

PARTIAL RENAL INFARCT SIMULATING A COLLECTING SYSTEM TUMOR

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CASE REPORT

Acute partial renal infarction is usually clinically silent (1), whereas the classical clinical presentation of a patient with an acute complete renal artery obstruction is one of severe flank pain accompanied by a minimal-to-moderate amount of hematuria. On the excretory urogram a poorly or nonfunctioning kidney is usually present on the side of involvement. The retrograde pyelogram is classically normal (2). If angiography is done, a sharp cutoff to the column of contrast material in the affected renal artery will be seen. The radioisotope renogram done with ^{131}I -Hippuran usually reveals asymmetric tracings indicating unilateral disease (1).

We have recently encountered a very unusual presentation of a partial renal artery infarct. The IVP and nephrotomogram were nondiagnostic. Radioisotope exams done with $^{99\text{m}}\text{Tc}$ -pertechnetate and ^{131}I -Hippuran suggested the diagnosis.

A 65-year-old white male presented with left flank pain and gross hematuria with clots for one day prior to admission. Physical exam revealed a Grade two over four apical systolic murmur. The prostate was three plus enlarged and smooth. Urinalysis showed gross hematuria with clots and two plus albumen. Calcium and uric acid levels were normal. Creatinine was 1.7. Electrolytes were normal.

An IVP (Fig. 1) revealed multiple large filling defects involving the lower pole calyceal system on the left. Good renal function was seen bilaterally. However, the earliest films obtained were at 5 and 10 min after injection. Nephrotomography confirmed

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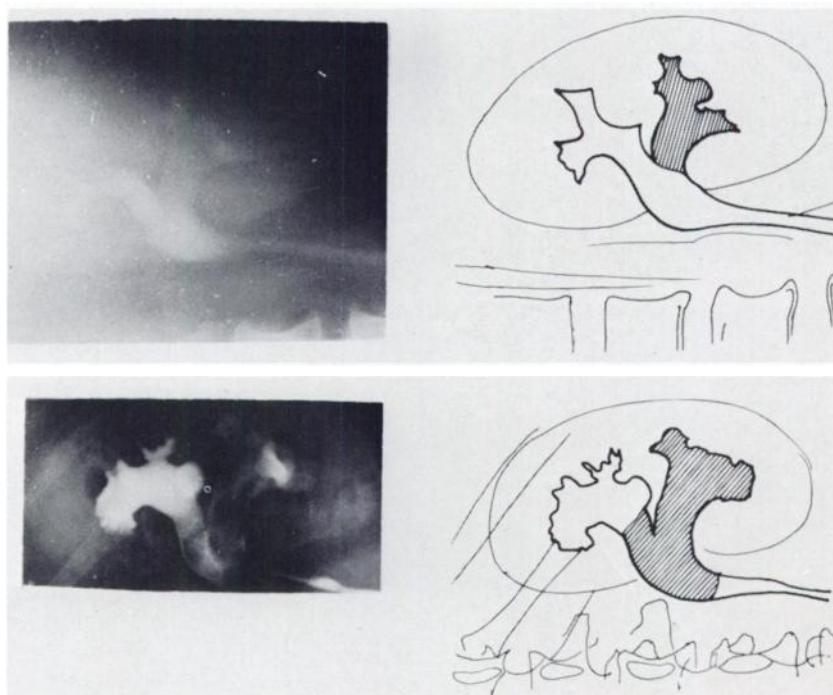


FIG. 1. Multiple filling defects are seen in left collecting system on retrograde pyelogram and IVP done same day. Same finding is present on nephrotomogram. There is no defect in nephrogram phase.

the presence of large filling defects within the left lower calyceal system and renal pelvis, with no evidence of a decreased nephrogram involving any part of the kidney.

A left retrograde pyelogram showed the filling defect in the left kidney described on the previous IVP (Fig. 1).

Radioisotope renal studies were interpreted as being consistent with renal arterial occlusive disease. The renal blood flow study was done by rapidly injecting 10 mCi of ^{99m}Tc -pertechnetate into an ante-

cubital vein. After an initial 10-sec delay, serial Polaroid films were then exposed every 2 sec for 22 sec with the Anger camera centered over the kidneys. This study showed decreased blood flow to the left kidney.

The ^{131}I -Hippuran study was performed by obtaining serial Polaroid images of the renal areas on the Anger camera every 2 min for 30 min after the intravenous injection of 250 μCi of the radioisotope. Delayed images at 1 and 3 hr were also obtained. There was delayed visualization and early decreased concentration of the radioisotope on the left with late hyperconcentration. A radiorenogram "strip" was done at the same time that the images were obtained and showed decreased vascular and secretory phases.

An arteriogram was not done.

Surgery was performed because the filling defects suggested the possibility of a renal collecting system tumor.

An hemorrhagic infarction involving the lower pole of the left kidney with clots filling the collecting system was found. No tumor was seen. Associated focal pyelonephritis and marked arteriolonephrosclerosis were also present on pathological exam.

DISCUSSION

This case represents an atypical presentation of acute partial renal infarction. Massive hematuria with blood clots is rare. The presence of multiple filling defects in the renal collecting system on IVP, retrograde pyelogram, and nephrotomogram (Fig. 1) secondary to blood clots is also rare. This suggested the possibility of a collecting system tumor. The kidneys were equal in size on the IVP and functioned well. The left kidney showed no area of decreased opacification on the nephrogram phase.

The ^{99m}Tc -pertechnetate blood flow and serial radioisotope image after administration of ^{131}I -Hippuran (Fig. 2) suggested the diagnosis as described above. Renal arteriogram was not done.

SUMMARY

A case is presented of acute partial renal infarction with atypical clinical presentation and radiographic findings suggesting the diagnosis of a collecting system tumor. The correct diagnosis was suggested by radioisotope renal studies. The diagnosis was confirmed at surgery.

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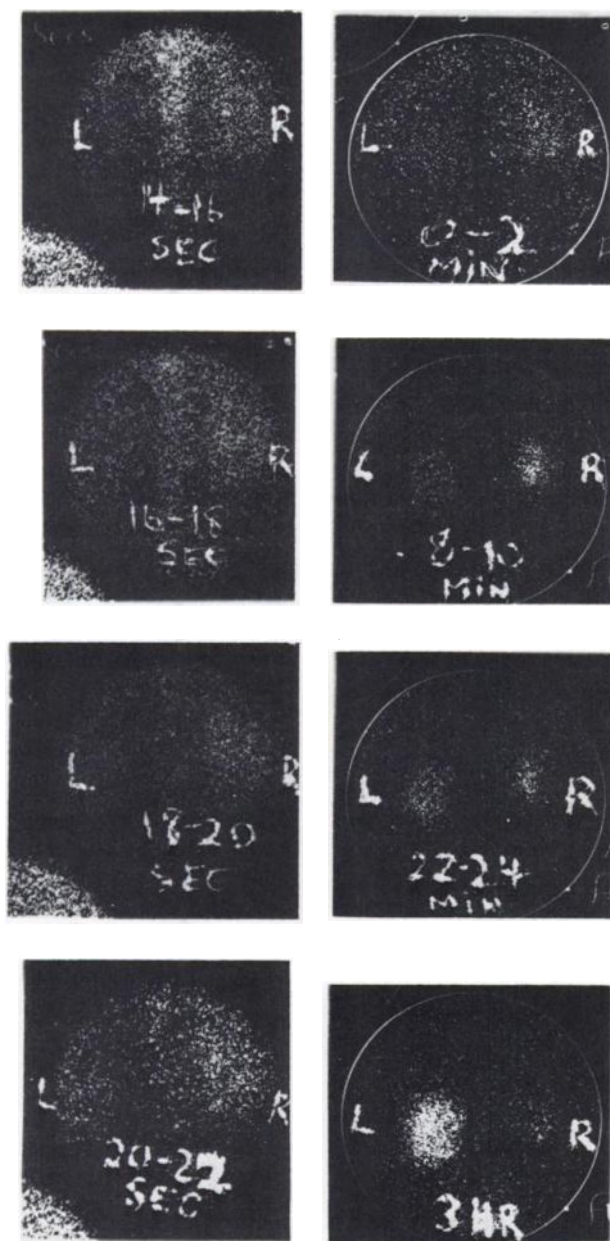


FIG. 2. Representative films of ^{99m}Tc -pertechnetate renal blood flow (left column) and ^{131}I -Hippuran study show decreased blood flow to left kidney, delayed concentration of ^{131}I -Hippuran on early films, with hyperconcentration on late films.