

IMAGES IN EMERGENCY MEDICINE

Abdominal

Young woman with flank pain

John Thomas Tejjido MD^{1,2} | Therese Johnson PA-C^{1,2}¹ Emergency Medicine Specialists, S. C., Wauwatosa, Wisconsin, USA² Ascension, St. Louis, Missouri, USA**Correspondence**

John Thomas Tejjido, MD, Emergency Medicine Specialists, S. C., 10625 West North Avenue, Suite 102, Wauwatosa, WI 53226, USA.

Email: john.tejjido@gmail.com

1 | PATIENT PRESENTATION

A 34-year-old female with medical history of current cocaine use presented with left flank pain. It started suddenly 1 day ago and was constant with no radiation. She reported associated symptoms of nausea, vomiting, and hematuria. She was afebrile, oxygenating normally on room air but with persistently elevated blood pressure at 220/112 mm Hg despite opioid analgesics. She appeared in severe pain and was constantly switching position in bed. Laboratory workup revealed increased creatinine to 1.6 mg/dL from a baseline of 0.8 mg/dL. In addition to ureterolithiasis, we also considered abdominal aortic dissection with extension into the renal arteries given her vital signs and history of cocaine use. Her computed tomography (CT) angiography images are shown in Figures 1–3 with delayed images also provided.

2 | DIAGNOSIS

2.1 | 3 mm ureterovesical stone, forniceal rupture, large retroperitoneal urinoma with mass effect on the aorta

Forniceal rupture is caused by increased renal pelvis pressure from the backup of urine. This is most commonly caused by a distal ureteric stone but can be caused by extrinsic ureteric compression such as malignancy.^{1,2} This patient was admitted for pain control, management of her azotemia, and ultimately required ureteral stenting. At

follow-up, her ureteral stent was removed, and, aside from some expected pain from stent removal, she was markedly improved with no further need for follow-up.

Forniceal rupture is most commonly treated conservatively, because it will resolve spontaneously once the obstruction is relieved. Even large urinomas will gradually resorb into the surrounding tissues. In some cases, ureteral stenting and lithotripsy is required, especially if renal function becomes compromised or if pain is intractable. Very large urinomas or infected urinomas may require percutaneous drainage and nephrostomy catheters.² Due to our patient's improvement after ureteral stenting, the urologist decided that percutaneous drainage was not required.

Our challenge was the consideration of a more emergent diagnosis, namely an abdominal aortic dissection. However, we recognized that this patient's age made ureterolithiasis the most likely diagnosis. Most textbooks state that contrast administration will hinder the ability to diagnose ureteral stones.^{3,4} One study looking at arterial phase CT scans showed that 75% of renal calculi, and all renal calculi larger than 5 mm were detected.⁵ Two other studies evaluating CT scan with venous phase contrast showed very high sensitivity for renal stones. One study showed 100% sensitivity for stones >2 mm and the other showed 98% sensitivity for stones >5 mm. Limitations of this research includes their retrospective nature, low number of patients, and some of these studies do not differentiate between renal stones and ureteral stones.^{6,7} With this in mind, if diagnostic uncertainty is present in a patient with flank pain or abdominal pain, we feel that using contrast with CT is unlikely to limit identification of clinically significant ureteral stones.

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FIGURE 1 Distal end of the patient's severely distended stomach, likely due to mass effect on the small bowel from the large urinoma



FIGURE 2 3 mm left ureterovesical obstructing stone



FIGURE 3 Contrast extravasating from the renal fornix into the large urinoma

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How to cite this article: Teijido JT, Johnson T. Young woman with flank pain. *JACEP Open.* 2020;1:676-677.

<https://doi.org/10.1002/emp2.12149>