



Methicillin safe *Staphylococcus aureus* prostatic canker in an American army

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Abstract

Prostatic abscess caused by methicillin resistant *Staphylococcus aureus* (MRSA) is rare with few previously reported cases. This appears to be the first identifiable report of a healthy, immunocompetent individual developing a community acquired prostatic abscess. A 35 year old male soldier presented to the emergency room complaining of chills, malaise, pelvic pain, tenesmus, dysuria and bloody urine. On admission, he was found to have a high grade fever, abdominal pain, and leukocytosis. He was started on vancomycin. Computed tomography (CT) scan of the abdomen and pelvis revealed fluid-filled sacs inside his prostate, consistent with abscesses. Subsequently, a transurethral prostatic resection was performed with an incision and drainage revealing a MRSA prostatic abscess. Repeat CT of the abdomen/pelvis after six weeks of treatment showed a decrease in the size and number of prostatic abscesses. MRSA prostatic abscesses have been documented in the medical literature primarily of immunocompromised individuals with diabetes mellitus, human immunodeficiency virus (HIV), or acquired immunodeficiency syndrome (AIDS), or preceded by MRSA pneumonia, and not of healthy people. The treatment strategy of a prostatic MRSA abscess is similar to that of skin MRSA abscess with incision and drainage of the abscess and three to six weeks of antibiotics, depending on patient tolerance.

Keywords: Community, acquired, methicillin resistant *Staphylococcus aureus*, prostatic abscess.

INTRODUCTION

Prostatic abscesses caused by methicillin resistant *Staphylococcus aureus* (MRSA) rarely occur, and until this point it has only existed in case reports of immunocompromised patients (Flannery and Humphrey, 2012). These particular abscesses are commonly caused

by gram negative bacteria such as *Escherichia coli* and less commonly with *Pseudomonas* and *Staphylococcus* and with the incidence greatly decreased due to the increasing usage of antibiotics (Barozzi et al., 1998; Weinberger et al., 1988). There are increasing numbers

of reports of MRSA associated prostatic abscesses (Flannery and Humphrey, 2012; Chao et al., 2009; Javeed et al., 2012; Krishna, 2009; Venyo, 2011). Predisposing factors include indwelling catheters, instrumentation of the lower urinary tract or an immunosuppressive state associated with diabetes mellitus, chronic renal failure, cirrhosis, malignancy, or acquired immunodeficiency syndrome (AIDS) (Ludwig et al., 1999). Here we present a case of prostatic abscess community acquired MRSA of unknown origin.

CASE REPORT

A healthy 35 year old male soldier developed a MRSA prostatic abscess. The patient initially presented to the emergency room (ER) complaining of chills, malaise, pelvic pain, tenesmus, dysuria, and bloody urine. Four weeks prior he had returned from deployment to Iraq and was on leave when he presented to the ER. His vital signs on admission included a temperature of 102°F, heart rate of 80 beats per minute and blood pressure of 130/80 mmHg. Pulmonary examination was normal. Abdominal exam was significant for suprapubic tenderness. His white blood cell count on admission was 22×100 cells/L. Urine and blood cultures were drawn and empiric intravenous ciprofloxacin was initiated.

A computed tomography (CT) scan of the abdomen and pelvis revealed fluid-filled sacs inside his prostate, consistent with abscesses. His initial prostate-specific antigen (PSA) was 21.07 ng/ml. Subsequently, a transurethral prostatic resection (incision and drainage) was performed, revealing a MRSA prostatic abscess. A peripherally inserted central catheter (PICC) was placed and he was started on outpatient intravenous vancomycin. He had little risk factors for developing MRSA. The patient's stay in Florida was uneventful; however, the patient admitted that over a 4 day period he spent 1 to 2 hours in a hot tub, 2 to 3 times daily. On the 5th day he began feeling symptomatic and 24 h later he presented to the ER. The patient's medical history was unremarkable for an immunocompromised state or other predisposing factors. The patient reported a history of Meckel's diverticulum resection in 2004 and having daily post-void enuresis with no history of sexually transmitted infections beyond genital herpes simplex and is in a monogamous relationship with his wife of 7 years.

Thirteen days into his outpatient intravenous vancomycin therapy the patient returned to the ER, at Fort Bragg, for abdominal pain and explosive diarrhea. A digital rectal exam was only remarkable for guaiac positive stool. A CT scan of his abdomen found ascending and transverse colitis. The patient underwent a bowel preparation and colonoscopy and there were findings consistent with colitis so he was continued on ciprofloxacin and

metronidazole for therapy of *Clostridium difficile* while continuing on vancomycin for his prostate abscess. Discharged from the hospital, the patient continued improving, completing a 3 week course of vancomycin. He was then started on a 3 week course of oral trimethoprim sulfamethoxazole. A six week follow-up prostate-specific antigen (PSA) was 4.38 ng/ml (normal < 4.00 ng/ml). Subsequently, his symptoms completely resolved and he returned to full duty as a soldier.

DISCUSSION

This is the first report of a healthy, immunocompetent individual developing a prostatic abscess. MRSA prostatic abscesses are sparse in the medical literature and are normally reported in individuals with diabetes mellitus (DM) or HIV. The majority of case reports discuss MRSA prostatic abscesses being preceded by MRSA pneumonia or developing in immunocompromised individuals like those with acquired immunodeficiency syndrome (AIDS) or DM (Chao et al., 2009; Krishna, 2009; Gautam et al., 2008). Nor is it clear whether exposure to the hot tub contributed to the case and there is no literature related to this type of transmission.

The reason remains unknown why this soldier developed MRSA infection in the unusual location of his prostate. Possibilities include acquisition secondary to his operational mission or from transurethral seeding in a non-sterile environment, an unrealized immune deficient syndrome, or engagement in activities involving the anus that the patient did not admit. With the increased prevalence of MRSA colonization in the community, this may become a more common source of prostate infections (Flannery and Humphrey, 2012; Venyo, 2011; Gautam et al., 2008).

Therapy for a MRSA prostatic abscess is similar to that of a typical MRSA abscess. Therapy involves incision and drainage with antibiotics. This patient required an incision and drainage with a periurethral drain in place, for a short duration, and an intensive antibiotic course of intravenous vancomycin for 21 days and trimethoprim sulfamethoxazole orally for 21 days.

Even though *Staphylococcus aureus* are known to cause deep-seated and occult abscesses, MRSA prostatic abscess remains rare with only a few other published cases in the literature (Flannery and Humphrey, 2012; Chao et al., 2009; Javeed et al., 2012; Krishna, 2009; Venyo, 2011; Gautam et al., 2008; Rasmussen et al., 2011; Park et al., 2011). All the patients in these cases had specific signs and symptoms of prostatic abscess such as dysuria, pelvic pain or tender prostate. However, it is not unusual for prostatic abscess to present with non-specific symptoms of abdominal pain, malaise and weight loss.

Conflict of interest

Authors declare that there are no conflicts of interest.

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