Cancer Imaging (2011) **11,** 163–165
DOI: 10.1102/1470-7330.2011.0029

CI

e-med
www.e-med.org.uk

CASE REPORT

Metachronous metastasis to the spermatic cord from renal cell carcinoma presenting as a high scrotal mass: a case report

Afshin Mohammadi[a], Khadijeh Makhdoomi[b] and Mohammad Ghasemi-rad[c]

[a]Department of Radiology, Urmia University of Medical Sciences, Urmia, Iran; [b]Department of Nephrology and Kidney Transplantation, Urmia University of Medical Sciences, Urmia, Iran; [c]Genius and Talented Student Organization, Student Research Committee, Urmia University of Medical Sciences, Urmia, Iran

Corresponding address: Afshin Mohammadi,Urmia University of Medical Sciences, Department of Radiology, Imam University Hospital, Modaress BLVD, Urmia, Iran.
Email: mohamadi-afshin@yahoo.com

Date accepted for publication 28 September 2011

Abstract

Primary malignant lesions and metastatic carcinomas of the spermatic cord are extremely rare. We present the case of a 57-year-old man, who presented with a painless palpable mass in the left high scrotal area 36 months after radical nephrectomy. The patient had received chemotherapy because of disseminated metastases. There was no sign of local recurrence after 3-month follow-up.

Keywords: *Renal cell carcinoma; spermatic cord; metastasis.*

Introduction

Primary malignant lesions or metastatic carcinoma of the spermatic cord is extremely rare[1]. We present a case of left renal cell carcinoma (of clear cell histology) with metachronous metastasis to the ipsilateral spermatic cord 36 month after surgery. When evaluating a high scrotal solid mass, the diagnosis of metastatic renal cell carcinoma to the spermatic cord should be considered.

Case presentation

A 57-year-old man was admitted to our tertiary referral hospital complaining of loss of appetite, weight loss, cough, persistent left flank and lumbar pain, and an enlarging mass at the left hemi-scrotum of 4 months' duration.

The patient had a history of left nephrectomy for renal cell carcinoma (RCC) (clear cell type) 36 months prior to the hospital admission (Fig. 1).

According to the previous computed tomography (CT) examination, the surgical findings report and inquiries to the surgeon who performed the surgery, the patient had no para-aortic lymphadenopathy, renal vein invasion or distant metastasis. He was in good general condition and had only missed one of his regular oncology visits 4 months prior to admission. Clinical examination revealed a painless mobile mass measuring 6×6 cm at the left hemi-scrotum (Fig. 2).

Scrotal ultrasonography (US) showed a well-defined echogenic round mass measuring 6×5 cm in the left spermatic cord with significant hyper-vascularization on color Doppler US. Both testes and epididymis were normal (Fig. 3a,b).

Blood chemistry revealed a hemoglobin concentration of 9 mg/dl and erythrocyte sedimentation rate (ESR) of 100 mm; others values were within normal limit. We performed abdominal and thorax CT scans with intravenous and oral contrast based on the history and clinical condition of the patient. The CT scan revealed a large enhancing solid mass (10×10 cm) in the site of the left nephrectomy with para-aortic lymphadenopathy, multiple enhancing masses in the liver and pulmonary metastases.

The US findings of the left spermatic cord mass were suggestive of a neoplastic lesion. The spermatic cord was accessed by a high left scrotal incision, and a large, solid

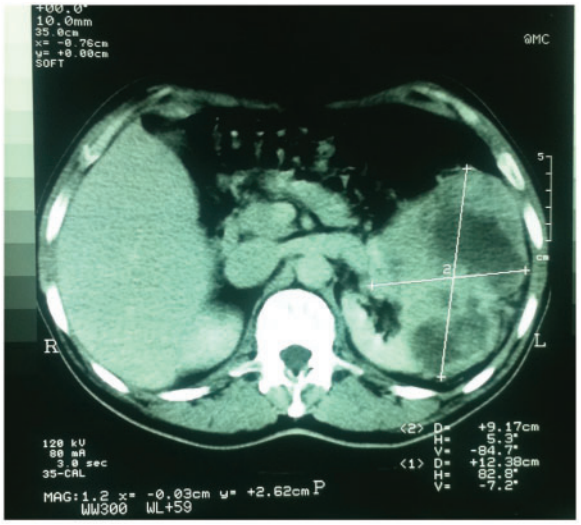

Figure 1 **Abdominal CT scan shows a large hypo-dense mass with central necrosis arising from the lower pole of the left kidney.**

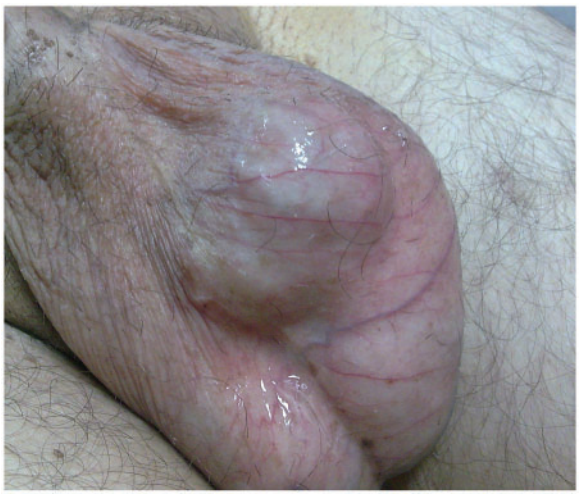

Figure 2 **A large palpable mass in the left high scrotal area.**

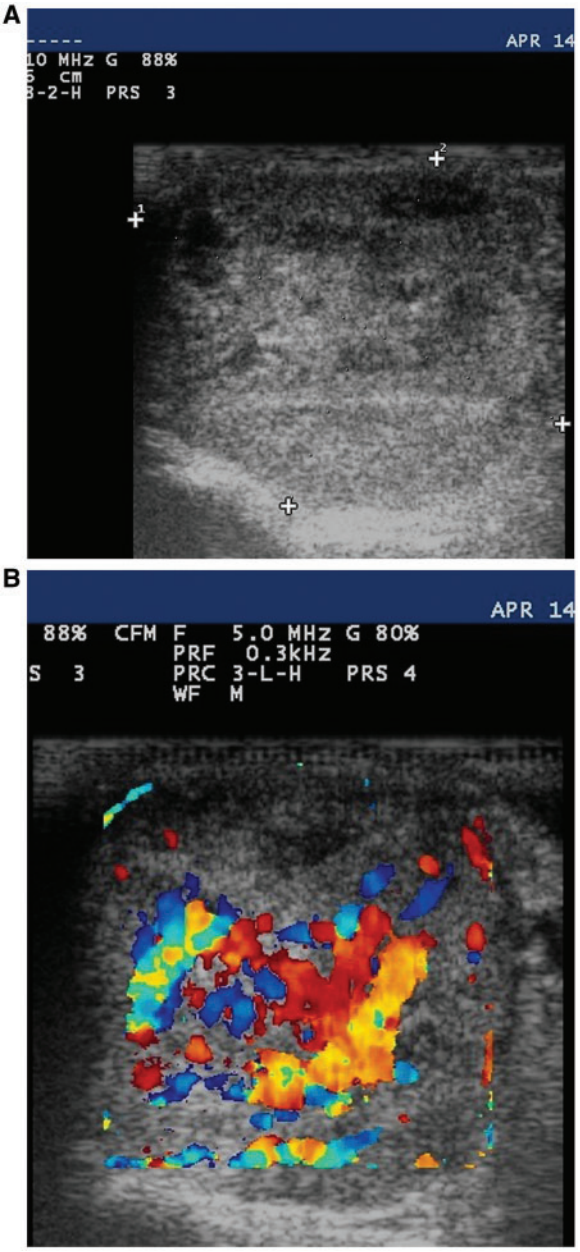

Figure 3 **(a) Grayscale ultrasonography revealed a large well-defined echogenic mass. (b) Color Doppler sonography revealed hypervascularity of the scrotal mass.**

mass was observed in close relation to the spermatic cord and spermatic vessels. The left testis and epididymis were normal. Complete excision of the tumor was performed. Histopathology showed a $6.5 \times 5 \times 5$ cm mass composed of nests of clear cells separated by thin-walled blood vessels with prominent nucleoli consistent with clear cell RCC (Fig. 4).

Discussion

Approximately 25% of patients with RCC develop metachronous metastasis after radical nephrectomy[2]. Most RCC metastases (85%) occur within 3 years after resection but there are reports of RCC metastatic disease up to several decades after the primary diagnosis[3]. The most common sites of systemic metastases from RCC, in order of frequency are: lung (50–60%), bone (30–40%), liver (30–40%), adrenal gland, contralateral kidney, retroperitoneal and brain[4]. Spermatic cord metastatic lesions are extremely rare. The most commonly reported are from the stomach (70%), colon (29%), pancreas (16%), bowel (13%), rectum (8%), bladder, lung and brain[5]. According to the literature, only 27 cases of RCC metastasis to the spermatic cord have been published in the

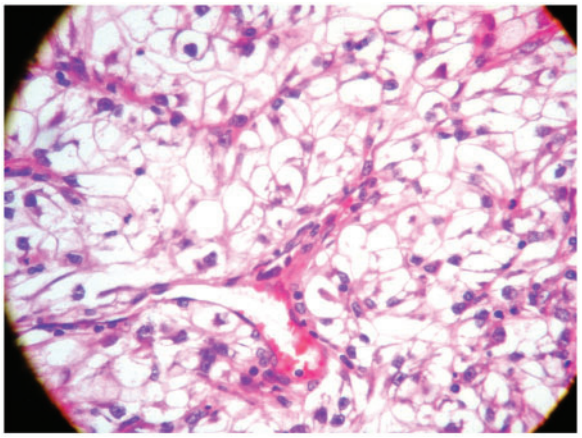

Figure 4 **Histopathology revealed a spermatic cord mass composed of nests of clear cells separated by thin-walled blood vessels with prominent nucleoli consistent with clear cell renal cell carcinoma.**

worldwide literature. There are only case reports regarding intra-scrotal metastasis from RCC in the literature[6]. The histopathologic subtypes of RCC are an important factor in prognosis and metastatic disease. RCC metastasis to the testes is usually related to the clear cell subtype[7].

Most patients with metastatic spermatic cord tumors present with a painless high scrotal mass. Almost all cases of RCC metastasis to the spermatic cord have occurred ipsilaterally on the left side, except for 2 case reports of contralateral RCC metastasis[8,9]. The anatomic differences between the left and the right renal vein drainage systems likely explain this[10]. Spermatic cord involvement by RCC can be either asynchronous or metachronous[11]. The most likely mechanism of spermatic cord involvement is retrograde spermatic vein flow from the renal vein[11]. Other possible mechanisms are hematogenous or lymphatic spread and transperitoneal seeding through a patent tunica vaginalis[12].

Conclusion

Although rare, metastatic disease to the spermatic cord should be included in the differential diagnosis of masses of the scrotum especially if there is a history of primary malignancy.

References

[1] Dutt N, Bates AW, Baithun SI. Secondary neoplasms of the male genital tract with different patterns of involvement in adults and children. Histopathology 2000; 37: 323–31. doi:10.1046/j.1365-2559.2000.00983.x.

[2] Bonnet S, Gaujoux S, Leconte M, Thillois JM, Tissier F, Dousset B. Laparoscopic adrenalectomy for metachronous metastasis from renal cell carcinoma. World J Surg 2008; 32: 1809–1814. doi:10.1007/s00268-008-9539-3.

[3] Sandock DS, Seftel AD, Resnick MI. A new protocol for the followup of renal cell carcinoma based on pathological stage. J Urol 1995; 154: 28–31. doi:10.1016/S0022-5347(01)67215-X.

[4] Griffin N, Gore ME, Sohaib SA. Imaging in metastatic renal cell carcinoma. AJR 2007; 189: 360–70. doi:10.2214/AJR.07.2077.

[5] Chang YH, Chuang CK, Ng KF, Liao SK. Klatskin tumor with spermatic cord metastasis: a case report. Chang Gung Med J 2009; 32: 104–7.

[6] Schmorl P, Ostertag H, Conrad S. Intratesticular metastasis of renal cancer. Der Urol A 2008; 47: 1001–3. doi:10.1007/s00120-008-1738-x.

[7] Datta MW, Ulbright TM, Young RH. Renal cell carcinoma metastatic to the testis and its adnexa: a report of five cases including three that accounted for the initial clinical presentation. Int J Surg Pathol 2001; 9: 49–56. doi:10.1177/106689690100900108.

[8] Fournier G, Hubert J, Chassagne S, *et al.* Metastasis of renal adenocarcinoma to the spermatic cord and the epididymis: 2 cases. Prog Urol 1995; 5: 714–16.

[9] Hicks JA, Britton JP, Carter PG, *et al.* A right-sided renal carcinoma uniquely presenting as a mass in the spermatic cord. Urol Int 2003; 70: 247–8. doi:10.1159/000068763.

[10] Mohamadi A, Ghasemi-Rad M, Mladkova N, Masudi S. Varicocele and Nutcracker Syndrome sonographic findings. J Ultrasound Med 2010; 29: 1153–60.

[11] Correa JJ, Fishman M, Chuang ST, Spiess PE. Surgery plus targeted therapy for renal cell carcinoma with isolated spermatic cord metastasis. Clin Genitourin Cancer 2009; 7: E101–3. doi:10.3816/CGC.2009.n.034.

[12] Ishibashi K, Chika N, Miyazaki T, *et al.* Spermatic cord metastasis from colon cancer: report of a case. Surg Today 2011; 41: 418–21. doi:10.1007/s00595-010-4273-5.