Renal cell carcinoma with metachronous metastases to the bladder

Ibrahim Karabulut, Ertugrul Gazi Ozbey, Ozer Birge, Fevzi Bedir, Mahmut Koc, Mehmet Adiyek

ABSTRACT

Introduction: Renal cell cancers account for approximately 2–3% of all cancers. As the use of imaging methods has increased the incidence of these tumors that are often detected incidentally is increasing. Currently, more than 50% of kidney tumors are detected incidentally [1]. Renal cell cancer can metastasize to almost every organ. The lungs, bones, liver, adrenal glands and the brain are common sites of metastases.

Case Series: In our case report, we aimed to discuss metachronous bladder metastases detected during the follow-up of two cases that had undergone radical nephrectomy for renal cell cancer in light of current literature information.

Conclusion: Renal cell cancer metastasizes to the bladder very rarely, and only a limited number of cases are reported in literature.

International Journal of Case Reports and Images (IJCRI)

International Journal of Case Reports and Images (IJCRI) is an international, peer reviewed, monthly, open access, online journal, publishing high-quality, articles in all areas of basic medical sciences and clinical specialties.

Aim of IJCRI is to encourage the publication of new information by providing a platform for reporting of unique, unusual and rare cases which enhance understanding of disease process, its diagnosis, management and clinico-pathologic correlations.

IJCRI publishes Review Articles, Case Series, Case Reports, Case in Images, Clinical Images and Letters to Editor.

Website: www.ijcasereportsandimages.com

CASE SERIES

PEER REVIEWED | OPEN ACCESS

Renal cell carcinoma with metachronous metastases to the bladder

Ibrahim Karabulut, Ertugrul Gazi Ozbey, Ozer Birge, Fevzi Bedir, Mahmut Koc, Mehmet Adiyeye

ABSTRACT

Introduction: Renal cell cancers account for approximately 2–3% of all cancers. As the use of imaging methods has increased the incidence of these tumors that are often detected incidentally is increasing. Currently, more than 50% of kidney tumors are detected incidentally [1]. Renal cell cancer can metastasize to almost every organ. The lungs, bones, liver, adrenal glands and the brain are common sites of metastases. **Case Series:** In our case report, we aimed to discuss metachronous bladder metastases detected during the follow-up of two cases that had undergone radical nephrectomy for renal cell cancer in light of current literature information. **Conclusion:** Renal cell cancer metastasizes to the bladder very rarely, and only a limited number of cases are reported in literature.

Keywords: Kidney tumors, Metastases, Renal cell cancer, Urine bladder

How to cite this article

Karabulut I, Ozbey EG, Birge O, Bedir F, Koc M, Adiyeye M. Renal cell carcinoma with metachronous metastases to the bladder. Int J Case Rep Images 2015;6(12):734–737.

doi:10.5348/ijcri-201510-CS-10061

INTRODUCTION

Renal cell cancer accounts for approximately 2–3% of all cancers and annually increases by 2%. Renal cell cancer commonly develops in the sixth and seventh decades and men, and more than 50% of the cases are diagnosed incidentally [2]. Approximately, one-third of the patients presents with metastases at diagnosis [3]. Despite increasing treatment options, the prognosis of renal cell carcinoma patients is poor and the average two-year survival is 10–20% [4]. Metastases occur mostly to the lungs (75%), and the liver (40%), bones (40%), soft tissue (34%) and the pleura (31%) [5]. Bladder metastases are rare and according to a large-scale meta-analysis only 65 cases have been reported [6]. Metastases can be synchronous or metachronous [7, 8]. In our article, we aimed to discuss the metachronous bladder metastases detected in our two cases that had previously undergone radical nephrectomy with the diagnosis of renal cell carcinoma in light of current literature information.

CASE 1

A 63-year-old male presented to our polyclinic with painless gross hematuria. The detailed anamnesis of the case revealed that he had a right radical nephrectomy performed for a mass in the kidney seven years ago. After reviewing the pathology records of the patient, it was seen that the sections of the tumor from radical nephrectomy

Ibrahim Karabulut¹, Ertugrul Gazi Ozbey², Ozer Birge², Fevzi Bedir¹, Mahmut Koc³, Mehmet Adiyeye⁴

Affiliations: ¹Erzurum Training and Research Hospital. Department of Urology, Erzurum-Turkey; ²Nyala Sudan Turkey Training and Research Hospital. Department of Urology, Nyala-Darfur-Sudan; ³Bilecik State Hospital, Clinic of Urology, Bilecik-Turkey; ⁴Bergama State Hospital, Clinic of Gynaecology and Obstetrics, İzmir-Turkey.

Corresponding Author: Ertugrul Gazi Ozbey, Nyala Sudan Turkey Training and Research Hospital. Department of Urology, West Alezza District Southern Nyala-Darfur-Sudan 7100; Ph: +249 96 184 70 56; E-mail: ottoman4427@yahoo.com

Received: 02 October 2015
Accepted: 07 November 2015
Published: 01 December 2015

of the patient was reported as renal cell carcinoma (clear cell type). It was learnt that he had received sunitinib treatment for approximately three years as the disease was at an advanced stage and was delivered radiotherapy (RT) for the metastasis to the left femur head. There were no features other than the right anterior subcostal incision secondary to the radical nephrectomy in the physical examination. The only pathological finding in the laboratory tests was the hemoglobin level of 8.1 g/dl. While no relapse was observed in the retroperitoneal area in the whole abdominal tomography, a tumorous mass of 5x4 cm originating from the left lateral wall and protruding into the lumen was present in the bladder (Figure 1). The patient was given two units of erythrocyte suspensions, and the hemoglobin levels were raised up to 10 mg/dl. Under general anesthesia, cystoscopy and transurethral tumor resection were performed. The transurethral tumor resection material was evaluated as renal cell carcinoma (clear cell type) metastases in the histopathological evaluation and the positron emission tomography scan revealed no other metastatic foci. The case was admitted to a routine follow-up program, and no relapse was identified in the three-month follow-up cystoscopy. Six months after the bladder tumor was resected, the case was diagnosed with a brain metastasis in the brain surgery clinic he presented with complaints of headaches, nausea and vomiting and these metastases lead to the death of the patient.

CASE 2

A 53-year-old male presented to our polyclinic with a one-month history of painless intermittent hematuria. It was learned from the case anamnesis that he had undergone a radical nephrectomy operation for a right renal mass approximately three years ago. Six months ago, no pathologies were detected in the last follow-up at the clinic where, operation was performed. There was no feature other than the incision scar secondary to the radical nephrectomy in the physical examination of the case. The laboratory tests performed were normal. The urinary system ultrasonography of the case revealed a 3x3 cm lesion protruded to the lumen thought to be originating from the dome of the bladder. In the cystoscopy performed under general anesthesia the 3x3 cm, solid, pedunculated tumorous lesion originating from the dome of the bladder was observed, and transurethral tumor resection was performed in the same session. The transurethral resection material sent was reported as (Figure 2) renal cell carcinoma (clear cell type) metastasis. The positron emission tomography scan of the case showed increased metabolic activity at the operation site and magnetic resonance imaging (MRI) scan was performed to evaluate the presence of relapse or residual masses, and no pathologies were detected. No relapse or residual tumor was detected in the cystoscopy performed three months after.

Figure 1: A tumorous lesion with a polypoid structure seen in the bladder on the lower abdominal tomography.

Figure 2: The pathological appearance of the transurethral tumor resection specimen.

DISCUSSION

Approximately, one-third of cases diagnosed with renal cell carcinoma have metastases at diagnosis, and distant metastases develop later in 30% of all cases. Approximately, 2% of bladder tumors are metastases of a primary tumor originating from a different region [9]. Metastatic tumors develop as a result of direct invasion from adjacent anatomical regions or metastases from distant organs. While colon, prostate, cervical and uterine cancers spread to the bladder by direct invasion, the most common sources of the distant organ metastases to the bladder are malignant melanoma and lymphomas. Metastases of renal cell carcinoma to the bladder are very rare [10]. It is not entirely understood how renal cell carcinomas metastasize to the bladder, but it is believed to spread through the hematologic, lymphatic and urinary systems. Among these, the most discussed is hematologic spread. Hematologic metastases develop in two ways: the first is systemic inoculation that is the most common mechanism of renal cell carcinoma spread, and

the second is retrograde spreading through the gonadal vein [11]. Bolkier has shown many connections that allow retrograde tumor spread within the lymphatic system [12]. Another mechanism that could explain the spread of renal tumors to the bladder is the antegrade spread of tumor cells using the upper urinary tract [13]. In a study that reviewed metastases of renal cell carcinoma to the bladder, 23% had bladder metastases coexisting with the kidney tumor and bladder metastases were detected in 77% of the patients after an average of 33 months after the kidney surgery [6]. In one of our cases, the bladder metastasis was detected 84 months after the radical nephrectomy and 36 months after in our another case. In the same study, it was also reported that 62% of the patients had isolated metastases and 38% also had metastases at other focuses [6]. In one of the cases in our study, a bone metastasis coexisted with the bladder metastasis. Both the symptoms and findings of bladder metastases of renal cell carcinoma mimic primary bladder tumors. Generally, the first presenting complaint of cases is gross hematuria and in imaging studies, they appear as limited circular masses extending to the bladder lumen. In cases with detected renal cell cancer, gross hematuria does not appear until the renal pelvis is involved. In cases with significant hematuria, a synchronous transitional cell carcinoma or renal cell carcinoma in the bladder must also be considered [5]. Similarly, the lesions in our cases had regular contours and solid structures in the cystoscopy examination. The treatment of these metastatic tumors of the bladder may change from transurethral resection of the tumor to adjuvant interleukin treatment in select cases and/or partial cystectomy. However, there is no single effective treatment method for metastatic renal cell carcinoma. Most of the patients die in less than one year after the treatment of the metastases [5, 9, 14, 15]. Although rare, cases with long-term disease-free survival have also been reported. In the case report by Raviv et al., the patient had survived disease-free for six years after the transurethral resection of the bladder metastasis [16]. One of our cases died of a brain metastasis six months after the tumor in the bladder was completely removed. No relapse was detected in the follow-up cystoscopy of our another case after resecting the bladder tumor. Eight months have passed since the treatment of the metastatic bladder tumor of our case, and the patient continues to live disease-free.

CONCLUSION

Metastases of renal cell carcinoma to the bladder are very rare. Especially, in cases operated for renal cell carcinoma or bladder tumor cases with coexisting renal masses detected in tests the possibility of bladder metastases of renal cell carcinoma must be considered in the differential diagnosis.

Acknowledgements

We would like to thank the staff of Urology and Obstetrics and Gynecology department that took part in the care of this patient.

Author Contributions

Ibrahim Karabulut – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Ertugrul Gazi Ozbey – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Ozer Birge – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Fevzi Bedir – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Mahmut Koc – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Mehmet Adiyeye – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

Copyright

© 2015 Ibrahim Karabulut et al. This article is distributed under the terms of Creative Commons Attribution License which permits unrestricted use, distribution and reproduction in any medium provided the original author(s) and original publisher are properly credited. Please see the copyright policy on the journal website for more information.

REFERENCES

1. Levi F, Ferlay J, Galeone C, et al. The changing pattern of kidney cancer incidence and mortality in Europe. *BJU Int* 2008 Apr;101(8):949–58.
2. Ljungberg B, Cowan NC, Hanbury DC, et al. EAU guidelines on renal cell carcinoma: the 2010 update. *Eur Urol* 2010 Sep;58(3):398–406.
3. Doo SW, Kim WB, Kim BK, et al. Metastasis of renal cell carcinoma to the bladder. *Korean J Urol* 2013 Jan;54(1):69–72.
4. You D, Jeong IG, Ahn JH, et al. The value of cytoreductive nephrectomy for metastatic renal cell carcinoma in the era of targeted therapy. *J Urol* 2011 Jan;185(1):54–9.

5. Kruck S, Scharpf M, Stenzl A, Bedke J. A rare case of synchronous renal cell carcinoma of the bladder presenting with gross hematuria. *Rare Tumors* 2013 May 7;5(2):72–4.
6. Matsumoto K, Hayakawa N, Nakamura S, Oya M. Bladder metastasis from renal cell carcinoma: retrospective analysis of 65 reported cases. *Clin Exp Metastasis* 2015 Feb;32(2):135–41.
7. Uygur MC, Ozen HA, Sungur A, Remzi D. A solitary and synchronous metastasis of renal cell carcinoma to the bladder. *Int Urol Nephrol* 1994;26(5):529–33.
8. Shiraishi K, Mohri J, Inoue R, Kamiryo Y. Metastatic renal cell carcinoma to the bladder 12 years after radical nephrectomy. *Int J Urol* 2003 Aug;10(8):453–5.
9. Kang DG, Nam JG, Kang JS, Yang HT, Jung HH, Choi NG. Metastases to ureteral stump and bladder from renal cell carcinoma. *Korean J Urol* 2001;42:875–8.
10. Bates AW, Baithun SI. The significance of secondary neoplasms of the urinary and male genital tract. *Virchows Arch* 2002 Jun;440(6):640–7.
11. Abeshouse BS. Metastasis to ureters and urinary bladder from renal carcinoma; report of two cases. *J Int Coll Surg* 1956 Jan;25(1 Part 1):117–26.
12. Bolkier M, Moskovitz B, Munichor M, Genesin Y, Levin DR. Metastatic renal cell carcinoma to the bladder. *Urol Int* 1993;50(2):101–3.
13. Hajdu SI, Savino A, Hajdu EO, Koss LG. Cytologic diagnosis of renal cell carcinoma with the aid of fat stain. *Acta Cytol* 1971 Jan-Feb;15(1):31–3.
14. Melegari S, Albo G, Rocco B, Verweij F, Abbinante M, de Cobelli O. Metachronous bladder metastases from renal cell carcinoma: a case report and review of the literature. *Ecancermedicalscience* 2010;4:175.
15. Dogra P, Kumar A, Singh A. An unusual case of Von Hippel Lindau (VHL) syndrome with bilateral multicentric renal cell carcinoma with synchronous solitary urinary bladder metastasis. *Int Urol Nephrol* 2007;39(1):11–4.
16. Raviv S, Eggener SE, Williams DH, Garnett JE, Pins MR, Smith ND. Long-term survival after “drop metastases” of renal cell carcinoma to the bladder. *Urology* 2002 Oct;60(4):697.

Access full text article on
other devices

Access PDF of article on
other devices

Edorium Journals: An introduction

Edorium Journals Team

About Edorium Journals

Edorium Journals is a publisher of high-quality, open access, international scholarly journals covering subjects in basic sciences and clinical specialties and subspecialties.

Invitation for article submission

We sincerely invite you to submit your valuable research for publication to Edorium Journals.

But why should you publish with Edorium Journals?

In less than 10 words - we give you what no one does.

Vision of being the best

We have the vision of making our journals the best and the most authoritative journals in their respective specialties. We are working towards this goal every day of every week of every month of every year.

Exceptional services

We care for you, your work and your time. Our efficient, personalized and courteous services are a testimony to this.

Editorial Review

All manuscripts submitted to Edorium Journals undergo pre-processing review, first editorial review, peer review, second editorial review and finally third editorial review.

Peer Review

All manuscripts submitted to Edorium Journals undergo anonymous, double-blind, external peer review.

Early View version

Early View version of your manuscript will be published in the journal within 72 hours of final acceptance.

Manuscript status

From submission to publication of your article you will get regular updates (minimum six times) about status of your manuscripts directly in your email.

Our Commitment

Six weeks

You will get first decision on your manuscript within six weeks (42 days) of submission. If we fail to honor this by even one day, we will publish your manuscript free of charge.

Four weeks

After we receive page proofs, your manuscript will be published in the journal within four weeks (31 days). If we fail to honor this by even one day, we will publish your manuscript free of charge and refund you the full article publication charges you paid for your manuscript.

Most Favored Author program

Join this program and publish any number of articles free of charge for one to five years.

Favored Author program

One email is all it takes to become our favored author. You will not only get fee waivers but also get information and insights about scholarly publishing.

Institutional Membership program

Join our Institutional Memberships program and help scholars from your institute make their research accessible to all and save thousands of dollars in fees make their research accessible to all.

Our presence

We have some of the best designed publication formats. Our websites are very user friendly and enable you to do your work very easily with no hassle.

Something more...

We request you to have a look at our website to know more about us and our services.

We welcome you to interact with us, share with us, join us and of course publish with us.

Edorium Journals: On Web

Browse Journals

CONNECT WITH US