Inflammation and Infection

Nonspecific Presentation of a Multiloculated Prostatic Abscess After Transurethral Prostatic Biopsy for Elevated Prostate-specific Antigen Level

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Prostate postbiopsy infectious complications typically present in the form of prostatitis and uncommonly urosepsis. Prostatic abscesses are generally found after multiple bouts of prostatitis and are associated with a clinically septic picture requiring intensive care unit admission and resuscitation. We report the case of a 65-year-old man who presented with prostatic abscess in the setting of nonspecific urinary symptoms after transrectal ultrasonography-guided prostate biopsy. At 4-month follow-up, he is currently free of disease with undetectable prostate-specific antigen level and negative imaging.

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Introduction

Prostate postbiopsy infectious complications have steadily been increasing with the emergence of fluoroquinolone-resistant Escherichia coli, as 2.7% of men require hospitalization within 30 days.1 However, the diagnosis of prostatic abscess of any cause is rare, let alone after prostate biopsy. Clinical symptoms may be nonspecific, including acute urinary retention, fever, dysuria, perineal or rectal pain, or hematuria, whereas physical examination may reveal a tender, firm, or fluctuant prostate and signs of infection on urinalysis. In some instances however, the clinical presentation may appear benign, and in these cases, the utility of prostatic imaging is most helpful. We present the case of a 65-year-old man with the development of a large multiloculated prostatic abscess after prostate biopsy.

Case presentation

We report a case of a 65-year-old man with a history of elevated prostate-specific antigen (PSA) level and family history of prostate carcinoma (PCa), who subsequently developed an asymptomatic prostatic abscess after prostate biopsy. His PSA level was elevated at 5.6 ng/dL (14% free), prompting a standard 12-core transrectal ultrasonography-guided prostate biopsy in December 2013 revealing Gleason 3+3=6 in 3 cores bilaterally with 20%-70% involvement.

Over the next 2 months, he experienced progressive urinary retention (initially while on a cruise to Antarctica) managed with Foley catheterization, combination alpha-blocker and 5-alpha-reductase therapy, and ciprofloxacin antibiotic. In February 2014, he developed fatigue, weight loss, severe rectal pain, and appeared clinically septic, resulting in hospital admission. His initial white blood cell count was 11,000, and a computed tomographic scan demonstrated several areas of microabscesses ranging 2-5 cm. He was started on empiric vancomycin and meropenem; blood and urine cultures demonstrated no growth, and he was maintained on intravenous ertapenem for 1 month. A magnetic resonance image of the prostate identified a persistent 5.2-cm prostate abscess, with the largest loculation being 2.8 cm (Figs. 1, 2). Physical examination revealed perineal discomfort but no prostatic tenderness or abnormalities.

He underwent open radical prostatectomy, at which time a large periurethral and perirectal abscess was also noted along the left lateral apex as well as a moderate amount of inflammation. His postoperative course was marked with fever (38.6°C postoperative day 1), white blood cell count 12,000-14,000, and he was maintained on ampicillin, gentamicin, and metronidazole per infectious disease colleagues. Intraoperative and postoperative blood, urine, abscess, and drain cultures were all negative. Abscess and drain stains were negative for acid-fast bacilli and fungi. The patient also had a negative purified protein derivative and QuantiFERON-TB Gold test, as well as negative Histoplasma and cryptococcal studies. He was discharged on postoperative day 4. Final pathology demonstrated Gleason 3+3=6 (pT2N0) along with extensive
necrotizing granulomas bilaterally replacing 60% of the gland (Figs. 3, 4). At 4-month follow-up, he currently has an undetectable PSA level, is continent of urine, and has negative imaging studies.

Discussion

This case reinforces the risks and possible consequences that may occur with PCa screening and resultant biopsy. Although most postbiopsy complications are self-limited, it is becoming increasingly common for patients to require hospitalization for postbiopsy infectious complications. Our patient represents a unique end of this spectrum as he experienced relatively mild clinical symptoms for the degree of necrosis and abscess formation within his prostate.

Despite an extensive workup assessing for bacterial, fungal, and atypical (mycobacterial, Histoplasma, cryptococcal) organisms, no etiology has been ascertained. Given his dental profession, he has had annual negative purified protein derivative skin test and only recent travel to China, Argentina, and Antarctica. Because the patient's initial biopsy reported PCa and normal benign prostatic tissue, the prevailing thought is the abscesses are likely

Figure 1. Preoperative magnetic resonance image with and without contrast images of the prostate. Sagittal image depicting the left periurethral abscess (A) and multiloculated abscess within the prostate (B).

Figure 2. Preoperative magnetic resonance image with and without contrast images of the prostate. Coronal image of the multiloculated prostate abscess (A) and prostate imaging with dynamic computer aided detection primary (B).

Figure 3. Pathologic slides of the prostate: normal prostatic tissue (left) adjacent to necrotizing granulomatous tissue (A) and lymphocytic reaction representing acute or chronic inflammation (B).
postprocedural. An open radical prostatectomy was chosen given his concomitant PCa and because of the extensive nature of prostatic necrosis rather than pursue transurethral resection or transrectal aspiration. Given the lack of systemic symptoms, an underlying rheumatologic process (sarcoidosis, granulomatosis, and so forth) is unlikely. With no risk factors for tuberculosis, the concern resides within an infectious process involving mycobacterial species \textit{abcessus}, \textit{fortuitum}, or \textit{chelonae}, as these tend to be more locally infective. No definitive diagnosis may be ascertained as the abscess fluid was not sent for acid-fast bacilli or fungal culture; however, all stains were negative.

The coincident finding of PCa and caseating granulomatous abscesses is exceedingly rare. Granulomas are found in 1% of biopsies demonstrating prostatitis, with tuberculosis the most common infectious etiology. The presence of caseating granulomas represents an even more rare entity, seen in only 14% of those patients diagnosed with prostatic granulomas. Only 3 other cases of prostatic abscess after transrectal ultrasonography—guided biopsy have been reported, all of which have demonstrated some form of irritative urinary symptoms or clinical sepsis and concomitant infection. As prostatic abscesses in general are extremely rare, patients with an underlying predisposition to immune deficiency (diabetes, steroids) should possess a lower threshold for diagnosis. After diagnosis and treatment, bacterial (aerobic and anaerobic), fungal, mycobacterial, and atypical organism cultures and stains should be obtained to allow for an adequate diagnosis and treatment course.

**Conclusion**

Although exceptionally rare, our case represents the gravity (albeit asymptomatic) of infectious complications that may occur and must be considered in any patient with an atypical presentation after prostate biopsy.

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