An Unexpected Inguinal Guest

UNIVERSITY OF ILLINOIS - CHICAGO
Emergency Medicine

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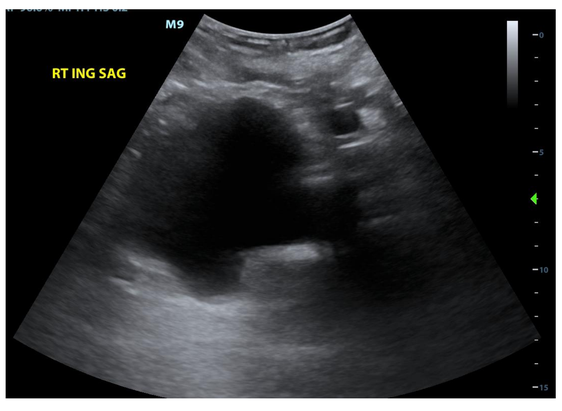
Chief Complaint

History of Present Illness

70-year-old male with PMHx of HTN, DM, stroke with left-sided deficits who presents with lower abdominal pain. Pain progressively worsening over two days. He reports nausea. He reports two episodes of watery diarrhea today. He denies fevers, chills, vomiting, chest pain, shortness of breath, back pain, urinary urgency, frequency, dysuria, hematuria, hematochezia. He denies travel, denies sick contacts. He denies history of kidney stones or abdominal surgeries.

Physical Data

BP: 156/86 Pulse: 107 Temp: 101.1 Resp: 22 SpO2: 97%
Constitutional: awake, alert, NAD
Skin: warm, dry
HEENT: atraumatic, normocephalic, EOMI, sclera non-icteric
Cardiovascular: RRR, no murmurs, 2+ radial pulses
Respiratory: no respiratory distress, breathing not labored, lungs CTA bilaterally, no wheezing
GI: soft, non-tender, non-distended, +bilateral, reducible inguinal hernias
MSK: normal ROM, no swelling, no deformities
Neuro: A&Ox3, sensation grossly intact, moves all extremities equally



Laboratory Data

Sodium: 134 (135-145 mmol/L)
Potassium: 3.9 (3.4-5.1 mmol/L)
Chloride: 103 (97-110 mmol/L)
Co2: 26 (21-32 mmol/L)
Anion Gap: 9 (7-19 mmol/L)
BUN: 15 (6-20 mg/dL)
Creatinine: 0.85 (0.67-1.17 mg/dL)
Bilirubin, Total: 0.3 (0.2-1.0 mg/dL)
AST 25 (<=37 Units/L)
ALT 32 (<=64 Units/L)
Alk phosphatase 78 (45-117 Units/L)
Albumin 3.3 (3.6-5.1 g/dL)
Lipase 108 (73-393 Units/L)
WBC: 18.7 (4.2-11.0 K/mcL)
Hgb: 13.8 (13.0-17.0 g/dL)
Lactate, venous: 1.3 (0.0-2.0 mmol/L)
Urinalysis: nitrite negative, leukocyte esterase negative, blood negative, ketones negative

Clinical Q&A

Q1: What do the images demonstrate?
A1: Right inguinal US and CT demonstrating bladder herniation and subsequent decompression and hernia reduction.

Q2: What type of emergency intervention is indicated?
A2: Place foley catheter, attempt reduction, consult Urology and Surgery.

Discussion

Concomitant urinary bladder herniation is present in 1-4% of all inguinal hernias.1 Massive bladder herniation, otherwise known as scrotal cystocele, is even more rare with estimates between “less than 30” to “less than 80” cases ever reported.1,2 Predisposing risk factors include male sex, aging, obesity, bladder outlet obstruction, weakened pelvic musculature.1,2 The incidence has been reported to increase to 10% over 50 years of age, with a 70% male predominance.1 Bladder hernias are more likely on right side and more likely in inguinal region.1,3 Patients with large hernias or scrotal cystocele may present with two stage micturition, with the first stage being spontaneous and the second stage involving further voiding after pressure is applied to the hernia.4 Complications may include hydronephrosis, calculi, vesicoureteral reflux, infarction, perforation, strangulation, neoplasm, renal failure, bladder necrosis, sepsis.1,2

It is important to identify any bladder herniation preoperatively to minimize risk of bladder injury.5 In cases of groin hernias involving bladder herniation, it has been reported that bladder injury occurred at rate of 38%.3

However, most are diagnosed during herniorrhaphy, with less than 7% diagnosed preoperatively, 16% diagnosed postoperatively due to post-op complications.4,6,7 Preoperative identification is complicated by the fact that bladder herniation is often asymptomatic. If present, symptoms may include abdominal pain, frequency, urgency, nocturia, hematuria, renal dysfunction, voiding dysfunction.1-8

In this case, bladder herniation was initially discovered on CT and visualized on POCUS. Urology and Surgery were consulted. Urology recommended placement of foley catheter to aid bladder decompression and reduction.

The bladder was reduced in the Emergency Department with, and reduction confirmed by, POCUS. Patient was admitted and had bilateral inguinal hernia repair with Surgery, follow up CT showed bladder wall thickening, primarily over right anterior wall. Initially thought concerning for primary transitional cell carcinoma, ultimately determined attributable to the bladder herniation into right inguinal canal.

Pearls

Although relatively rare, urinary bladder herniation should be considered with inguinal hernia presentation. Risk factors include advanced age, obesity, male gender, and is more common on the right side.

Requires coordinating consults with Urology and Surgery to avoid bladder injury.

Utilize POCUS to identify bladder herniation, hydronephrosis, and confirm reduction.

References

1. Bisharat M, O'Donnell ME, Thompson T, MacKenzie N, Kirkpatrick D, Spence RA, Lee J. Complications of inguinoscrotal bladder hernias: a case series. Hernia. 2009 Feb;13(1):81-4. doi: 10.1007/s10029-008-0389-6. Epub 2008 Jun 14. PMID: 18553121.
2. Casas, J. Darí., et al. “Scrotal Cystocele: US and CT Findings in Two Cases.” Computerized Medical Imaging and Graphics, vol. 22, no. 1, 1998, pp. 53–56, https://doi.org/10.1016/S0895-6111(98)00007-X.
3. Khan, Atif; Beckley, Ian; Dobbins, Brian; Rogawski, Karol M. Laparoscopic repair of massive inguinal hernia containing the urinary bladder. Urology Annals 6(2):p 159-162, Apr–Jun 2014. | DOI: 10.4103/0974-7796.130654.
4. Gomella, Leonard G., et al. “The Surgical Implications of Herniation of the Urinary Bladder.” Archives of Surgery (Chicago. 1960), vol. 120, no. 8, 1985, pp. 964–67, https://doi.org/10.1001/archsurg.1985.01390320084018.
5. Bjurlin, M. A., et al. “Clinical and Radiographic Findings of a Sliding Inguinoscrotal Hernia Containing the Urinary Bladder.” Hernia : the Journal of Hernias and Abdominal Wall Surgery, vol. 14, no. 6, 2010, pp. 635–38, https://doi.org/10.1007/s10029-009-0597-8.
6. Dass, Kathleen, et al. “Water Under the Bridge: a Rare Case of Scrotal Cystocele.” BMJ Case Reports, vol. 2013, no. sep02 1, 2013, pp. bcr2013200239–bcr2013200239, https://doi.org/10.1136/bcr-2013-200239.
7. Bernhardson, Noah D., et al. “Massive Bladder Inguinal Hernia Leading to Acute Urinary Retention.” The American Journal of Emergency Medicine, vol. 39, 2021, pp. 253.e3–253.e5, https://doi.org/10.1016/j.ajem.2020.06.055.
8. Ellimoottil, Chandy, et al. “Unusual Videourodynamic Finding: Massive Scrotal Cystocele.” Urology (Ridgewood, N.J.), vol. 80, no. 5, 2012, pp. e53–e54, https://doi.org/10.1016/j.urology.2012.08.010.