Urinoma: a rare complication of ureteral calculi

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ABSTRACT

Urinoma is a collection of extravasated urine either in renal subcapsular or perirenal space. It is caused by obstructive and non-obstructive pathologies. It is rare; with trauma as most common cause in adults and ureteral stones as least common. It mimics symptoms of ureteral stone. CT KUB is best modality to detect it. Here we present a case of ureteral calculi leading to urinomas formation in a 42 years old male patient present with retention of urine and pain in left flank region with nausea, vomiting and fever.

Keywords: Urinoma, Renal trauma, Ureteral calculi, UTI

INTRODUCTION

Urinoma usually results when the urine extravasates from the urinary tract such as kidney, ureter, bladder, or urethra. These urinomas can be unilateral or bilateral. They can be symptomatic or asymptomatic. These can manifest as a confined or encapsulated collection or as free fluid mimicking ascites.¹ There are two types of urinomas which are encapsulated collections of extravasated urine in a) the subcapsular space called as subcapsular urinoma and b) perirenal space called perirenal urinoma. It was previously considered that urinomas had a protective effect on renal function, recent studies have questioned the protective effect concept as some patients showed impaired renal function in the kidney ipsilateral to the urinoma.²,³ Patil et al, proved that there was no difference in renal function in patients with urinoma with ascites and even in controls.² Wells et al showed that the pop-off mechanism of urinoma significantly protects long term global renal function.⁵

CASE REPORT

Our case involved a 42 year old male who came to emergency department with chief complaints of left-sided flank pain since 5 days, fever, nausea, vomiting and unable to pass urine since 1 day. Patient was a known case of left renal calculi and history of similar complaint 1 year back. The patient did not use tobacco products, alcohol or abused drugs. On physical examination the temperature was 98.4 F, pulse 70, blood pressure 140/96 mmHg, respiratory rate 16. Abdomen was soft, with tenderness in left lumbar region, no guarding or rigidity, bowel sounds were present. The remainder of the physical examination was within normal limits.

Laboratory studies upon admission:
Haemoglobin 12.9 g/dl, haematocrit 37.1%, leukocytes 3100/uL with 62% polymorphonuclears, platelets 148,000/uL; sodium 138 mEq/L, potassium 4.4 mEq/L, chloride 108 mEq/L, blood urea nitrogen (BUN) 33 mg/dL, serum creatinine 2.2 mg/dL, glucose 128 mg/dL, albumin 3.5 g/dL. The urine analysis showed: small blood, protein >300 mg/dL, leukocytes >50,000/mCL, WBC count 3.5 X 10⁹/L, ESR 120 mm/h, blood urea nitrogen (BUN) 33 mg/dL, serum creatinine 2.2 mg/dL, glucose 128 mg/dL, albumin 3.5 g/dL. The urine analysis showed: small blood, protein >300 mg/dL, glucose 100 mg/dL, WBC 5-10, RBC 0-3, bacteria 2+, leukocyte esterase moderate, nitrite negative. Extended spectrum beta-lactamase producing Escherichia coli grew in the urine cultures. Treatment for pyelonephritis was started with parenteral broad spectrum antibiotic. Renal ultrasonography (Figure 1), performed on suspicion of possible nephrolithiasis, revealed mild to moderate left sided hydronephrosis, and collection in left subcapsular
and pararenal space, bilateral echogenic kidney, thickened bladder wall.

Figure 1: USG showing hydronephrosis of left kidney.

Computed tomography KUB was done (Figure 2) showed a large obstructive calculus 12mm in the left mid ureter. Few proximal small calculi are also seen in mid ureter. There is moderate dilatation of pelvicalyceal system. Defect is noted in left proximal ureter. Large bilobed collection 5.4 x 3 x 10 cm is noted in the retro peritoneum in the posterior para renal space and extending along left psoas muscle.

Figure 2: CT scan showing urinoma.

Collection is seen communicating with the defect in the proximal ureter. The findings were interpreted as consistent with an urinoma secondary to the obstructive left ureteric calculus. The patient then underwent cystoscopy with stone removal and ureteral stent placement. The perirenal and subcapsular collections, the flank pain, nausea, vomiting all subsequently started to resolve, by 1 week a CT scan was done to check for decrease in size of urinoma (Figure 3). The Urinoma resolved by 3 week.

Figure 3: CT scan Post Op. after 1 week showing resolving urinoma.

DISCUSSION

Urinomas may be caused by either obstructive or non-obstructive pathology. Obstructive causes are:

1. pregnancy
2. ureteral calculi
3. pelvic masses
4. posterior urethral valves
5. congenital anomalies
6. post-radiation scarring
7. enlarged lymphatic glands
8. retroperitoneal fibrosis and lastly
9. prostate enlargement

Non-obstructive causes are

1. external trauma to the kidneys, the urinary collecting system, or injury during
2. pelvic
3. gynaecological
4. retroperitoneal and lastly
5. genitourinary surgery

Urinoma and all its causes are rare presentation. Trauma to the urinary system is the most recognised cause in adults these days with advancement in radiology. Obstructive cause like ureteral calculi are less likely seen manifesting as urinoma. The mechanism by which urinoma is formed is pyelosinus backflow of urine, that can occur with intrapelvic pressures rise which is greater than 35 cm of H₂O, with subsequent rupture of caliceal fornices. Urinomas forming due to obstruction from...
Urinomas if not detected in time can cause serious complications. Thus requiring immediate surgical management for it complete resolution if it is not responding to conservative line of management.

Urinoma complications include hydronephrosis, paralytic ileus, electrolyte imbalances, abscess formation, and sepsis. So the clinician/surgeons should keep urinoma as a differential for ureteral calculi even though this is rare but serious entity that need prompt diagnosis and management of this condition.

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REFERENCES
