

# Record Breaking Urine Retention

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## 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 OF; 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
- BUN: 45 mg/dL
- Hgb: 15.0 g/dL
- K: 4.0 mmol/L
- Cr: 2.93 mg/dL
- Plt: 198 K/mcL
- CL: 103 mmol/L
- WBC: 7.6 K/mcL
- INR: 3.2
- HCO3: 27 mmol/L

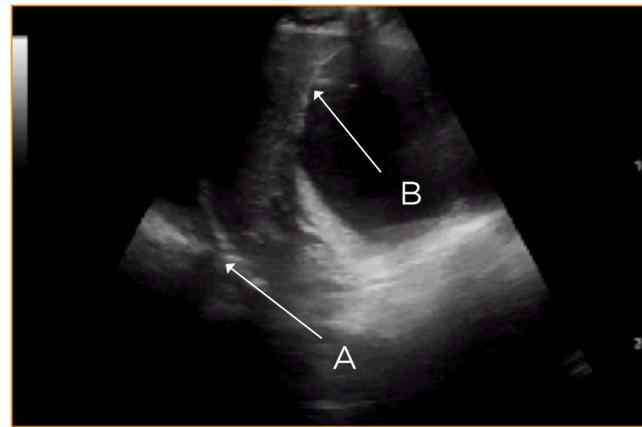


Figure 1: US of the abdomen showing distended bladder up to the diaphragm (A) extending to the liver (B).



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).

## Clinical Course:

- Ultrasound of the abdomen/pelvis revealed distended bladder all the way up to the diaphragm (figure 1/2) with bilateral hydroureter and 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:

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