

## Renal Autotransplantation in Metachronous Solitary Contralateral Ureteral Metastasis from Renal Cell Carcinoma: A Case Report

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**Keywords:** Renal cell carcinoma; ureteral metastasis; kidney autotransplantation.

Ureteral metastasis of renal cell carcinoma (RCC) is rare and usually confined to the ipsilateral ureter. In literature, about 50 cases have been reported so far. Of these, only 14 metastasized metachronously to the contralateral ureter. A seventy-one-year-old man was hospitalized with recurrent painless severe haematuria. Seven years previously, he had undergone radical nephrectomy of the right kidney due to a clearcell renal cell carcinoma (cRCC), Fuhrman grad 2. Intravenous urography and a retrograde ureterogram revealed a filling defect (25 mm) in the left distal ureter, which we expected to be an urothelial carcinoma. Biopsy was not possible, due to ureteral stricture. Diagnostic workup revealed no other sites of metastasis. To preserve kidney function and quality of life we refrained from performing nephroureterectomy and opted for an autotransplantation of the solitary left kidney with ureteral reimplantation in the bladder. We resected the ureter and histopathological examination showed a metastasis of cRCC, Fuhrman grade 2.

Postoperatively, the patient developed an acute postrenal failure, hence a nephrostomy and a bladder catheterization were performed. After this, the patient improved significantly and the drains could be removed. Currently the patient is free of complaints.

The residual and contralateral ureter is a potential metastatic site after RCC. Autotransplantation is an option for surgical treatment.

### INTRODUCTION

After nephrectomy due to localized Renal cell carcinoma (RCC), up to 40% of patients will develop metastatic or locally recurring disease<sup>(1)</sup>. The metastatic spread to the urinary tract, especially to the ureter, is a rare event and about 50 cases were published in literature before. Of these cases, only 14 patients showed a metachronous metastasis to the contralateral ureter<sup>(2-7)</sup>. We herein report a seldom clinical finding of a metachronous solitary contralateral ureteral RCC metastasis and an alternative and so far unique approach of surgical management: re-



**Figure 1.** Retrograde ureterography indicating the filling defect.

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Received June 2017 & Accepted July 2017

nal autotransplantation to preserve kidney function and quality of life.

### CASE REPORT

A 71-year-old man was hospitalized at our urology ward in April 2015, with recurrent painless severe haematuria. Seven years previously, he had undergone a radical nephrectomy of the right kidney due to an 11x8x6cm upper pole tumor. At that time, pathologic evaluation demonstrated a Fuhrman grade 2 clear cell renal adenocarcinoma (cRCC): pT2, V1, R0.

At rehospitalisation, an intravenous urogram revealed a 25mm filling defect in the left distal ureter with consecutive hydronephrosis, which we expected to be an urothelial carcinoma. Subsequently a cystoscopy and a retrograde ureterogram were performed (**Figure 1**), biopsy was not possible due to a distal ureteral stricture. Diagnostic workup included chest and abdominal CT scan which were negative for other sites of metastatic growth.

We performed an autotransplantation of the solitary left kidney with ureteral antirefluxive reimplantation into the bladder without ureteral stenting in the left fossa iliaca. Histo-pathologic examination showed a metastasis of cRCC, Fuhrman grade 2. Postoperatively, the patient developed an acute postrenal failure and abdominal pain on the sixth day after surgery. A stenosis of the ureter implantation site was suspected, hence percutaneous nephrostomy was performed. After that, serum creatinine and symptoms declined rapidly. Consecutively, an ureteral stent was positioned antegrade via the nephrostomy catheter and the nephrostomy catheter was removed.

A cystographic examination was performed 8 days post-surgery, where no extravasation was detected. The transurethral catheter was then removed. After 4 weeks the ureteral stent was removed. Currently, more than 24 months of follow-up, ultrasound examinations show no hydronephrosis and creatinine is only moderately increased with serum levels up to 1.4 mg/dl.

### DISCUSSION

Surgical treatment of ureteral tumors depends on the type, size, stage and location of the lesion. Overall, removal of the entire kidney and ureter is the most common and safest procedure. The rationale behind performing renal autotransplantation was: we suspected an urothelial carcinoma and in order to provide a sufficient oncologic outcome, we therefore decided to resect the whole ureter. We disregarded Boari flap-and Psoas hitch plastic procedure, in order to provide better cystoscopic, as well as ureteroscopic follow-up investigations. Intestinal operations, like ileal interpositions, were ruled out due to their high rate of complications<sup>(5)</sup>. The apparent limitation in our approach is that this procedure is technically demanding and might even be harmful<sup>(8)</sup>. In many cases, a reduced perfusion of the distal ureteral section due to a harvest injury can occur, which leads to ureteral stenosis and urinary leakage. The incidences is reported to be 10%, and in seldom cases a loss of the ureter occurs, which is difficult to manage<sup>(9)</sup>. The strength of our chosen procedure is that renal autotransplantation is an effective procedure to reconstruct the urinary tract, therefore the operation might be beneficial in patients with solitary kidneys to preserve kidney function and quality of life<sup>(10)</sup>.

### ACKNOWLEDGEMENT

We thank Univ.Prof. Dr. med. univ. Ferdinand Mühlbacher, Head emeritus of the Department of Vascular Surgery, Medical University of Vienna, for performing the renal autotransplantation together with us and the fruitful discussions.

### REFERENCES

1. Tosco L, Van Poppel H, Frea B, Gregoraci G, Joniau S. Survival and impact of clinical prognostic factors in surgically treated metastatic renal cell carcinoma. *Eur Urol.* 2013; 63:646–52.
2. Leblanc GA. Contralateral ureteral metastasis from renal adenocarcinoma. *J Urol.* 1961; 86:316-8.
3. Mulira AE. Ureteric metastases from bilateral adenocarcinomas of the kidney. *BJU.* 1981; 68:440.
4. Esrig D, Kanellos AW, Freeman JA, Stein JP, Kiyabu M, Ahlering TE. Metastatic renal cell carcinoma to the contralateral ureter. *Urology.* 1994; 44:278-81.
5. Chingwundoh FI, French M, Warfield AR. Metastatic ureteral tumour. *Urol Int.* 1996; 56:55-6.
6. Zorn KC, Orvieto MA, Mikhail AA, et al. Solitary ureteral metastases of renal cell carcinoma. *Urology.* 2006; 68:428.
7. Zhang HJ, Sheng L, Zhang ZW, Sun ZQ, Qian WQ, Song JD. Contralateral ureteral metastasis 4 years after radical nephrectomy. *International journal of surgery case reports.* 2012; 3:37-8.
8. Krajewski W, Dembowski J, Kołodziej A, Mańkiewicz B, Tupikowski K, Matuszewski M, et al. Urological complications after renal transplantation – a single centre experience. *Cent European J Urol.* 2016; 69: 306–11.
9. Toguri AG, Emtage JB, Jarzylo SV. Management of total ureteral loss after kidney transplantation. *Can J Surg.* 1983; 26:498-9.
10. Holmäng S, Johansson SL. Tumours of the ureter and renal pelvis treated with resection and renal autotransplantation: a study with up to 20 years of follow-up. *BJU Int.* 2005; 95:1201-5.