Spontaneous Renal Subcapsular Hemorrhage with Hydroureteronephrosis due to Transitional Cell Carcinoma at Ureterovesical Junction

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We report a unique case of spontaneous renal subcapsular hemorrhage with seeded tumor nodules along the inner surface of the renal capsule, and associated the hydronephrosis due to ureteral obstruction caused by transitional carcinoma at ureterovesical junction.

Index words: Kidney, hemorrhage
Kidney, CT
Ureter, neoplasms

A 52-year-old man was hospitalized for the evaluation of right lower abdominal pain, which for five days of a nine-month period, was severe, and accompanied by gross hematuria. At other times during these nine months, the hematuria was relieved by medication. Over several months he lost about 5Kg.

Computed tomography showed irregular shaped masses on the right mid and distal ureter that also protruded into the urinary bladder (Fig. 1). There was hydroureteronephrosis proximal to the ureteral masses. The renal cortex was thinned and moderately attenuated fluid filled the subcapsular space (Fig. 2). Right nephroureterectomy and cystectomy with neobladder formation (ileal conduit) were performed. After surgery, the pathologic diagnosis of the ureteral masses was transitional cell carcinoma. There was an additional pathologic finding of transitional cell carcinoma of the nodules at the inner surface of the renal capsule, undetected on computed tomographic (CT) imaging. The patient underwent postoperative adjuvant radiation therapy.

Fig. 1. (A, B) CT images show the nodular masses each at the mid and the distal ureter protruding into urinary bladder (arrows).

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Discussion

Spontaneous subcapsular hemorrhage without anticoagulation, arteritis, instrumentation or trauma is rare. It is most likely due to underlying renal tumors, angiomyolipoma, or vascular diseases, which other causes include arteriovenous malformation, infarction, aneurysm of the renal artery, acquired cystic disease, blood dyscrasia, systemic anticoagulation, and chronic hemodialysis(1-4). As reported by Leonard and Williams, metastases from choriocarcinoma or other tumorous conditions also cause subcapsular or perirenal hemorrhage(4, 5). Pathologically, these causes show arterial intimal fibrosis, rupture of unsupported sclerotic arteries, and arterial narrowing(1). In our case, the masses were located on the right mid ureter and at the ureterovesical junction(UVJ), with proximal long-standing hydroureteronephrosis and cortical thinning. The calyceal portion was also ruptured, as was the tumor tissue, and urine then spread to the subcapsular space. Radiologically, computed tomographic and magnetic resonance(MR) imaging findings of subcapsular or perinephric hemorrhage vary according to the age of the hemorrhage(2, 6), which is not enhanced with contrast media. CT scanning showed abnormal soft tissue density with displacement, compression or obscuration of normal retroperitoneal structures(3). On ultrasonography, echogenicity of the hemorrhage was mixed. When clotted, the lesion was not easy to differentiate from a solid mass(2, 6), and on intravenous pyelography with tomography, the findings were pathognomonic(3). The appearance was that of a slightly opacified linear renal capsule contrasted between hematoma on one side and perinephric fat on the other, with non-opacified hematoma compressing and flattening the opacified renal parenchyma. Since it is able to differentiate blood from tumor, MR is useful for the diagnosis of hemorrhage, and to rule out vascular lesions or small renal carcinoma not defined on a CT scan, selective renal angiography is mandatory(3). In perinephric hemorrhage the capsular arteries may be displaced away from the capsule, which suggests that the distance between the capsule and the capsular arteries helps differentiate between perinephric and subcapsular hematomas. In conclusion, it should be noted that when diagnosing unusual configurations, the characterization and pathophysiology of spontaneous renal subcapsular hemorrhage with microscopic subcapsular seeding by ureteral transitional carcinoma should be considered.

References