Renal sinus venous thrombosis mimicking neoplasm

Case 6823

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Patient: 65 years, female

Clinical History:

A 65-year-old female was admitted to the hospital due to a respiratory tract infection with respiratory insufficiency. Her medical history was significant for surgically removed transitional cell carcinomas of the bladder. During the ingress period, gross hematuria was detected but no malignant cells were found in the urine cytology.

Imaging Findings:

Abdominal sonography showed a 4 cm left renal solid mass located in the renal sinus (Fig. 1). A contrast-enhanced computed tomography confirmed the presence of a rounded solid renal sinus lesion (Fig. 2). The intravenous urography showed distortion and partial filling of the lower caliceal system (Fig. 3). Because of the clinical history and radiological findings, a transitional cell tumor could not be ruled out, so a radical left nephrectomy was performed. The pathologic study of the resected kidney revealed a renal sinus lesion consistent with old venous thrombosis within a dilated vein (Fig. 4). No evidence of neoplasm was observed in the histological sections. After one year of follow-up, the patient remains asymptomatic and the ultrasound showed no alterations apart from nephrectomy.

Discussion:

The first diagnostic possibility that should be considered in patients presenting with gross hematuria associated with a solid renal sinus lesion on the imaging study, is a neoplasm, with transitional cell tumor being the most common pelvicaliceal cancer. Among the nontumorous conditions of the renal sinus that can manifest as a peripelvic mass are those of vascular origin such as renal artery aneurysm, arteriovenous communication, and renal vein varix (4). Radiologically, if they are not complicated with thrombosis, their vascular nature can be easily identifiable at color Doppler ultrasound, contrast-enhanced computed tomography (CT) or magnetic resonance imaging and angiography. In this case reported, although pathological examination could not confirm nor rule out this possibility, a renal vein varix could have been the underlying predisposing factor for renal thrombosis. Renal vein varices are a rare entity that usually involves the renal pelvis. They may be idiopathic or, more frequently, related to acquired conditions, such as splenorenal portosystemic shunt due to portal hypertension or renal vein thrombosis (5). Idiopathic renal varices are more commonly located on the left side (6), and although the exact etiology remains unclear, the possible causes include the nutcracker syndrome, that can lead to intrarenal and perirenal varicosities as the result of the compression of the left renal vein by the abdominal aorta and the proximal superior mesenteric artery, and the inherent weakness of the venous wall (6,7). Clinically, renal varices have been associated with hematuria (5,8), although this nexus has not been definitively established. On the imaging study, they can become a
diagnostic dilemma if they thrombose, especially when they are solitary, as it can make them appear as a renal tumor (9).

There is a case reported in the literature (3) of an acute renal thrombosis in which CT showed a hyperdense mass on non-contrast scan with a little enhancement after intravenous contrast material administration, findings that also led to nephrectomy of the affected kidney. The high attenuation of the lesion was presumably due to the recent formation of the thrombus. In our case, however, the lesion was seen as a low attenuating mass on the contrast-enhanced CT scan, which correlated with the old thrombosis seen on pathological examination.

In conclusion, we report a case of renal sinus venous thrombosis resembling a neoplasm on the ultrasound, intravenous urography and contrast-enhanced CT studies, which resulted in nephrectomy. Thus, although this is an uncommon condition, it should be considered in the differential diagnosis of a solid renal sinus lesion, especially when urine cytology is negative for malignant cells.

**Differential Diagnosis List:** Renal sinus venous trombosis

**Final Diagnosis:** Renal sinus venous trombosis

**References:**


Description: Renal ultrasound shows a 4 cm lobulated hypoechoic solid mass located in the lower portion of the renal sinus. Origin:
Description: Contrast-enhanced helical CT scan obtained during cortico-medullary phase demonstrates a slightly heterogeneous left renal sinus mass (arrows)-Origin:
Description: Excretory phase Origin:
Description: Intravenous urography shows irregularity, distortion and partial filling of the calices and infundibula in the left lower pole (arrows). Origin:
Description: Cut section of nephrectomy specimen stained with hematoxylin and eosin shows normal renal parenchyma (thin solid arrows) and thrombosis (thick solid arrows) with areas of recanalization (open arrow) within a dilated vein in the renal sinus. Original magnification, 1.25x. Origin: