
CASE REPORT

Indurated Penile Swelling as a Rare Initial Clinical Presentation of Metastatic Renal Cell Carcinoma: a Case Report

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ABSTRACT

We report a case of penile metastasis from renal cell carcinoma in a 65-year-old man who presented with indurated penile swelling as initial clinical presentation. The clinical features, imaging features, and management of penile metastasis from renal cell carcinoma are also reviewed.

Key Words: Carcinoma, renal cell; Neoplasm metastasis; Penile diseases

中文摘要

硬結性陰莖腫脹作為腎細胞癌轉移的初步臨床表現：罕見病例報告

陸熒、盧成璋、朱志揚、馬明威

本文報告一例65歲男性患有腎細胞癌的陰莖轉移，其初始臨床表現為陰莖硬結。本文同時回顧腎細胞癌的臨床特徵、影像學特徵和陰莖轉移的治療。

CASE REPORT

We report a rare case of renal cell carcinoma presenting with penile metastasis, highlighting the importance to consider this clinical entity for earlier management and potential improved outcome for patients.

A 65-year-old man with history of hypertension, diabetes mellitus, atrial fibrillation, benign prostatic hyperplasia, and generalised anxiety disorder presented

with a 6-month history of indurated penile swelling to our hospital in late July 2014. At initial presentation, the patient reported no associated pain, haematuria, dysuria, or fever. The patient had no history of venereal disease or recent trauma. Physical examination revealed indurated irregular swelling involving the whole penis. No enlarged inguinal lymph node was detected. An elective magnetic resonance imaging (MRI) examination was booked for further evaluation of the penile lesion.

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Three weeks after initial presentation, the patient was admitted to our hospital with loin pain and haematuria. Computed tomography (CT) examination showed a 7.7 cm × 8.7 cm × 8.8 cm arterial enhancing heterogeneous lesion in the lower pole of left kidney, compatible with renal cell carcinoma (Figure 1a). Evidence of para-aortic, mediastinal and hilar lymphadenopathy, lung, and bone metastases was also noted. Penile swelling was noted in the CT images. MRI of the penis was later performed and showed diffuse swelling of the corpus cavernosum and corpus spongiosum. Ill-defined areas of heterogeneous T1 and T2 signal intensities with patchy enhancement were seen (Figure 1b). The MRI features were compatible with a diffuse infiltrative pathological process.

A penile core biopsy was performed and histological examination showed necrotic debris with scanty nests of viable tumour cells at the periphery of the fibrous septa. The tumour cells showed clear to vacuolated cytoplasm. Immunostaining showed the tumour cells were positive for cytokeratin 8/18 and CD10, focally positive for cytokeratin AE1/AE3, and negative for cytokeratin 20. The histological features were compatible with renal cell carcinoma metastasis (Figure 2). Owing to the poor performance status of the patient and extensive metastases, cytoreductive or palliative nephrectomy was not considered. The patient received targeted therapy and palliative radiotherapy to the bone metastases. The patient passed away 5 months after initial presentation.

DISCUSSION

Penile metastasis from renal cell carcinoma is rare, with fewer than 50 cases reported in the English literature.¹

It is associated with advanced disease status and poor prognosis, as in the present case. Most primary tumours originate from the prostate, bladder, and rectosigmoid colon. Metastases from the stomach, oesophagus and pancreas have also been reported.^{2,4} Various pathways of penile metastases have been proposed, including direct tumour infiltration, retrograde venous spread from the pudendal venous system into the dorsal venous system of the penis, retrograde lymphatic spread, arterial spread, and implantation secondary to instrumentation.^{2,4}

Although some penile metastatic lesions are relatively asymptomatic, others may represent with penile mass or swelling, priapism with associated pain, or difficulty in voiding.² Almost one third of penile metastases are detected at the same time as the primary tumour, and the remaining penile metastases are detected at a mean 18 months after initial detection of the primary tumour.⁴

Differential diagnoses of indurated penile swelling include penile malignancies (squamous cell carcinoma of the penis, anterior urethral carcinoma, penile sarcoma and metastases to the penis), infection (periurethral abscess), partial cavernosal thrombosis, Peyronie's disease, and trauma.² The patient in the present case reported 6-month history of painless indurated penile swelling of our reported case with no history of trauma, no urinary symptoms, and no systemic signs; therefore, infection, partial cavernosal thrombosis, and penile trauma were considered unlikely differential diagnoses.

Diagnosis of penile metastasis from renal cell carcinoma is usually made by biopsy. It is important to differentiate between primary penile malignancy and

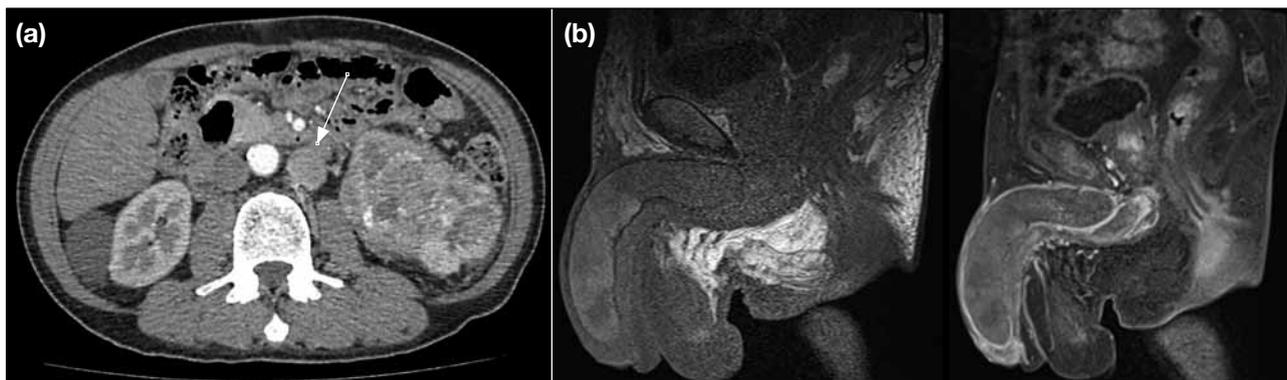


Figure 1. (a) Axial computed tomography image showing an arterial enhancing heterogeneous lesion in the lower pole of left kidney, compatible with renal cell carcinoma. Left para-aortic lymphadenopathy (arrow) is also evident. (b) Sagittal T2-weighted and post-gadolinium T1-weighted magnetic resonance imaging images showing diffuse swelling of the penis with ill-defined areas of heterogeneous T2 signal intensities with patchy enhancement involving the corpus cavernosum and corpus spongiosum.

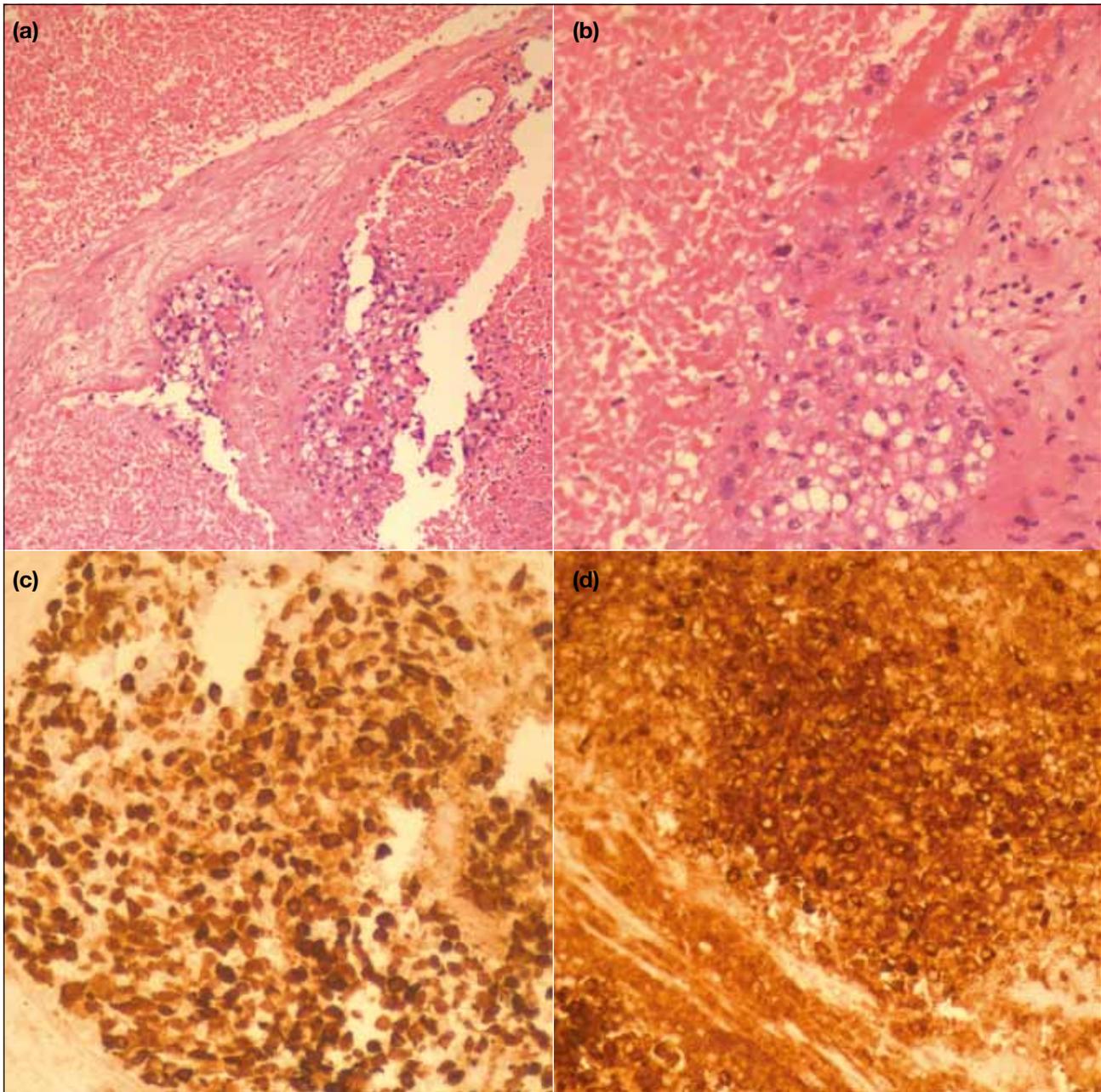


Figure 2. Histological examination showing necrotic debris with scanty nests of viable tumour cells at the periphery of the fibrous septa. The tumour cells showing clear to vacuolated cytoplasm. Immunostaining showing the tumour cells were positive for cytokeratin 8/18 and CD10, focally positive for cytokeratin AE1/AE3 and negative for cytokeratin 20. (a) H&E stain $\times 10$ and (b) $\times 20$; (c) cytokeratin 8/18 $\times 20$; (d) CD10 $\times 20$.

metastases to the penis as this will affect management.² Imaging is generally used for localising the penile lesion and delineating its anatomical extent. With excellent soft tissue contrast and multiplanar imaging capabilities, MRI is useful for advanced imaging evaluation of the penile lesion.⁵ Owing to the rarity of penile metastasis, the MRI imaging features of penile metastases from renal cell carcinoma are not been

well documented. Imaging features of a reported case of penile metastasis from transitional cell carcinoma of the bladder are non-specific with the penile lesion demonstrating T2 hypointense signal and decreased enhancement compared with normal corporal bodies.⁵ In the present case, the diagnosis of penile metastasis from renal cell carcinoma was suspected at MRI, based on the infiltrative appearance of the penile lesion and

evidence of metastatic renal cell carcinoma demonstrated in CT.

Treatment of penile metastasis from renal cell carcinoma includes local excision, penile amputation, radiotherapy, and targeted therapy. Poor results of the various treatment methods have been reported.¹

Although penile metastases are rare, clinicians should be aware of this entity as this could be the initial presentation of an occult cancer. With increased awareness of this entity, appropriate strategies of investigation and treatment can be adopted, hopefully improving the outcome for patients.

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