

Transrectal Ultrasound-Guided Needle Aspiration of a Prostatic Abscess

Michael Nomikos, Ioannis Karyotis, Dimitrios Volanis, Dimitrios Delakas

Asklepion Voula Hospital, Department of Urology, Athens, Greece

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ABSTRACT

Occurrence of prostatic abscess has become very rare since the advent of modern antibiotics. The authors report a case of a 51-year-old man with insulin-dependent diabetes mellitus and recurrent urinary tract infections who was diagnosed with prostatic abscess. He was treated successfully with transrectal ultrasound (TRUS) guided needle aspiration under local anesthetic. TRUS-guided drainage is a safe and effective therapeutic approach for the treatment of this disorder.

KEYWORDS: Prostatic abscess; Ultrasound guided needle aspiration

CORRESPONDENCE: Michael Nomikos MD, Consultant Urologist, Knossou Street 275, Heraklion, Crete, 71409, Greece (mnomikos@gmail.com)

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INTRODUCTION

Prostatic abscess results from focal accumulation of pus within the prostate gland [1]. In the modern antibiotic era, the occurrence of prostatic abscess has become extremely rare. Before antibiotics, the majority of cases were caused by *Neisseria gonorrhoeae*. The bacteriology has now changed; *Escherichia coli* (*E. coli*) and *Staphylococcus* species are the primary causes [2]. A high level of suspicion is needed to diagnose prostatic abscess clinically.

CASE REPORT

A 51-year-old male presented to the outpatient department because of pyuria and recurrent urinary tract infections (UTI) caused by *E. coli* during the last 2 years. He had insulin-dependent diabetes mellitus with poor glycemic control since the onset of recurrent UTIs. He was taking clopidogrel due to an ischemic cerebrovascular accident and had received several courses of antibiotics with inadequate results.

Evaluation

The patient was afebrile and abdominal examination was unremarkable. Examination of the external genitalia revealed phimosis. Digital rectal examination revealed an approximately

30 gram, benign-feeling prostate with fluctuation on the right lobe.

Routine urine analysis showed pus cells, a few red blood cells, and no casts. Urine culture showed no growth. A kidney-bladder ultrasound and plain kidney-ureter-bladder (KUB) film showed no abnormalities. Cystoscopy showed a normal urethra with accumulation of pus within the urinary bladder. Diagnostic transrectal ultrasound (TRUS) was then performed. It revealed a 3.6 cm hypoechoic area with inhomogeneous structures on the right prostate lobe (Figure 1). MRI of the pelvis showed a well-defined, high-signal-intensity cystic abnormality in the T2-weighted images (Figure 2). A smaller 1.1 cm cavity was shown in the left prostatic lobe which was not detected in the TRUS of the prostate.

Management

The patient was informed and clopidogrel was withdrawn. Ten days later, he underwent circumcision and TRUS-guided needle aspiration of the right prostatic abscess.

The patient was placed in the left lateral decubitus position. With the use of lidocaine jelly, he underwent TRUS drainage of the right prostatic lobe abscess. A biplanar 10 MHz

Figure 1. Transrectal Ultrasound Scan of the Prostate Showing a 3.6 cm Hypoechoic Lesion Located in the Right Lobe of the Prostate. doi: 10.3834/uj.1944-5784.2009.12.11f1



transrectal probe (Pro-Focus 2202[™], B-K Medical, Denmark) with the capability of real-time three-dimensional imaging was used. A 20 cm, 18 gauge Chiba biopsy needle was inserted and purulent fluid was obtained using a Pro-Mag[™] automated ultra biopsy gun (Angiotech, Vancouver, British Columbia). Six mL of purulent fluids were drained. Pus culture grew *Klebsiella spp* and *Serratia spp*.

The patient was admitted to the hospital and received antibiotics (ceftriaxone, 1 gram, twice per day). He had an uneventful recovery and was discharged on the third postoperative day. Clinical symptoms were improved. No recurrence was detected on a follow-up TRUS of the prostate 3 months later.

DISCUSSION

The incidence of prostatic abscess decreased dramatically with the development of antibiotics. Most prostatic abscesses are developing as a result of acute and chronic prostatitis or following prostate biopsy. Common predisposing factors are diabetes mellitus, urethral instrumentation, use of indwelling urethral catheters, chronic renal failure, and immunosuppression. In the present case, diabetes mellitus was a strong predisposing factor. It is hypothesized that retrograde flow of contaminated fluid during micturition is the most prevalent pathogenic factor. Bacterial hematogenous spread from distant foci (eg, digestive tract, respiratory tract) has also been described [3].

Diagnosis is currently difficult because the infectious process is masked by the extensive use of antibiotics [4]. Differential

Figure 2. MRI of the Pelvis Showing a 3.42 x 2.62 cm Well-Defined Cystic Abnormality With High Signal Intensity in the Right Lobe of the Prostate. doi: 10.3834/uj.1944-5784.2009.12.11f2



diagnosis includes Mullerian duct cysts, ejaculatory duct cysts, seminal vesicle cysts, and neoplasia. Symptoms and clinical findings are extremely variable and nonspecific. Prostatic abscess should be suspected in patients with continued or recurrent UTIs despite antimicrobial therapy. Such patients should undergo prostate ultrasonography and possibly cystoscopy.

Transrectal ultrasound, CT scan, and MRI of the pelvis are important tools in differential diagnosis and management of prostatic abscess. Peeling and Griffiths [5] compared TRUS of the prostate with the CT scan and found TRUS superior in detecting various diseases of the prostate contained in the prostatic capsule. MRI has the ability to provide contrast enhancement with gadolinium without the potentially nephrotoxic effects of iodinated intravenous CT contrast. Additionally, the patient is spared the dose of ionizing radiation caused by CT. Like CT, MRI saves the patient from the additional discomfort and potential bacteremic consequences, sometimes leading to septic shock,

that may be encountered from a transrectal ultrasound examination. MRI of the pelvis also defines the extent of the disease and involved structures. It helps in determination of surgical management versus transrectal or transperineal drainage, although at present MRI does not demonstrate any advantage over CT or ultrasound in this regard [6]. In the present case, MRI also revealed a small abscess in the left prostate lobe which was undetectable with ultrasound.

Microscopic abscesses of the prostate (< 1 cm) are usually treated with antibiotics causing good prostatic diffusion (eg, fluoroquinolones) for a minimum of 4 to 6 weeks. Adequate drainage is of paramount importance for the treatment of larger prostatic abscesses (> 1 cm), because if left untreated they can evolve to rectal or perineal fistulas.

In the past, transurethral drainage was the first choice for therapy for prostatic abscesses [7]. CT-guided percutaneous perineal or transrectal drainage or, more frequently, transrectal ultrasound-guided drainage allows rapid and effective evacuation of the abscess without the need for general anesthesia. TRUS-guided needle aspiration as an initial technique is successful in more than 80% of cases, with minimal complications. It can be performed under local anesthesia and repeated if necessary with satisfactory results. The perineal route allows a simple J stent to be left in place for several days to ensure complete drainage [8,9]. Drainage transurethral resection of the prostate (TURP) is indicated if there is failure of repeated transrectal drainage, a large periurethral prostatic abscess, or coexisting obstructive uropathy due to benign prostatic hyperplasia [10,11].

CONCLUSIONS

A high level of clinical suspicion is needed for the diagnosis of prostate abscess. There is no standardization of the therapeutic process because most published data come from case reports. The authors believe that TRUS-guided needle drainage is a feasible and safe technique that should be the initial approach for the treatment of prostatic abscess.

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