A 75-Year-Old African American Woman With an Incidentally Identified Renal Mass After Traumatic Fall

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CASE REPORT

A 75-year-old African American woman presented to the emergency department with back pain after suffering a traumatic fall. Computerized tomography (CT) scan of the thoracic and lumbosacral spine showed no acute fractures. However, a complex, cystic structure, with a soft tissue component was incidentally identified in the right kidney. On outpatient urology follow-up, the patient reported no gross lower urinary tract symptoms or abdominal pain. She endorsed no family history of genitourinary cancer and had no smoking history. Physical examination revealed no significant findings besides diffuse, mild back pain. Laboratory examinations demonstrated a creatinine of 1.22 mg/dL. Urinalysis was negative for hemoglobin, leukocyte esterase, and nitrites. The patient agreed to continued workup and was counseled regarding likely outcome and treatment options.

DIFFERENTIAL DIAGNOSIS

Possible investigative outcomes of a renal mass can be subdivided into 3 main categories: cysts, inflammatory (infectious) lesions, and tumors.[1] Inflammatory lesions are not often found incidentally, as they present with fever, chills, and symptoms of a urinary tract infection.[2] In contrast, studies have shown that in adults aged 50 or older, one-third are found to have at least 1 renal cyst on CT, and approximately half have at least 1 cyst on autopsy.[3,4] These are most often found to be benign. However, not all renal masses are benign, and estimates have shown that approximately half of all cases of renal cell carcinoma are diagnosed incidentally, as many patients remain asymptomatic until progression to later stages of the disease.[5] In the case of a suspicious, complex, cystic structure found on CT, renal cell carcinoma should be ruled out.

DIAGNOSTIC ASSESSMENT, MANAGEMENT, AND OUTCOME

Because of the asymptomatic nature of presentation in an afebrile patient, an inflammatory lesion was deemed unlikely. CT scan with contrast was performed and demonstrated a large, well-circumscribed focus of low-attenuation measuring 4.5 cm with an adjacent, heterogeneously enhancing soft tissue mass measuring 3.7 cm (Fig. 1A). Because of the unusual appearance of the lesion on CT scan, a CT urogram was performed to rule out urothelial carcinoma, and to further evaluate whether the identified masses were completely intraparenchymal vs extending or emanating from the collecting system.

On CT urogram, the post-contrast images demonstrated a bulky, exophytic, heterogeneous mass occupying the lower pole and interpolar region of the right kidney with involvement of the parenchyma, associated calyces, and renal pelvis (Fig. 1B). Findings were representative of a single, contiguous mass and not multiple masses as had been suspected on the prior CT. There was no renal vein or inferior vena cava involvement, and the urographic phase imaging demonstrated no filling defect in the ureters or bladder.

Outpatient cystoscopy or cytology was performed to rule out bladder and upper tract malignancy. Cystoscopy demonstrated no bladder masses, trabeculations, diverticula, or stones. Urine cytology obtained from both the bladder and the right ureter was benign. Treatment options were discussed with the patient at this time, and the patient elected to undergo surgery. During the surgical procedure, the patient underwent right ureteroscopy and pyeloscopy initially to rule out an upper tract collecting system tumor. As there were no suspicious masses on pyeloscopy, she subsequently underwent an open right radical nephrectomy. The patient tolerated the procedure well, and was discharged

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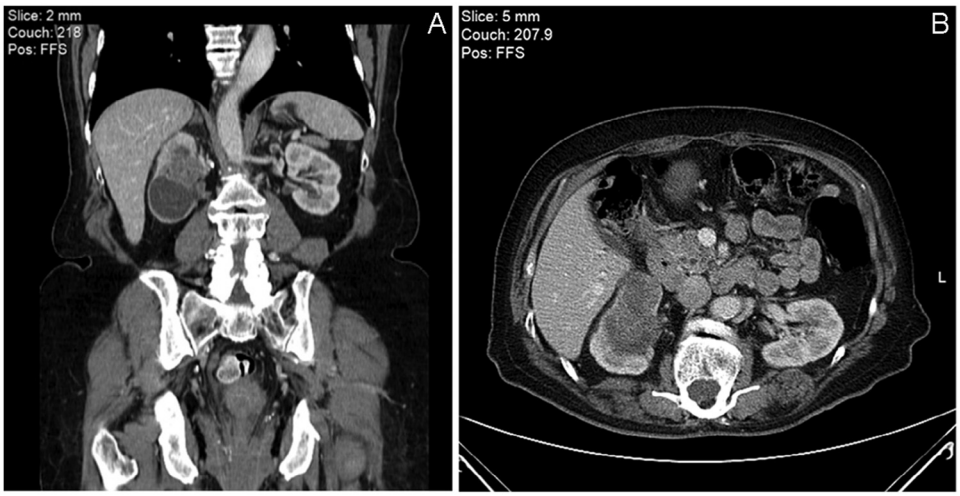

Figure 1. **(A)** Computerized tomography (CT) scan demonstrating a large well-circumscribed low-attenuation focus measuring up to 45 mm transverse with adjacent heterogeneously enhancing soft tissue mass measuring up to 37 mm transverse. **(B)** Postcontrast imaging demonstrates a bulky exophytic heterogeneous mass replacing the lower pole. At the lateral aspect of the mass is a large simple-appearing cyst measuring up to 5.3 cm.

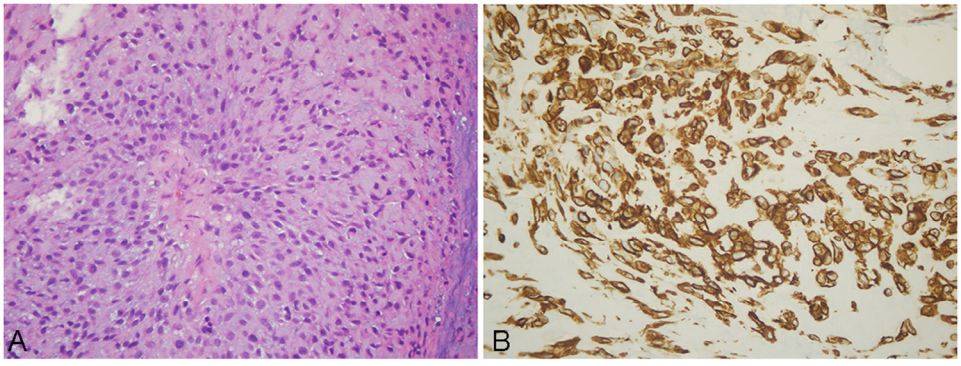

Figure 2. **(A)** Tumor cells are with a rim of eosinophilic cytoplasm and dispersed in a linear growth pattern in a myxoid stromal background (hematoxylin-eosin [H&E], × 400). **(B)** These cells are strongly positive for vimentin by immunohistochemical stain. (Color version available online.)

on postoperative day 4 without any major perioperative complications.

Pathology revealed a tumor size of 7.5 cm in greatest dimension with negative margins. Histology was compatible with a sarcoma, stage pT2bNxMx, without collecting system involvement. The final pathology of the tumor was determined to be intermediate-grade sarcoma with features of extraskeletal myxoid chondrosarcoma (EMC), cellular variant. Histologically, the specimen demonstrated a multinodular growth pattern. The nodules contained a rim of eosinophilic cytoplasm with high cell density in a myxoid stroma (Fig. 2A). Immunohistochemistry showed cells positive for vimentin (Fig. 2B), synaptophysin, CD117, and focal positivity for CD10. Kidney-specific, epithelial, melanocytic, and vascular markers were negative. Mitotic count was 7/10 high-power fields, and tumor necrosis was apparent in <50% of the sample, and the differentiation score was 3. An addendum study was performed to assess the presence of a Ewing sarcoma breakpoint region 1 gene rearrangement, which was negative.

Because of the complete resection, the patient did not require postoperative radiation therapy, but it was recommended that she receive regular follow-up. One year later, the patient has continued her follow-up routine without identified recurrence on CT scan, and has maintained adequate renal function as measured by creatinine and glomerular filtration rate.

DISCUSSION

Presented by Andrew G. Winer, MD

EMC is a rare, malignant soft tissue tumor representing less than 3% of sarcomas. The World Health Organization classifies these masses as a malignant variant among tumors of uncertain differentiation, because of their unique architecture. The majority (62%) of these tumors arise in the lower extremities, with only 21% of cases occurring in the abdomen, retroperitoneum, pelvis, and other locations (excluding the upper extremity).[6] This entity should be distinguished from extraskeletal mesenchymal chondrosarcoma,