Massive inguinoscrotal bladder herniation with calculi and bladder outlet obstruction

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Abstract

Scrotal herniation of the bladder is a rare event and can be associated with bladder outlet obstruction, bladder infarction and renal impairment. This condition is associated with a significant mortality rate. We present a case report of extensive scrotal cystocele involving 90% of the bladder in which the diagnosis was suggested by KUB, pelvic ultrasound, and pelvic CT imaging showing distorted bladder anatomy and the presence of several large bladder calculi.

Keywords

scrotal cystocele, scrotal herniation, bladder outlet obstruction

Case Report

An 81 year-old man was hospitalized for enlarged right scrotal mass and resulting urinary tract infection. He had multiple medical problems including morbid obesity, congestive heart failure, diabetes mellitus, hypertension, obstructive sleep apnea, peripheral vascular disease, pulmonary saddle embolus and abdominal aortic aneurysm. His ejection fraction was 15% and he required home oxygen. Physical examination revealed massive scrotal enlargement with scrotal edema. Cystogram was performed and revealed massive herniation of the bladder above the pubic bone. Multiple bladder diverticuli were also seen in addition to many bladder calculi of varying sizes. CT scan of the abdomen and pelvis further confirmed the presence of several large calculi in the bladder and a thickened bladder wall (Figures 1-2).

Figure 1: CT scan coronal view showing numerous stones within the herniated bladder.

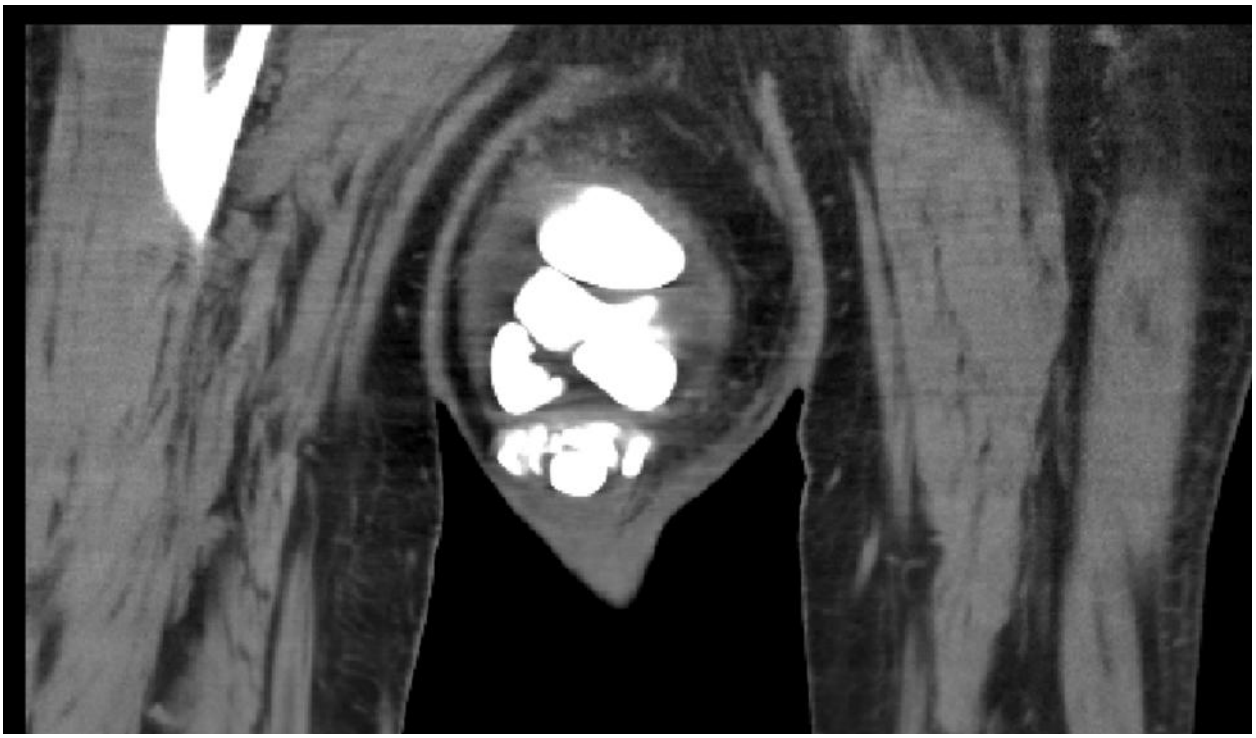
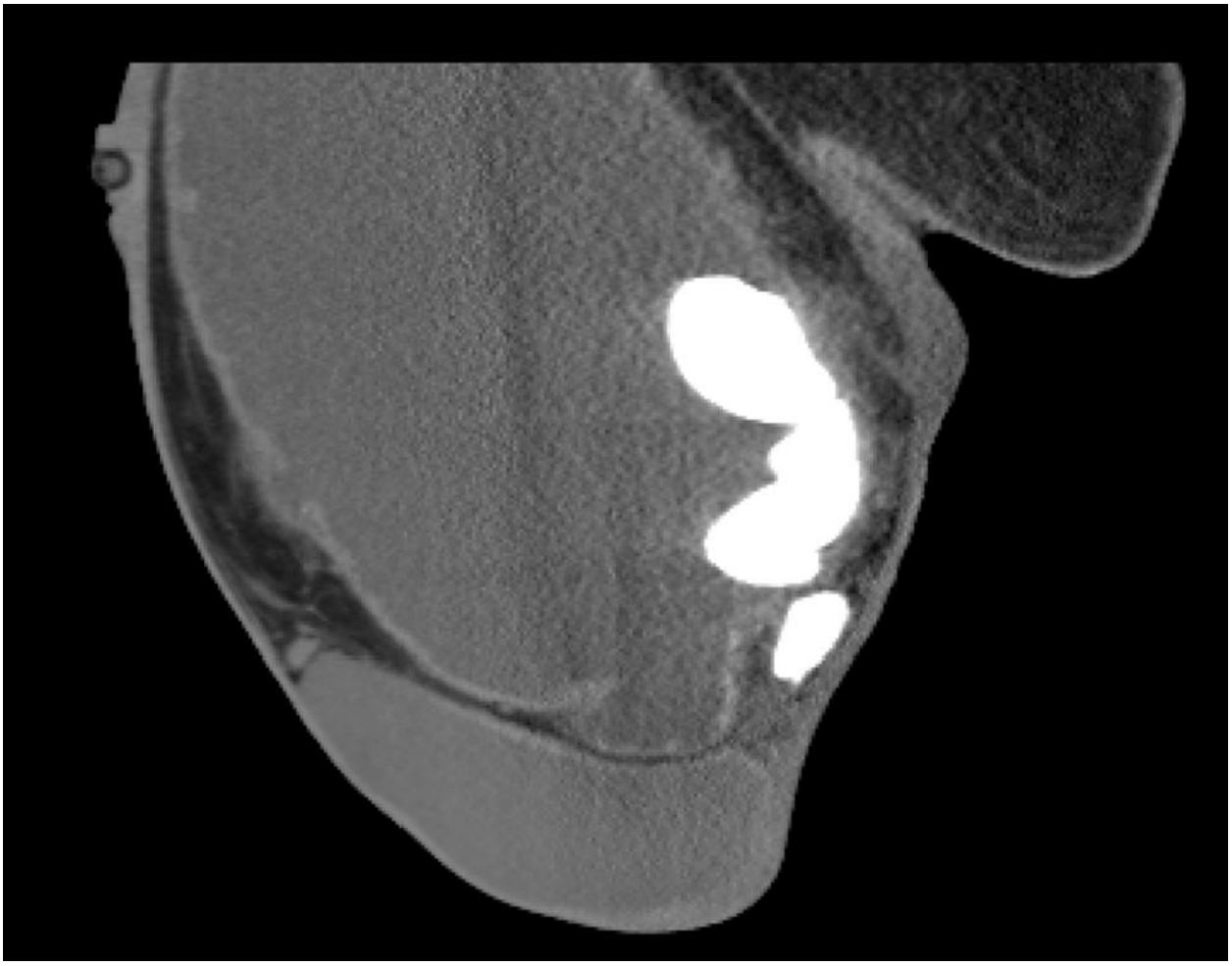


Figure 2: Saggital CT view of multiple bladder stones layering along the posterior bladder wall.

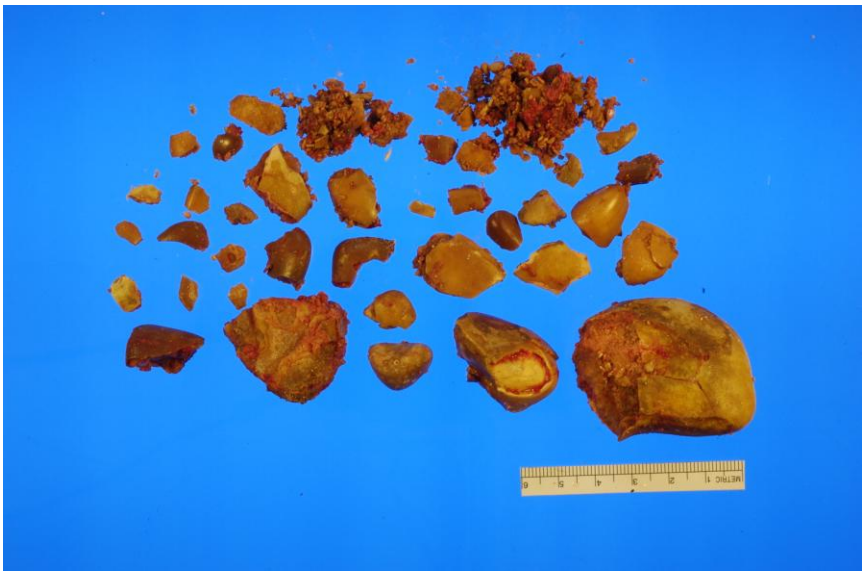


Renal, bladder and transscrotal ultrasound studies also revealed bilateral hydronephrosis and scrotal abscess. Based on these images and clinical findings of difficult micturition and urinary obstruction, the patient was diagnosed with significant scrotal cystocele. Incision and drainage of the scrotal abscess was performed and the patient was given antibiotics for his UTI and sent home with instructions to follow-up with urology for herniorrhaphy.

After an initial consultation, a 20 French Foley catheter was placed into the scrotum to drain the bladder because urethral placement provided little drainage as 90% of bladder contents were inside the scrotum. A total of 2100mL was drained from the bladder. However, it was determined that surgery would be difficult due to trigone and biureteral involvement of the herniated bladder. The patient was also a high risk surgical candidate due to the above mentioned medical problems.

As a result the patient was diagnosed as having cystolithiasis and was scheduled for cystolithotomy. A longitudinal incision was made along the scrotum extending from the incision for the Foley catheter. The bladder wall was incised longitudinally and stone forceps were used to pull out a significant quantity of struvite and calcified stone as shown (Figure 3).

Figure 3: Collection of struvite and calcium oxalate stones retrieved from the patient's bladder during cystolithomy. The largest measured 4.5cm X 3cm X 2cm.



Postoperatively the patient did well and was discharged with instructions to return to clinic for follow-up. He has since been managed conservatively for a period of nine years with follow-up including serial plain film imaging on a biannual basis to monitor development of subsequent bladder calculi. As both the patient and his family have repeatedly voiced their desire to not undergo surgery, the transscrotal foley placement has proven satisfactory to them as it is within their goals and wishes. His foley is changed every 4 weeks by home nursing and, fortunately, our patient has not had any significant issues with ascending infection during much of this interim.

Discussion

Inguinoscrotal herniation of the bladder, or scrotal cystocele, is a rare event occurring in only 1-4% of all inguinal hernias.[1] Even more scarce are case reports describing massive scrotal cystoceles.[2] Despite their low incidence, it is crucial to document and diagnose patients with large scrotal cystoceles because of their increased risk for bladder infarction or obstruction leading to renal impairment.[2] It is also imperative to recognize scrotal cystocele prior to inguinal herniorrhaphy as injury to the bladder is associated with a 12% mortality rate.[3]

Bladder outlet obstruction and decreased wall strength are contributory factors that can make patients susceptible to even massive scrotal cystoceles.[4] Initial examination should involve detailed history and physical exam findings including complex urodynamics. Sonography of the pelvis is also an excellent imagining choice during initial workup.[5] If scrotal cystocele is further supported, a diagnostic cystogram can be performed to confirm the presence of hernia in the bladder.[6]

Treatment depends on the degree of bladder involvement as well as the presence of bladder calculi and surgical risk. Small scrotal cystoceles without calculi in a relatively healthy patient can be surgically repaired and reduced using an inguinal incision.[2] However, lithotomy via scrotal incision should be performed if any calculi are present prior to hernia reduction or repair.[2] Complications of surgical repair and lithotomy include scrotal hematoma/edema, infection, reoccurrence, and bladder injury.[7] They must be weighed against the risks of continued herniation including hydronephrosis, UTI, urinary obstruction, scrotal abscess, and urinary leakage leading to sepsis.[1] Most important, scrotal cystocele should be suspected in any patient with scrotal mass and urologic symptoms.[4]

Of course, the best course of treatment for scrotal cystocele will depend on the overall health of the patient. Available surgical options are dictated by the functional status paired with the co-morbid conditions of the patient, in addition to patient choice. In the case of our patient, the degree of massive herniation, aforementioned severe co-morbid conditions, and patient choice precluded formal repair with reduction cystoplasty. However, he has done well in the interim with placement of a scrotal foley drainage tube and removal of the large bladder calculi at the time of drainage tube placement.

Conclusion

Scrotal herniation of the bladder is a rare event. Unrecognized, significant complications such as bladder outlet obstruction, bladder infarction and renal impairment can result. This condition is associated with a significant mortality rate. Our case report of extensive scrotal cystocele was easily diagnosed with KUB, pelvic ultrasound, and pelvic CT scan which revealed distorted bladder anatomy and the presence of several large bladder calculi. Treatment must be individualized to the patient and should include bladder drainage with suprapubic tube and reduction cystoplasty.

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