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Renal Rupture Following Extracorporeal Shockwave Lithotripsy

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A 41-year-old woman presented to the emergency department with a chief complaint of hematuria three days status post extracorporeal shockwave lithotripsy. The patient described a three-day history of worsening left-sided abdominal pain immediately following the procedure. She denied any fever, chills, changes in bowel habits, hematochezia, increased urinary frequency, urinary urgency, or dysuria.

Physical exam revealed tenderness to palpation in the left upper quadrant, left flank and periumbilical region with mild guarding. Laboratory studies revealed an anemic patient with downward trending hematocrit (red blood cell count of $3.41 \times 10^6/\mu\text{L}$, hemoglobin of 10.6 g/dL, and a hematocrit of 31.3% down from 43% a week and a half prior). Urinalysis revealed red and cloudy urine with 3+ leukocytes.

A chest radiograph was unremarkable. A computed tomography of the chest, abdomen, and pelvis showed a laceration to the lateral aspect of the mid left kidney with a hematoma measuring 3.2 cm in thickness (Figure). The patient was subsequently admitted to the hospital for monitoring and discharged on day nine. [West J Emerg Med. 2014;15(6):706-707]

DISCUSSION

Extracorporeal shockwave lithotripsy (ESWL) is a widely used treatment for symptomatic renal and ureteral stones, most

effective with stones in the renal pelvis and upper ureter less than 1.5 cm in size.¹ Complications include incomplete stone fragmentation, hypertension, and decreased effective renal plasma flow.² In more severe cases, ESWL can lead to renal rupture or hematoma.³ As seen with our patient, symptoms of renal rupture include persistent flank pain, decreased hemoglobin, mild fever, tenderness, and guarding.^{4,6} Hematoma following ESWL may be detected by non-contrast computed tomography.^{3,4} Most patients with kidney rupture only require supportive care.^{4,6} Surgical intervention or embolization is reserved for severe cases.^{4,6}



Figure. Computed tomography of the abdomen three days following extracorporeal shockwave lithotripsy and laser lithotripsy procedures showing a laceration to the lateral aspect of the mid left kidney (black arrow) and a hematoma on the posterior and lateral borders of the left kidney (H).

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