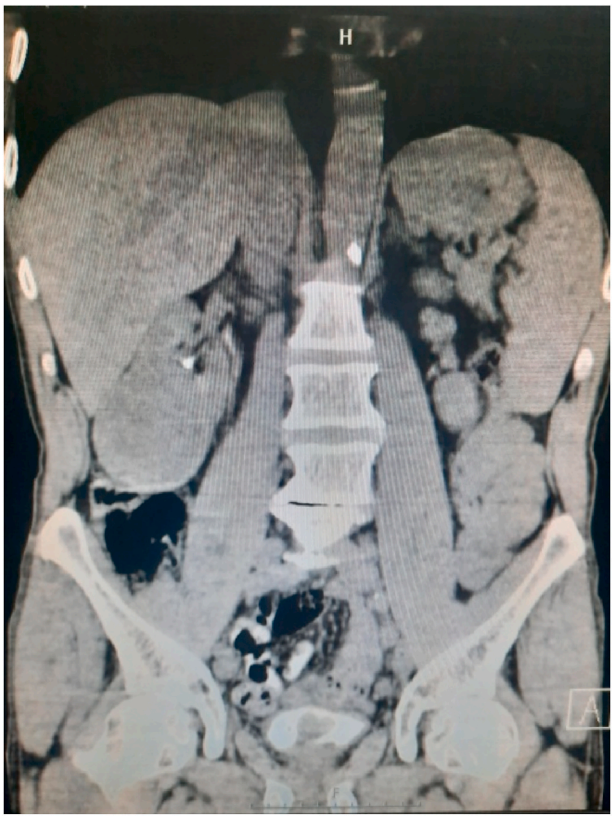

Fig. 1. Simultaneous mass in the bladder and lower pole of right kidney.

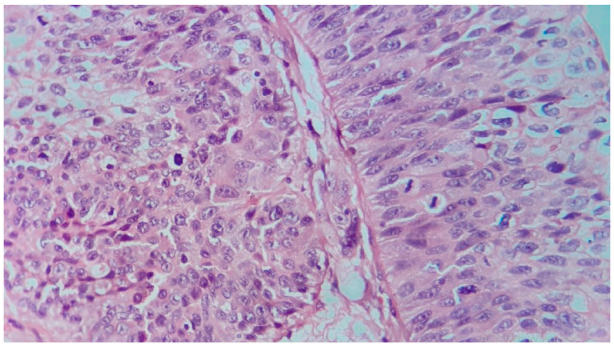

Fig. 2. Urothelial carcinoma. High magnification (×400) of Invasive high grade urothelial carcinoma with frequent mitotic figures.

Discussion

RCC and TCC are the most common forms of kidney and bladder cancer respectively, but synchronous malignancy of kidney and bladder is extremely rare.[1]

Most of previous case reports of MPMTs were synchronous RCC and upper tract TCC and amongst them clear cell RCC were more common but Based on our literature review only two cases of primary synchronous papillary RCC of kidney and TCC of bladder were reported that both of them were papillary type 1,[2] but we reported synchronous primary papillary type 2 RCC of kidney and TCC of bladder for the first time.

The chief complaint of these patients is not different from solitary RCC or TCC and gross hematuria (GH) is the most common symptom[1] like our case so we should consider upper tract evaluation in patients with GH even if the bladder tumor is found in the initial work ups.

The most acceptable theory for explaining synchronous urogenital

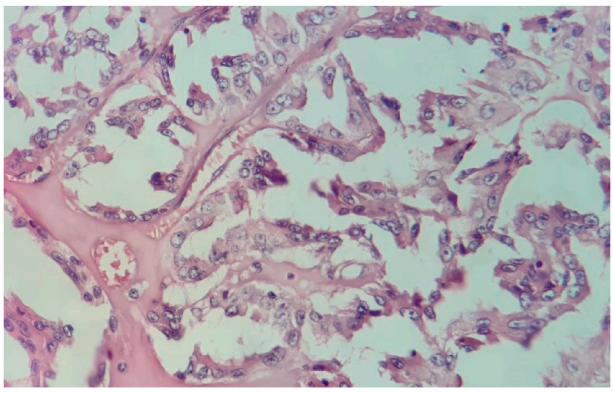

Fig. 3. Papillary renal cell carcinoma, high magnification (×400). The papillae are lined by pseudostratified layers of cells with eosinophilic cytoplasm and high nuclear grade.

system malignancies is based on similar risk factors of these malignancies like cigarette smoking. It is proven that carcinogenic agents in tobacco smoke induced down regulation of tumor suppression genes (e.g. p53) and mutation in cellular markers of proliferation (e.g. Ki67) and also methylation of apoptotic protease activating factor-1 gene[3] that all of these changes can cause RCC of kidney and TCC of bladder so the first step for prevention and treatment of these cancers is smoking cessation.

Management of these patients is different based on size, location and grade of tumors. The treatment of RCC is partial or radical nephrectomy and the treatment of choice for upper tract TCC is radical nephroureterectomy with lymphadenectomy but the treatment of bladder TCC is different from radical cystectomy to TURBT and BCG therapy.[4]

Most of these patients had multiple underlying disease and their cardiopulmonary health were compromised and also many of them did not consent to extensive operation, so surgeons should choose minimally invasive methods with better outcomes. In these situations complete work ups to finding metastasis or malignancies in other sites of genitourinary system should be done and after that the treatment method should be chosen, like our case that after performing ureteroscopy and sending cytology sample from the ureter and ensure the absence of tumor in the ureter and pelvis, instead of distal ureterectomy and radical cystectomy, radical TURBT and BCG therapy was chosen for him and in one year follow up, he did not developed with any recurrence.

On the other hand, Past studies have not proven a worse prognosis for synchronous malignancies,[5] so we can choose minimally invasive methods for these patients without deteriorating the outcomes.

In conclusion it is important to say that complete work up of patients who developed with GH is necessary but extensive surgical treatment may be not necessary.

Ethics approval and consent to participate

The ethical committees of the Shaheed Beheshti University of Medical Sciences approved this study and permitted us to review patients' medical data.

Consent for publication

Verbal consent was obtained from the patient.

Availability of data and material

None.

Funding

None.

Author contribution

AAD: Conception and design, Critical revision of the manuscript for important intellectual content, Supervision.

AM: Administrative, technical or material support, Supervision.

HR: Acquisition of data, Drafting of the manuscript.

AR: Conception and design, Critical revision of the manuscript for important intellectual content, Administrative, technical or material support Supervision.

All authors have read and approved the manuscript.

Declaration of competing interest

None.

Acknowledgements

We thank the help of all the members of the department of urology and our hospital.

References

1. Fernández Arjona M, Santos Arrontes D, De Castro Barbosa F, Begara Morillas F, Cortes Aranguez I, González L. [Synchronous renal clear-cell carcinoma and ipsilateral transitional-cell carcinoma: case report and bibliographic review]. *Arch Esp Urol*. 2005;58(5):460–463.
2. Qi N, Chen Y, Gong K, Li H. Concurrent renal cell carcinoma and urothelial carcinoma: long-term follow-up study of 27 cases. *World J Surg Oncol*. 2018;16(1):16.
3. Christoph F, Kempkensteffen C, Weikert S, et al. Methylation of tumour suppressor genes APAF-1 and DAPK-1 and in vitro effects of demethylating agents in bladder and kidney cancer. *Br J Canc*. 2006;95(12):1701–1707.
4. Michel K, Belldegrun A. Synchronous RCC and TCC of the kidney in a patient with multiple recurrent bladder tumors. *Rev Urol*. 1999;1(2):99–103.
5. Lee JW, Kim MJ, Song JH, Kim JH, Kim JM. Ipsilateral synchronous renal cell carcinoma and transitional cell carcinoma. *J Kor Med Sci*. 1994;9(6):466–470.