

CASE REPORT

Septic shock secondary to acute bacterial prostatitis in an HIV-positive male: a novel presentation

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Abstract

Acute bacterial prostatitis, an acute infection of the prostate gland, results in lower abdominal pain, flank pain, urinary symptoms and the potential for systemic symptoms like fever and shock. With a high mortality rate if left untreated, acute bacterial prostatitis becomes a true urological emergency, which if allowed to progress, may result in bacteremia, severe sepsis/septic shock and death. Diagnosis is mainly clinical with a detailed history and physical and laboratory evaluation to include a urinalysis. However, imaging may be necessary to exclude other pathology. We present the case of a 44-year-old male with a history of well-controlled HIV that used a prostate vibrator for 1-week prior to his presentation to the ED. He was subsequently diagnosed with septic shock secondary to acute bacterial prostatitis and required ICU management.

INTRODUCTION

The incidence of acute bacterial prostatitis involves ~10% of all cases of prostatitis [1]. The incidence in the general population is 1–2%, with an increase to over 3% in asymptomatic HIV-positive patients [2]. It generally affects men between the ages of 20 and 40, with an additional peak in men >60 years old [3].

CASE REPORT

A 44-year-old male with a significant past medical history of nephrolithiasis and well-controlled HIV, presented to the emergency department (ED) with the chief complaint of left flank pain, abdominal pain and painful ejaculation for 5 days. He stated the left flank pain radiated into his left lower abdomen and into his left testicle. The pain was described as achy to sharp in nature. Associated symptoms included nausea, vomiting, decreased appetite, subjective fever and chills. These symptoms felt different than his prior ureteral stone. The only thing different that the patient noted was utilizing a prostate vibrator for the first time over the course of the previous week.

Vitals on arrival to the ED: 101.2 °F, blood pressure 92/54 mmHg, respiratory rate of 21 breaths/min, weight of 94.5 kg and SpO₂ 98% on room air. On physical exam the patient was in distress secondary to the pain, diaphoretic and appeared ill. Oral mucosa was dry. Cardiopulmonary exam revealed sinus tachycardia, no murmur, with clear lungs bilaterally. Abdominal exam was notable for left costovertebral angle tenderness, left upper and lower abdominal tenderness to palpation with voluntary guarding. Genitourinary exam revealed tenderness to palpation along the left inguinal canal and left epididymitis. There was no clinical evidence for abscess, cellulitis or crepitus to the groin. The remaining physical exam was negative for any acute process. Sepsis protocol was initiated, two peripheral IVs were placed, urine/blood cultures were taken, laboratory evaluation started and fluid resuscitation initiated with normal saline 30 mL/kg IV bolus.

A complete blood count revealed a leukocytosis of 18.2 with neutrophil predominance, hemoglobin of 11.6 and a platelet level of 220 bil/L. Basic metabolic panel was notable for a pre-renal azotemia with a blood urea nitrogen (BUN) of 27 mg/dL, creatinine of 1.3 mg/dL and a blood glucose of 130. Hepatic

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function panel was unremarkable. Lactic acid of 3.2 (1.5 two hours later). Urinalysis was notable for 2+ blood, +nitrites, 3+ leukocyte esterase, >50 WBCs, 3+ bacteria and 25–50 RBCs. C-reactive protein 7.1 (0.0–0.8 mg/dL). The rest of the laboratory evaluation was unremarkable. Given the patient's history of an immunocompromised state secondary to HIV, high-risk sexual behavior and recent prostate manipulation secondary to a prostate vibrator, there was concern for acute bacterial prostatitis and the patient was started on ceftriaxone and gentamicin.

Ultrasound of the scrotum with Doppler revealed a prominent epididymis with increased vascularity as compared to the right, with the addition of a small left hydrocele with scattered internal debris. There was no evidence for compromised arterial flow or abscess formation. Sonographic findings were consistent with a left epididymitis and an associated left hydrocele (Fig. 1A). CT of the abdomen/pelvis without contrast was performed revealing left-sided peri-ureteral fat stranding, prominent left seminal vesicle, with infiltrative fat stranding predominantly centered around the left hemi-pelvis with multiple prominent pelvic lymph nodes up to 8.1 mm within the right iliac chain including prominent inguinal lymph nodes up to 6.5 mm (Fig. 1B and C). The prostate is top-normal in size at 5 cm (Fig. 1D). Sonographic findings were consistent with inflammatory changes within the left hemi-pelvis with prominence of the left seminal vesicle and prostate. These findings were favored to be secondary to an infectious process such as prostatitis. The peri-ureteral fat stranding was thought to be reactive to prostatitis.

Status post 30 mL/kg of fluid resuscitation, the patient remained hypotensive with a MAP < 65, resulting in placement of a central venous catheter and initiation of inotropic medication. He was admitted to the intensive care unit for further management. Urine and blood cultures grew *Escherichia coli* that was pan-susceptible. Further testing for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* DNA was negative. The patient progressed well. By Day 3, he was off inotropic medication, remained hemodynamically stable, and was tolerating a regular diet. He will need a total of 30 days of antibiotics to prevent chronic prostatitis. By Day 4, he was deemed stable and was discharged with cefuroxime. At his 1-month follow-up, the patient is progressing well and denied any complaints.

DISCUSSION

The entry of bacteria into the prostate usually occurs via the urethra, in which case bacteria migrate from the urethra, to the bladder and to the prostatic ducts [4]. It is not uncommon given intraprostatic reflux of urine to see a concomitant infection of the epididymis [5]. Other mechanisms of transfer of microorganisms can occur by direct inoculation during transurethral manipulation or a transrectal prostate biopsy [5]. The majority of cases are caused by intraprostatic reflux or ascending urethral infections. Common risk factors include benign prostatic hypertrophy, high-risk sexual behavior, genitourinary infections (epididymitis, urethritis, orchitis, urinary tract infection),

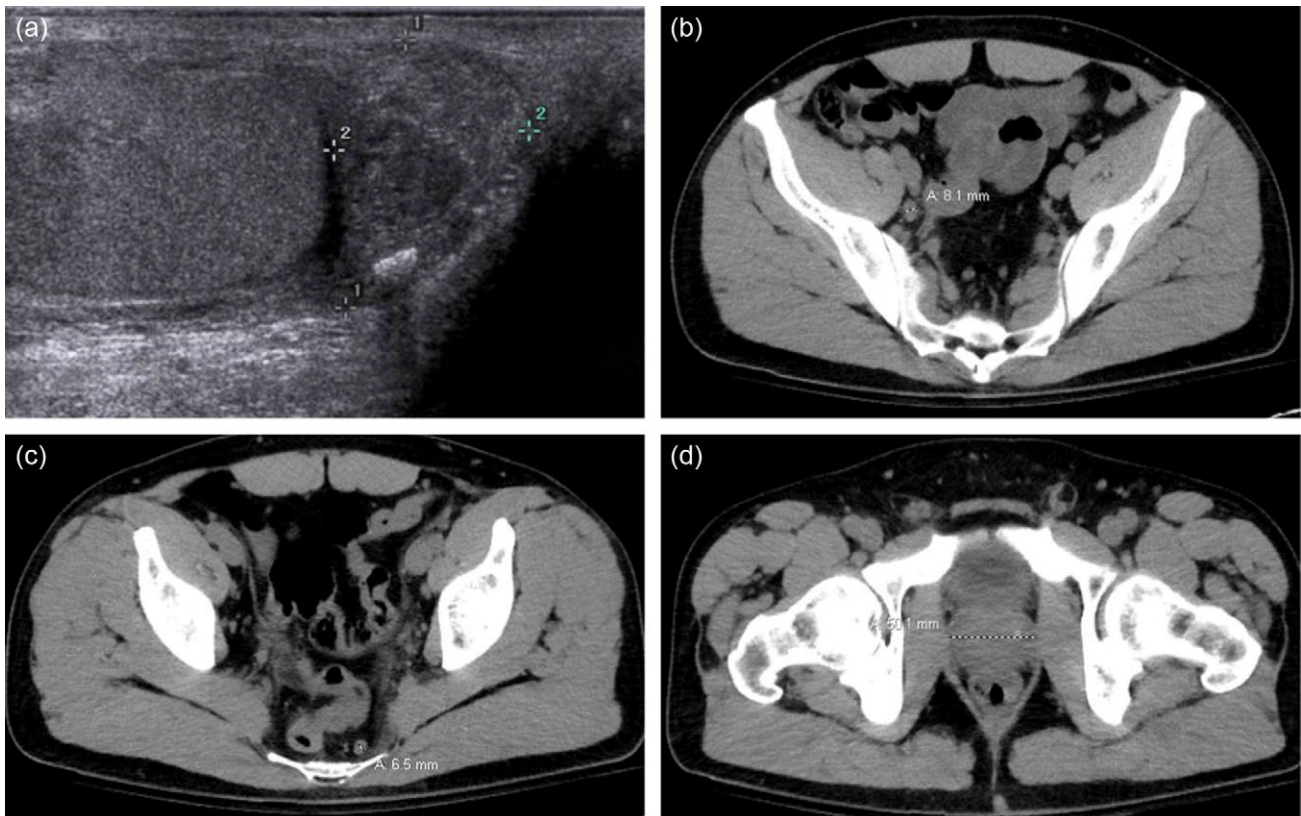


Figure 1: Ultrasound of the scrotum with Doppler revealed a prominent epididymis with increased vascularity in addition to a small left hydrocele. Sonographic findings were consistent with a left epididymitis and an associated left hydrocele (a). CT of the abdomen/pelvis without contrast was performed revealing left-sided peri-ureteral fat stranding, a prominent left seminal vesicle, with infiltrative fat stranding predominantly centered around the left hemi-pelvis with multiple prominent pelvic lymph nodes up to 8.1 mm within the right iliac chain including prominent inguinal lymph nodes up to 6.5 mm (b and c). The prostate is top-normal in size at 5 cm (d). Sonographic findings were consistent with inflammatory changes within the left hemi-pelvis with prominence of the left seminal vesicle and prostate favored to be secondary to prostatitis.

Sexually active men <35 years old or those >35 years old who are involved in high-risk sexual behavior require coverage for both *C. trachomatis* and *N. gonorrhoeae* [5]. When the patient has improved clinically, they can be transitioned to oral medication, with an antibiotic course often recommended for at least 4 weeks [3]. Multiple studies favor a longer treatment regimen secondary to limited antimicrobial penetration into the prostate and risk of progression to chronic bacterial prostatitis [5, 6].

We present the case of a 44-year-old male who started using a prostate vibrator prior to his presentation to the ED where he was diagnosed with septic shock secondary to acute bacterial prostatitis. He ultimately required central venous access, arterial line placement, an inotropic agent and intensive care management. More research is needed in this area regarding prostate vibrator use in patients that are already immunocompromised with multiple risk factors for the development of acute bacterial prostatitis. To our knowledge, this is the first reported case in the literature of acute bacterial prostatitis secondary to a prostate vibrator.

CONFLICT OF INTEREST STATEMENT

None declared.

FUNDING

No financial support was received for this study.

ETHICAL APPROVAL

No approval is required.

CONSENT

Informed patient consent was obtained.

GUARANTOR

G.T. is the guarantor of this study.

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