Record Breaking Urine Retention

Nebiyu Biru, MD; Anton Strunet, MD

Department of Internal Medicine, Aurora Health Care, Milwaukee, WI

Introduction:
• Causes of urinary retention are numerous and can be classified as obstructive and non obstructive (infectious and inflammatory, pharmacologic, neurologic, etc.)
• Urinary tract obstruction can occur anywhere along the urinary tract.
• The most common causes of bilateral obstruction include bladder outlet obstruction (prostatic enlargement or posterior urethral valves) and neurogenic bladder.
• Neurogenic bladder is more common in males with a mean age of 62 years.

Case Description:
• A 61 year old male with past medical history of hypertension and factor V Leiden mutation on anticoagulation presented with inability to urinate.
• Gradual abdominal distention with increased waist size.
• History positive for hematuria.
• No dysuria, no frequency and no urge to urinate.
• No hx of trauma or neurological disease.

Physical Examination:
• Vital signs: Temp 98.0 0F; PR 104/min; RR 18/min; BP 126/83 mmHg; Pulse Ox 94% on RA.
• General: Not in acute distress.
• Chest: Clear to auscultation.
• CVS: Tachycardic, S1,S2, no murmur, no lower extremity edema.
• Abdomen: Soft, markedly distended, no tenderness, fluid thrill positive.
• Skin: Moist and warm.

Work up:
• Na: 146 mmol/L
• K: 4.0 mmol/L
• Cl: 103 mmol/L
• HCO3: 27 mmol/L
• BUN: 45 mg/dL
• Cr: 2.93 mg/dL
• WBC: 7.6 K/mcL
• Hgb: 15.0 g/dL
• Plt: 198 K/mcL
• INR: 3.2

Clinical Course:
• Ultrasound of the abdomen/pelvis revealed distended bladder all the way up to the diaphragm (figure 1/2) with bilateral hydronephrosis. (Figure 3)
• Foley catheter was placed.
• 21,875 ml of urine drained in the first 24 hours and 25,025 ml in the first 48 hours.
• CT abdomen/pelvis without contrast was consistent with sequelae of a neurogenic bladder showing marked wall thickening and trabeculations. (Figure 4)
• Follow up cystogram was done which showed no ureteral reflux.
• A nuclear medicine renogram revealed 80% function of the left and 20% function of the right kidney.
• PSA was 2.65 ng/mL.
• Patient was diagnosed with neurogenic bladder and discharged with an indwelling catheter.
• Patient continued to get better with conservative management and currently self catheterizes 3-4 times per day.

Discussion:
• Urinary retention has been classified as either acute or chronic; the latter is generally classified as high pressure or low pressure depending on urodynamic studies.
• A completely full bladder is capable of holding approximately 1 liter of urine.
• In literature, there was a patient in Saudi Arabia who had 22 liters of urine drained (described in Guinness book of world records.)
• To the best of our knowledge, our patient had record breaking urine drained.
• Management of acute urine retention is prompt bladder decompression, with urethral or suprapubic catheterization.
• Treatment of neurogenic bladder includes medications, such as bethanecol and self-catheterization with surgical intervention, such as transcutaneous electrical stimulation for patients with unsatisfactory response.

References:

Figure 1: US of the abdomen showing distended bladder up to the diaphragm (A) extending to the liver (B).

Figure 2: Distended bladder (C) at the level of aortic bifurcation.

Figure 3: Distended calyces (D) of the kidney.

Figure 4: CT abdomen/pelvis showing chronic changes (trabeculations) of the bladder (E).