

Acute Obstructive Uropathy with Renal Pelvic Stone

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Citation

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Abstract

A 43 year old obese Caucasian female with a past medical history of insulin requiring diabetes mellitus, previous kidney stones, hyperlipidemia, depression, and anxiety presented to the emergency room with severe left sided flank pain with acute onset of nausea and vomiting 24 hours prior. She stated that she developed the left sided flank pain the day before presentation and that it lasted several hours in duration. The patient reported that she has been drinking three 16-ounce sodas and that her blood sugars have been uncontrolled for three weeks. She endorsed urinary frequency in the absence of dysuria, hematuria, or urinary retention. Ibuprofen reduced the severity of the abdominal discomfort but throughout the evening she had persistent flank pain and developed chills and a fever. Upon presentation the patient had a fever of 101.6 degrees Fahrenheit and was tachycardic. The patient had a lactic acid level of 4.0 on admission. On further investigation left sided hydronephrosis, pyelonephritis and a large left renal pelvic stone measuring 9mm was discovered on CT without contrast. Given the acute obstructive uropathy with urinary tract infection and suspected sepsis, the patient was admitted for further evaluation. This case report will discuss a rare presentation of acute obstructive uropathy with pyelonephritis and renal pelvic stone.

INTRODUCTION

Acute obstructive uropathy occurs when there is a sudden block in the urinary tract, which causes obstruction of urine flow. Obstruction can occur at the kidneys, ureters, bladder outlet or urethra. One or both of the urinary tracts can be involved. After an obstruction occurs, there is a significant and sudden drop in urine production and associated symptoms can include nausea, vomiting, confusion, and pain in the lower abdomen or back. Treatment is aimed at relieving the obstruction and at the underlying disease process.

CASE REPORT

A 43 year old obese Caucasian female with a past medical history of insulin requiring diabetes mellitus, previous kidney stones, hyperlipidemia, depression, and anxiety presented to the emergency room with complaints of severe left sided flank pain. The patient reported that for the last 24 hours she had acute onset of nausea and episodes of emesis. She stated that she developed the left sided flank pain the day before presentation and that it lasted several hours in duration. The patient reported that she has been drinking three 16-ounce sodas and that her blood sugars have been uncontrolled for three weeks. She endorsed urinary frequency

in the absence of dysuria, hematuria, or urinary retention. Ibuprofen reduced the severity of the abdominal discomfort but throughout the evening she had persistent flank pain and developed chills and a fever. Upon presentation the patient had a fever of 101.6 degrees Fahrenheit and was tachycardic. The patient had a lactic acid level of 4.0 on admission. Pertinent labs included a white blood cell count of 11.9×10^3 and a blood glucose of 348. Physical exam revealed tenderness to palpation of the lower left quadrant and left lower back. On further investigation left sided hydronephrosis with a large left renal pelvic stone measuring 9mm was discovered on CT without contrast. Given the acute obstructive uropathy with urinary tract infection and suspected sepsis, the patient was admitted for further evaluation. The patient was given aggressive IV fluids, broad spectrum antibiotics as per sepsis protocol, and symptomatic pain and nausea control. The patient subsequently had blood cultures positive for *Klebsiella pneumoniae*. Due to the hydronephrosis it was decided to bring the patient to the operating room as per urology. Retrograde pyelogram with a #8 French cone-tipped catheter confirmed the obstructive uropathy and a double-J catheter was placed. The patient had purulent urine drained during the procedure and a 2cm urethral stricture was noted intraoperatively and was dilated.

Further recommendations were made for the patient to follow up for extracorporeal shockwave lithotripsy and double-J catheter removal.

Figure 1

CT scan without contrast. Renal stone (arrow), right sided hydronephrosis (arrowhead)[2].

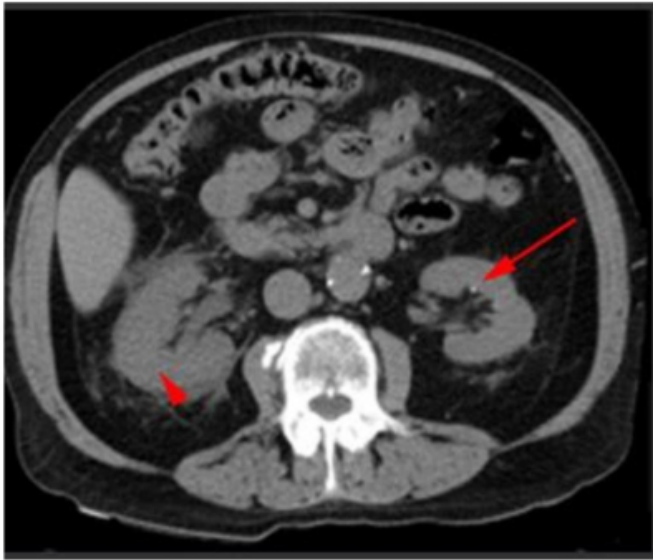


Figure 2

Retrograde pyelogram showing stricture[4].



DISCUSSION

Acute obstructive uropathy can affect individuals of any age group, however, it is much more common in the elderly due to the increased rates of other medical complications,

previous surgeries, and tumors. The prevalence ranges from five in 10,000 to five in 1,000, depending on the cause of obstructive uropathy. Hydronephrosis is seen in 2-4% of patients with acute obstructive uropathy[3]. Incidence follows a bimodal pattern. Children acquire acute obstructive uropathy due to congenital anomalies of the urogenital tract. Incidence decreases after childhood but peaks again after 60 years of age, more commonly in men, due to benign prostatic hyperplasia[3]. Males are affected more commonly than females due to the anatomy of the urethra, which is longer in males. Risk factors include benign prostatic hyperplasia, kidney stones, and cancers of the genitourinary tract[1]. Acute obstructive uropathy occurs when there is a block at a site in the urinary tract, such as the kidneys, ureters, or bladder outlet, which obstructs urine flow. Overall the most common cause of acute obstructive uropathy is benign prostatic hyperplasia, which occurs when the prostate gland enlarges. As the obstruction progresses there is a drop in urine output along with nausea, vomiting, and pain in the upper or lower abdomen and back. Diagnosis is via CT scan or ultrasound of the kidneys. Early treatment is imperative to avoid complications, such as acute renal failure. For symptom relief urgent catheterization can be performed but treating the underlying disease process is important for resolution. Overall the prognosis of acute obstructive uropathy is high if the disease process can be reversed. If there is a calculus then the acute renal failure can be treated and is reversible, with return of renal function. However if there is progressive obstruction, then the renal dysfunction may be irreversible.

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