CASE REPORT

Synchronous urinary bladder metastasis of chromophobe renal cell carcinoma

Devanshu Bansal,¹ Prabhjot Singh,¹ Brusabhanu Nayak,¹ Seema Kaushal²

¹Urology, All India Institute of Medical Sciences, New Delhi, Delhi, India

²Pathology, All India Institute of Medical Sciences, New Delhi, Delhi, India

Correspondence to

Dr Devanshu Bansal, db.golem@gmail.com

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SUMMARY

Urinary bladder metastasis in patients with renal cell carcinoma is rare and until now <70 cases have been documented in literature. Majority of these reported cases were histologically clear cell variant of renal cell carcinoma. Urinary bladder metastasis of chromophobe variant of renal cell carcinoma is extremely rare and is limited to only isolated case reports. We present here a case of a man aged 24 years who was diagnosed to have a left renal mass and right renal calculi on evaluation for complaints of left-sided abdominal pain and was incidentally detected to have suspicious bladder lesions during cystoscopy. Postoperative histopathology from the renal mass as well as the urinary bladder lesions showed chromophobe variant of renal cell carcinoma. The patient did not develop any recurrence on follow-up.

BACKGROUND

Urinary bladder metastasis in patients with renal cell carcinoma is rare. Fewer than 70 such cases have been documented in literature until now.¹ Even among them, most of the reported cases have been histologically clear cell variant of renal cell carcinoma. Urinary bladder metastasis of chromophobe variant of renal cell carcinoma is seen rarely and to the best of our knowledge, there have only been three such cases reported in the literature.^{2,3} We present here a case of unilateral chromophobe renal cell carcinoma with isolated synchronous urinary bladder metastasis.

CASE PRESENTATION

A male patient aged 24 years presented to our outpatient clinic with complaints of left flank pain of 2 months' duration, which was colicky in nature. He did not give any history of haematuria, or lower urinary tract symptoms.

INVESTIGATIONS

On evaluation with an ultrasound, he was diagnosed to have right renal calculi along with a left renal mass. Contrast-enhanced CT scan showed a 7 cm large solid mass arising from mid and lower pole of the left kidney and an 8 mm calculus at the lower pole of right kidney. There was no evidence of tumour thrombus and the CT scan did not show any bladder pathology (figure 1). Urine routine microscopy showed less than three red blood cells per high power field.

Figure 1 CT sections show left renal mass and apparently normal urinary bladder.

Figure 2 Cut section of left renal mass.

DIFFERENTIAL DIAGNOSIS

Left renal mass with right renal calculus.

TREATMENT

The patient was planned for right double J stenting and left radical nephrectomy under general anaesthesia. During cystoscopy, a small papillary growth was identified adjacent to the left ureteric orifice, which was removed with cold cup biopsies. Left laparoscopic radical nephrectomy was done. Cut section of the left radical nephrectomy specimen showed a 7 cm solid left renal mass with no breach of the pelvicalyceal system (figure 2). The patient had an uneventful postoperative recovery and was discharged on postoperative day 4.

Figure 3 H&E stain of the nephrectomy specimen shows features of chromophobe renal cell carcinoma.

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Figure 4 H&E stain of the bladder biopsy shows features of chromophobe renal cell carcinoma.

OUTCOME AND FOLLOW-UP

Final histopathology showed features of chromophobe renal cell carcinoma in both the renal mass specimen (figure 3) and the bladder biopsy (figure 4). The tumour cells were positive for cytokeratin (CK7) (figure 5) and Hale colloidal iron stains (figure 6). Right renal stone was removed with flexible ureteroscopy after 1 month. On cystoscopy, there was no recurrence in the urinary bladder.

DISCUSSION

Renal cell carcinoma has been shown to metastasise to virtually any organ in the body, the most common among them being lungs (50%), bones (49%), lymph nodes (6%–32%), skin (11%), liver (8%) and brain (3%). However, urinary bladder metastasis from renal cell carcinoma has only rarely been described in the literature.⁴ Even among them, the most common histopathology described is clear cell variant of renal cell carcinoma. Chromophobe variant of renal cell carcinoma is a rare histological variant and has been reported to metastasise to the urinary bladder in only isolated case reports.³ In a retrospective analysis of 65 reported cases of renal cell carcinoma with bladder metastasis, Matsumoto *et al*¹ identified 15 patients (23%) with synchronous bladder metastasis. None of the patients had a chromophobe variant of renal cell carcinoma. Mean age of the patients at diagnosis was 60 ± 12 years and majority of them presented with complaints of gross haematuria. The mean size of the bladder tumour was 2.1 ± 1 cm. Our patient presented at a younger age with complaints of only left-sided flank pain. In a recent report by Nitta *et al*³, the authors presented a case of chromophobe renal cell carcinoma with isolated bladder metastasis. The

Figure 5 CK7 stain positivity in tumour tissue. CK7, cytokeratin.

Figure 6 Hale colloidal iron positivity in tumour tissue.

Learning points

- ▶ Urinary bladder metastasis of chromophobe renal cell carcinoma is a rare occurrence and may be asymptomatic at presentation.
- ▶ Careful evaluation of the bladder during cystoscopy done for unrelated purpose led to the diagnosis of urinary bladder lesions.
- ▶ Complete surgical resection of the renal and bladder lesions led to favourable short-term patient outcome.

patient presented with asymptomatic gross haematuria 11 years after radical nephrectomy for chromophobe renal cell carcinoma and cystoscopy revealed a papillary tumour in the bladder. The patient did not develop any recurrence at 5 years follow-up. Our patient had a synchronous asymptomatic bladder metastasis, which was incidentally detected during cystoscopy.

The mechanism for metastasis of the renal cell cancer cells to the bladder is controversial. In some cases, the mechanism has been proposed to be ‘drop metastases’ of the cancer cells down the ureter to the bladder. Distant metastases are usually absent in such cases. However, in the presence of metastases to other sites, the mechanism of tumour spread is thought to be via retrograde venous embolisation and lymphatic extension of tumour cells.² Our case presented with isolated bladder metastases from ipsilateral renal tumour, which could be explained by the former hypothesis for tumour metastases and it serves to highlight a rare presentation of chromophobe variant of renal cell cancer.

Contributors DB confirms that all the authors listed (Drs PS, BN, SK) have been part of data acquisition, reporting, planning and editing of the article and its final review.

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