

A case of severe sepsis following transrectal prostate biopsy

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Introduction

Prostate biopsy presents a significant percentage of complications. Infection complicates more than 5% of patients subjected to prostate biopsy¹ and is the most common reason for hospitalization following prostate biopsy^{2,3}. The factors predicting a higher susceptibility to infection have been largely unknown but some literature have highlighted in the aetiopathogenesis the importance of augmented prevalence of ciprofloxacin resistant bacterial strains (*E. coli*) in the rectum flora.

Case report

We report a case of an elderly man, who had no urinary symptoms. A 74-year old man presented in our general outpatient clinic with no urinary symptom but had elevated total serum Prostate Specific Antigen (PSA) during his annual medical check-up. The PSA was 19.01ng/ml, which prompted the attending physician to refer him to our Urology Clinic.

We found him to be a healthy-looking elderly man. The findings on general examination were essentially normal. On digital rectal examination, the sphincteric tone was normal; the rectal mucosa was smooth; the prostate gland was enlarged, grade III, smooth, firm, nontender, median groove and lateral sulci were preserved. We made a clinical diagnosis of chronic prostatitis.

A repeat serum PSA test was 17.90ng/ml. The ultrasonography revealed a 79.7gm homogenous prostate gland. He was commenced on oral ciprofloxacin 500mg twice daily for six weeks, based on the presumptive diagnosis of chronic prostatitis. Thereafter the serum PSA was 24.60ng/ml. He was consequently scheduled for a transrectal prostate biopsy. Pre-biopsy, IV pentazocine 15mg, IV acetaminophen 600mg and IV Gentamycin 160mg were given. He had caudal block anaesthesia with 200mg plain lidocaine and an extended (10 cores) biopsy was performed. After the biopsy, he was commenced on oral ciprofloxacin 500mg twice daily for five days and acetaminophen 1000mg three times daily for three days.

Four days after the prostate biopsy, he developed severe weakness, fever (37.2°C) and haematuria, suggestive of septicaemia. Urine culture did not yield any organism. He was treated with intravenous ceftriazone and Gentamycin, there was resolution of his symptoms and he was discharged after eight days of admission. However he re-presented four days later with severe weakness and fever (38.3°C). The urine culture yielded no growth of organism. Preliminary blood culture yielded *Streptococcus* species. He was treated with intravenous levofloxacin. At this point, the histology report was available, showing fibromuscular hypertrophy with glandular hyperplasia and chronic inflammation.

He developed hypotension (BP 80/50mmHg); packed cell volume = 19%; white cell count = $44.3 \times 10^9/L$. On peripheral blood film, red cells show hypochromia, anisopoikilocytosis, target cells, fragmented cells and tear drop cells; white cells show leucocytosis predominantly

granulocytes, left shift of neutrophils with toxic granulation. The glycaemic profile was within normal limits. HIV screening was non-reactive.

Catheter swab culture yielded *Escherichia coli* resistant to all tested antibiotics. Urethral swab culture yielded *Pseudomonas aeruginosa* resistant to all tested antibiotics. Sputum culture yielded *Staphylococcus aureus* resistant to all tested antibiotics. He was resuscitated and transferred into the Intensive care Unit. He was transfused with four pints of O negative packed red blood cells, his blood group being O negative.

The severe weakness and fever persisted, hence the antibiotic was changed from levofloxacin to vancomycin, but there was no improvement. Subsequently the antibiotic was changed to meropenem. He then began to make gradual steady improvement and sustained clinical stability. He was on admission for thirteen days in the Intensive Care Unit before he was discharged.

Discussion

The most common complications following prostate biopsy include infection, bleeding, and urinary retention^{1,2}. Infection-related complications following prostate biopsy include asymptomatic bacteriuria, urinary tract infection, febrile urinary tract infection, and sepsis³. Our patient also did not manifest urinary symptoms except for being febrile. It is highly worrisome the findings from recent reports of an increasing number of men requiring hospitalization as a result of significant infectious complications following prostate biopsy⁴. Although the cause of these recently reported trends may be multifactorial, the emerging pattern of fluoroquinolone-resistant bacteria⁵⁻⁷ and the lack of an evidence-based, standardized regimen for peri-procedural antimicrobial prophylaxis for prostate biopsy appear to be the most important etiologic factors responsible for these trends⁸.

Although, our patient had pre-biopsy prophylaxis with a starting dose of IV Gentamycin, he was immediately placed on oral fluoroquinolone, ciprofloxacin post biopsy because of the extended biopsy experienced. With good tissue penetration and randomized trials supporting its benefit, most literature has supported ciprofloxacin is the choice of prophylactic agent for transrectal prostate biopsy^{9,10}. Alternative attempts to cover the common organisms *E. coli*, *K. pneumoniae*, *P. aeruginosa* and *Enterococcus* include another fluoroquinolone, a second or third generation cephalosporin or Gentamycin^{11,12}. There is no good evidence supporting the use of metronidazole¹².

However, the different bacterial isolates in our patient, with their multidrug resistance features highly suggest the high antibiotic consumption rate either by the patient or the local community of the hospital where patient presented. This is largely due to the non existence of antibiotic policy and guidelines in our local environment¹³. Also, a multi organism sepsis is the likely cause of severe sepsis in this patient. Most prostate biopsies are performed transrectally, and introducing rectal bacteria into the urinary tract is a significant concern.

Conclusion

This report reminds us that serious complications can occur as a result of transrectal prostate biopsy. Further research needs to be done to evaluate the prevalence of drug resistance and to select an optimal prophylaxis regimen. There is also an urgent need for antibiotic audit and the development of antibiotic policy and guideline in the local institution.

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