Prostatic Abscess Causing Persistent *Pseudomonas aeruginosa* Bacteremia in a Patient with a T4 Complete Spinal Cord Injury

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Case Description

- A 23-year-old male with a traumatic spinal cord injury (SCI) due to motorcycle crash (T4 complete paraplegia, ASIA impairment scale A) presented to inpatient rehabilitation with an indwelling foley, and he was transitioned to an intermittent catheterization program.
- During admission, he developed a urinary tract infection, with symptoms of cloudy and foul smelling urine noted by the nurses, and he was initially placed on nitrofurantoin.
- In the interim of culture speciation, he became septic and antibiotics were broadened to intravenous (IV) treatment with piperacillin/tazobactam. Urine and blood cultures grew *Pseudomonas aeruginosa*.
- Despite adequate IV antibiotics based on culture sensitization, he continued to fever and had recurrent positive blood cultures 5 days after the initial set.
- Investigation with a computed tomography (CT) scan of his abdomen and pelvis revealed a ring-enhancing fluid collection in the right prostatic apex.

Prostatic Abscess

- A rare urologic condition that accounts for ~0.5% of prostate pathologies
- It is often a complication of acute bacterial prostatitis (ABP). Sub-optimally treated ABP cases develop abscess in ~6% of cases.
- In the era prior to antibiotics, it affected younger males because it was associated with gonorrhea. However, now it is most commonly associated with diabetes, bladder outlet obstruction, indwelling urethral catheters, cirrhosis, hemodialysis, immunosuppression (especially HIV/AIDS), and genitourinary instrumentation.
- It is mostly caused by gram negative bacteria (*E. coli* in 70% of cases). Other bacterial causes include *Klebsiella, Pseudomonas, Streptococcus,* and *Enterococcus. Staph aureus* has been documented especially with hematogenous spread, and fungal causes have been documented in immunocompromised patients
- Mortality rate is high (up to 16%).
- Symptoms: dysuria, urinary urgency, frequency, incomplete voiding sensation, suprapubic or perineal pain, tenesmus. 1/3 of patients present with systemic symptoms only (like fever, sepsis)
- Physical exam: painful prostate on digital rectal exam in >95% of cases in patients without altered sensation

Imaging

- Imaging of choice is transrectal ultrasound (TRUS)
- A CT or MRI scan with and without contrast is helpful when the diagnosis is in question or TRUS is not feasible

Image: CT abdomen/pelvis with contrast showing a ring-enhancing fluid collection in the right prostatic apex measuring 2.0 x 1.5 cm.

Treatment

Our patient:

- Urology was consulted, and the patient underwent transurethral deroofing (TUD) of his prostate with abscess drainage. Urology recommended discharging with foley catheter until outpatient follow-up
- The Infectious Disease team was consulted, and post-drainage, the patient was switched to ciprofloxacin for 21 days. He was to obtain a urinalysis 1-week post-treatment for demonstration of clearance of infection.

Treatment:

- Drainage and antibiotic therapy are the mainstay of treatment, but there is variable consensus regarding methodology of drainage and timing of treatment

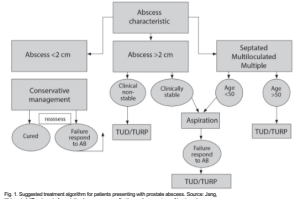

Fig. 1. Suggested treatment algorithm for patients presenting with prostate abscess. Source: Jang, Kidon et al. "Treatment of prostatic abscess: case collection and comparison of treatment methods." *Korean journal of urology* vol. 53,12 (2012): 860-4. doi:10.4111/kju.2012.53.12.860

Approaches include:

- Transurethral resection of prostate (TURP) or TUD
- Transperineal or TRUS-guided aspiration

The transurethreal approaches can be more invasive but generally have shorter hospital stays and less recurrence.

Discussion

- Prostatic abscess is a rare urologic condition that can have significant morbidity (like in this patient with severe sepsis from bacteremia) and mortality.
- Spinal cord injury patients are at risk for prostatic abscess due to neurogenic bladder and catheterization.
- The variable sensation or lack of sensation in patients with spinal cord injury can make diagnosis difficult, and patients will not necessarily have the typical symptoms or the physical exam finding of pain with digital rectal exam.

Conclusions

- This case illustrates the importance of considering the rare diagnosis of prostatic abscess in male patients with SCI requiring either indwelling or intermittent catheterization, especially those who do not improve after 48 hours of culture-based antibiotic therapy.
- Evaluation and management of a prostatic abscess requires a team-based approach with combined medical and surgical care (in this case, urology, the rehabilitation team, and infectious disease). However, more studies are required for consensus of standard of care, especially regarding surgical approaches.

References

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