CASE REPORT

Prostate abscess: MRSA spreading its influence into Gram-negative territory: case report and literature review

Aartee Deshpande,¹ George Haleblan,² Alwyn Rapose¹

¹Department of Infectious Diseases, Reliant Medical Group and Saint Vincent Hospital, Worcester, Massachusetts, USA

²Department of Urology, Reliant Medical Group, Worcester, Massachusetts, USA

Correspondence to

Dr Alwyn Rapose, alwyn.rapose@gmail.com

SUMMARY

Prostate abscess is a rare complication of an ascending urinary tract infection (UTI). Its incidence has reduced secondary to routine and early use of antibiotics for treatment of UTIs. Prostate abscess has been reported in patients with uncontrolled diabetes, prolonged indwelling urinary catheters, prostate biopsy or other instrumentation of lower urinary tract. Prostate abscess is most commonly associated with Gram-negative bacteria. *Staphylococcus aureus* is rarely implicated and has been reported in patients with underlying risk factors like long-term or uncontrolled diabetes, intravenous drug abuse or bacteraemia. We present a rare case of prostate abscess due to methicillin resistant *S aureus* without obvious risk factors.

BACKGROUND

Methicillin resistant *Staphylococcus aureus* (MRSA) was previously considered as a pathogen associated with healthcare facilities. However, we know that community-acquired MRSA (CA-MRSA) infection of skin and the respiratory tract is on the rise. On the basis of our case, we recommend that physicians be vigilant for MRSA while diagnosing any complicated urinary tract infection (UTI) with associated risk factors especially diabetes.

CASE PRESENTATION

A 49-year-old man was presented to the emergency department with 5 days of fever and chills associated with pain and swelling in scrotum. He had been experiencing dysuria for 3 days and on the day of presentation had developed acute urinary retention. He also reported being constipated for the past 6 days. He did not report any skin rash or genital ulcer. He denied any trauma to the genital area. He was not sexually active. His medical history was significant for hypertension, coronary artery disease and stroke with residual weakness in right upper extremity and word finding difficulty. He had also suffered from chronic constipation for which he occasionally used warm water enemas. He did not give history of any urinary problems prior to this episode. He was an active cigarette smoker, he denied intravenous drug abuse. On examination, he had a temperature of 100.7°F, heart sounds were normal without a murmur, abdomen was soft with no guarding, rigidity or rebound tenderness. The scrotum and adjacent perineum was tender to palpation.

INVESTIGATIONS

Laboratory workup revealed a white cell count of $17 \times 10^9/L$, urine analysis was within normal limits and unfortunately—per laboratory protocol—urine cultures were not performed. Blood cultures were negative. CT with an intravenous contrast revealed an enlarged prostate that contained a 4 cm sized septated hypodense lesion with enhancing walls, and surrounding fatty inflammation (figure 1).

TREATMENT

He was initiated on therapy with ciprofloxacin. Cystoscopy-guided transurethral drainage of the abscess along with resection of the prostate was achieved. Approximately 50 ml of purulent fluid was removed. Culture of pus revealed MRSA sensitive to vancomycin, tetracycline, ciprofloxacin and trimethoprim/sulfamethoxazole (Vitek1 BioMerieux Vitek, Inc, USA). Histopathology revealed benign prostate tissue and urothelial mucosa, with acute and chronic inflammation. Antibiotics were changed to intravenous vancomycin. A two-dimensional echocardiogram did not reveal significant valve abnormalities.

OUTCOME AND FOLLOW-UP

Unfortunately, the patient insisted on leaving the hospital against medical advice. He was discharged on oral doxycycline. He continued this for a total of 6 weeks with complete resolution of symptoms. A follow-up CT scan 8 weeks after the initial presentation revealed marked interval improvement (figure 2).

DISCUSSION

Prostate abscesses present in patients with risk factors like prostate biopsy, other urinary track instrumentation or surgery, bladder voiding disturbances, intravenous drug abuse, diabetes, chronic renal failure, cirrhosis or other immunocompromised states.^{1–3} Prostate infections are most commonly caused by Gram-negative organisms associated with UTIs.⁴ There are only a few cases reported in literature of MRSA causing prostate abscess—usually in patients with diabetes.^{5–6} Tobian and Ober⁷ reported a case of perinephric and prostate abscess due to MRSA in a patient with an uncontrolled diabetes who was performing digital rectal examination on himself. A similar report was published by Beckman and Edson.⁸ A case of MRSA prostate abscess after closed injury to perineum following a fall was reported by

To cite: Deshpande A, Haleblan G, Rapose A. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-009057

Figure 1 Multiseptate prostate abscess.

Shindel *et al.*⁹ Other cases of *S aureus* prostate abscess included reports in patients with intravenous drug abuse,¹⁰ persistent MRSA bacteraemia.¹¹ Our case did not have any of the known risk factors for prostate abscess as described in the literature. With the history of previous stroke and history of constipation, a question of underlying neurogenic bladder or overactive bladder could be raised. This could be best identified based on patient symptoms and confirmed by urodynamic studies. Our patient did not have any voiding trouble prior to this episode. Also in follow-up (up to 4 months) after he was treated, he did not have any new bladder symptoms to suggest an overactive bladder. Hence no urodynamic studies were carried out. One could draw a similarity to the cases reported by Tobian and Beckman in that our patient did have some rectal manipulation in the form of self-therapy with enemas for constipation. In contrast to their cases, however, he did not have diabetes.

Symptoms of prostate abscess are variable. Patients may present with fever, perineal discomfort, dysuria or urinary retention.^{1 2 12} The diagnosis requires a high index of suspicion. Even though fluctuation on digital rectal examination is considered the diagnostic sign, it has low sensitivity.^{2 3} In fact, rectal examination for fluctuation should be avoided to prevent bacter-

Figure 2 Improvement following completion of antibiotic course.

aemia.^{5 8} Management includes appropriate systemic antibiotics and drainage of the abscess.^{1 2 12} This drainage can be carried out transperineally, transrectally or transurethrally. From the current case, it is obvious that drainage and culture of pus should be an essential part of management of prostate abscess.

Though Gram-negative bacteria are the most common aetiological agents, incidence of prostate abscess due to MRSA may be increasing. While MRSA was formerly considered as a pathogen associated with healthcare facilities, CA-MRSA infection of skin and the respiratory tract is on the rise. It is now apparent that MRSA is spreading its influence into the Gram-negative territory of urinary infections. On the basis of this case report we recommend that physician be vigilant while diagnosing any complicated UTI with associated risk factors especially diabetes.

Learning points

- ▶ Gram-negative bacteria are the most common aetiological agents for urinary tract infections.
- ▶ Incidence of prostate abscess due to MRSA may be increasing.
- ▶ This may be more common in patients with underlying risk factors like uncontrolled diabetes, rectal or urethral manipulation, intravenous drug abuse and bacteraemia.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Barozzi L, Pavlica P, Menchi I, *et al.* Prostatic abscess: diagnosis and treatment. *AMJ Am J Roentgenol* 1998;170:753–7.
- 2 Oliveira P, Andrade JA, Porto HC, *et al.* Diagnosis and treatment of prostatic abscess. *Int Braz J Urol* 2003;29:30–4.
- 3 Aravantinos E, Kalogeras N, Zygoulakis N, *et al.* Ultrasound-guided transrectal placement of a drainage tube as therapeutic management of patients with prostatic abscess. *J Endourol* 2008;22:1751–4.
- 4 Ludwig M, Schroeder-Printzen I, Schiefer HG, *et al.* Diagnosis and therapeutic management of 18 patients with prostatic abscess. *Urology* 1999;53:340–5.
- 5 Park SC, Lee JW, Rim JS. Prostate abscess caused by community-acquired methicillin-resistant *Staphylococcus aureus*. *Int J Urol* 2011;18:536–8.
- 6 Pierce JR, Saeed Q, Davis WR. Prostatic abscess due to community-acquired methicillin-resistant *Staphylococcus aureus*. *Am J Med Sci* 2008;335:154–6.
- 7 Tobian AA, Ober SK. Dual perinephric and prostatic abscesses from methicillin-resistant *Staphylococcus aureus*. *South Med J* 2007;100:515–16.
- 8 Beckman TJ, Edson RS. Methicillin-resistant *Staphylococcus aureus* prostatitis. *Urology* 2007;69:779e1–3.
- 9 Shindel AW, Darcy MD, Brandes SB. Management of prostatic abscess with community-acquired methicillin-resistant *Staphylococcus aureus* after straddle injury to the urethra. *J Trauma* 2006;61:219–21.
- 10 Baker SD, Horger DC, Keane TE. Community-acquired methicillin-resistant *Staphylococcus aureus* prostatic abscess. *Urology* 2004;64:808.e16–18.
- 11 Fraser TG, Smith ND, Noskin GA. Persistent methicillin-resistant *Staphylococcus aureus* bacteremia due to a prostatic abscess. *J Infect Dis* 2003;35:273–4.
- 12 Tiwari P, Pal DK, Tripathi A, *et al.* Prostatic abscess: diagnosis and management in the modern antibiotic era. *Saudi J Kidney Dis Transpl* 2011;22:298–301.

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow