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SUBCAPSULAR URINOMA: AN UNUSUAL FORM OF PAGE KIDNEY IN A HIGH SCHOOL WRESTLER

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The Page kidney phenomenon is usually associated with blunt renal trauma and accompanying perinephric or subcapsular hematoma. We describe a case of Page kidney due to a subcapsular urinoma, likely resultant from blunt trauma.

CASE REPORT

In March 2001 a 16-year-old white male was referred for evaluation of acute right flank pain. The patient's medical, surgical, social and family histories were remarkable only for a family history of nephrolithiasis and, at the time of evaluation, participation on his high school wrestling team. Physical examination was remarkable for a blood pressure of 140/90 mm. Hg and right flank tenderness. Urinalysis revealed microhematuria.

Noncontrast enhanced computerized tomography of the abdomen and pelvis demonstrated bilateral subcapsular fluid collections. Subsequent images, following intravenous administration of contrast agent, showed extravasation of contrast material into the subcapsular fluid collections (fig. 1). For further definition of the nature of the fluid collections the patient underwent magnetic resonance imaging of the kidneys. Characteristics of the fluid collections on T1 and T2-weighted images were consistent with that of urine (fig. 2). In addition, peripheral plasma renin activity was found to be 36 ng./ml. per hour (normal less than 3.3).

Hypertension was treated with lisinopril. Initial surgical management included cystoscopy, retrograde pyelography and ureteral stent placement. Retrograde pyelography revealed bilateral pyelotubular backflow, with extravasation of contrast material. A right ureteral stent was placed to optimize drainage of the collecting system as this was the side on which the patient was symptomatic. Following stent placement, the patient refrained from strenuous physical activity.

Followup imaging of the kidneys 2 months later showed resolution of the subcapsular fluid collections. In addition, blood pressure normalized, and the patient was weaned off of the antihypertensive medication 4 months after initial presentation.

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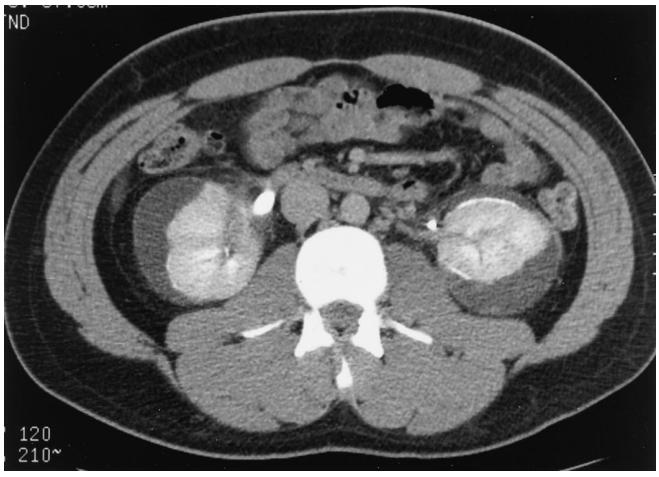

FIG. 1. Enhanced computerized tomography of kidneys demonstrates curvilinear collections of contrast material within subcapsular fluid collections.

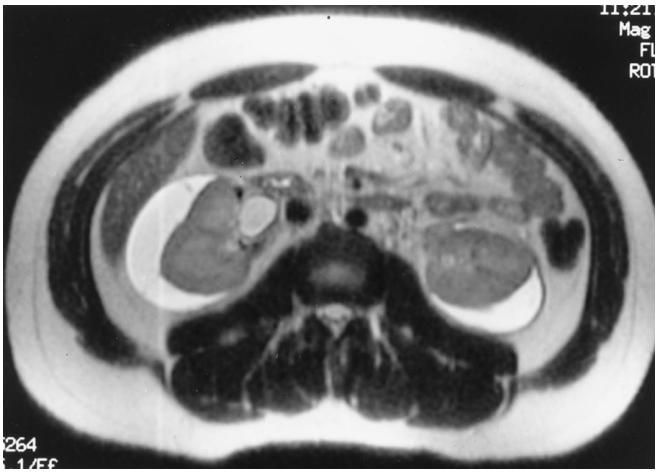

FIG. 2. T2-weighted magnetic resonance imaging of kidneys shows bilateral subcapsular fluid collections of signal intensity consistent with urine.

DISCUSSION

In 1939 Page described hypertension induced in dogs by wrapping 1 or both kidneys in cellophane.[1] This experiment demonstrated the phenomenon known as "Page kidney," which refers to hyperreninemic hypertension induced by renal ischemia from compression of the renal parenchyma by a perirenal or subcapsular process. It was not until 1955 that Page was able to describe a clinical correlate to this study, when Engel and Page reported hypertension associated with a subcapsular renal hematoma in a football player who had sustained blunt trauma to the flank.[2]

Since that time, there have been numerous reports of Page kidney due to perirenal hematoma. However, to our knowledge there has been only 1 report of a subcapsular urinoma associated with Page kidney, and this was due to high pressure reflux associated with posterior urethral valves.[3] In light of our patient's history of high school wrestling, and in the absence of other trauma, injury or urinary tract pathology, it is likely that an injury incurred during wrestling had a role in the patient's Page kidney. Since the bilateral fluid collections resolved despite unilateral ureteral stent placement, either ureteral stent placement or percutaneous drainage may be reasonably reserved for those patients who do not improve following conservative therapy.

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