

·Case Report·

Life-threatening meningitis resulting from transrectal prostate biopsy

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Abstract

After antibiotic prophylaxis with metronidazole and levofloxacin, a transrectal sextant biopsy was performed under the guide of transrectal ultrasonography (TRUS) for a 75-year-old suspicious patient with prostate adenocarcinoma. Although antibiotics were also given after this procedure, the patient still developed fever, anxious, agrypnia and headache. Blood cultures remained negative. Lumbar puncture was performed and was consistent with *Escherichia coli* bacterial meningitis. (*Asian J Androl* 2005 Dec; 7: 453–455)

Keywords: meningitis; prostate diagnosis

1 Introduction

Sextant biopsy, guided by transrectal ultrasonography (TRUS), was first described by Schnorr *et al.* [1] in 1975. It remains popular because it is still the most accurate means to diagnose prostate cancer, it is easy to perform and has fewer complications (such as severe bleeding, septicemia and retention of urine) than other methods. Meningitis following transrectal prostate biopsy (TPB) is a very rare complication. To date, only three cases have been reported in the published literature: Sandvi and Stefansen [3], Meisel *et al.* [4] and Rodriguez-Patron *et al.* [5]. Here, we reported a case of life-threatening meningitis caused by *Escherichia coli* (*E. coli*), which was diagnosed 1 week following TPB despite the

administration of intravenous antimicrobial prophylaxis. To our knowledge, this case is the first one of its kind reported in Asia.

2 Case report

A 75-year-old man was hospitalized, with urinary frequency and dysuria. General and abdomino-genital examinations were normal. A digital rectal examination revealed a large, non-tender, hard tumor indenting the anterior rectal wall. Laboratory examinations revealed normal urine microscopy and culture, full blood count, serum creatinine and electrolytes. Serum prostate-specific antigen (PSA) measured 11.6 ng/mL. TRUS showed a symmetrical prostate measuring 5.5 cm × 4.0 cm × 3.8 cm with a peripheral zone hypoechoic area in the left portion of the gland. After a 3-day course of intravenous antibiotic prophylaxis with metronidazole (1 000 mg once daily) and levofloxacin (300 mg twice daily), a sextant biopsy was taken with an 18-G Topnotch biopsy needle (Boston Scientific, Boston, MA, USA) under the guide of TRUS.

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Two days after the biopsy, the patient developed a fever (38.5 °C). Computed tomography (CT) of the prostate revealed that the patient had slight rectal tenderness. Laboratory studies revealed leukocytosis ($12.3 \times 10^9/L$) with 93 % neutrophils and normal serum biochemistry, urine microscopy and culture. Intravenous levofloxacin (300 mg twice daily) and tinidazole (1 000 mg once daily) were commenced. Three days later, laboratory studies revealed leukocyte $8.5 \times 10^9/L$ with 85 % neutrophils, body temperature 37.5 °C, normal blood and urine cultures and no rectal tenderness on examination. Antibiotics were switched to oral levofloxacin (200 mg twice daily).

Seven days after the biopsy, the patient became febrile (38.9 °C) and anxious, with agrypnia and a slight headache. Physical examination found insignificant neck stiffness. Blood cultures remained negative. Magnetic resonance imaging of the brain was unremarkable. Diagnosis of meningitis was eliminated on the basis of a normal neurological examination and his past medical history of melancholia. The patient was treated for possible bacteremia with a third generation cephalosporin (2 g ceftazidime twice daily).

Nine days later, the patient developed a swinging pyrexia (39.5 °C) and an intractable headache spreading to his neck with associated nausea and vomiting. Subsequently, he became disorientated, dysphasic and agitated and was found to score 10 on the Glasgow Coma Scale (GCS). On neurological examination, he had significant neck stiffness and a positive Kernig sign. On the basis of these findings, the patient was transferred to the Department of Neurology with a presumptive diagnosis of meningitis. Lumbar puncture was performed and was consistent with meningitis, showing the following: an opening pressure of 170 mm H₂O, turbid fluid, leukocyte count of 1 200/ μ L, glucose 0.1 mmol/L, protein 2.73 g/L and a few Gram-negative bacilli. Both the cerebrospinal fluid (CSF) and blood culture grew *E. coli*. Bacterial isolates were highly resistant to fluoroquinolones, cephalosporins, amikacin and only susceptible to carbapenems. Intravenous carbapenems was administered at 1 g/8 h for 2 weeks, achieving a complete resolution of symptoms.

The histological report of the patient's TPB showed well-differentiated prostatic adenocarcinoma. As a result, the patient began to undergo monthly androgen deprivation therapy.

At 1 year of the follow-up, examination indicated no sequelae from meningitis; the serum level of PSA was 0.02 ng/mL.

3 Discussion

Complications of TPB may be infective or traumatic and both may occasionally be fatal [6–8]. Meningitis is one of the most serious complications of TRUS-guided prostate biopsy. This case illustrated a life-threatening *E. coli* meningitis following biopsy, despite intravenous antimicrobial prophylaxis. The cause of this infection may have been the lack of a rectal enema prior to the biopsy procedure. According to previous reports, the most common pathogen causing meningitis following TPB is *E. coli* [3–5]. It was uncertain how *E. coli* gains access to the CSF space. Carey and Korman [9] have suggested that the use of a cleansing enema before biopsy increases the patient cost and discomfort without providing a clinically significant improvement of outcome. Most authors, however, felt that enemas reduce the rate of bacteremia. Reports have indicated that 38 %–76 % of patients who did not receive an enema before prostate biopsy developed bacteremia; whereas only 17 %–19 % developed bacteremia when a povidone-iodine enema is administered [10, 11]. Although it was unclear whether meningitis could have been prevented by the administration of a different prophylactic regimen, we suggest that they should be given a cleansing enema prior to the biopsy procedure with a wide spectrum antimicrobial prophylaxis regimen similar to that given during the course of routine large bowel surgery.

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