

An unusual case of chronic prostatitis caused by *Haemophilus influenzae* in an elderly Saudi patient: A case report and literature review

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ABSTRACT

Haemophilus influenzae has been reported on rare occasions as the cause of prostatitis and urinary tract infections. Here, we report a rare case of chronic prostatitis in a 52-year-old male with benign prostatic hypertrophy and discuss the possible underestimation of the true incidence of *H. influenzae* in genitourinary infections. This organism was identified only by its growth on chocolate agar, a medium that is not commonly used for urine cultures.

Key words: Chronic prostatitis, elderly, *Haemophilus influenzae*

INTRODUCTION

Chronic bacterial prostatitis is a sub-acute infection characterized by recurrent urinary tract infections, variable pelvic pain and voiding symptoms. Nonbacterial prostatitis and chronic pelvic pain syndrome are more common than bacterial prostatitis, and their etiologies are largely unknown. Most urinary tract and prostate infections are caused by Gram-negative bacilli. The predominant etiologic agent in acute bacterial prostatitis and chronic bacterial prostatitis is *Escherichia coli*, followed by species of *Proteus* and *Providentia*, and less commonly, *Klebsiella*, *Pseudomonas*, *Serratia*, and *Enterobacter*.^[1-3] Rarely does *Haemophilus influenzae* infect the urinary tract, and it is believed not to be common as a cause of prostatitis. A case of *H. influenzae* in an elderly male with benign prostatic hypertrophy is described. This report illustrates that common clinical syndromes such as prostatitis may be associated with unusual pathogens in patients with obstructive uropathy.

CASE REPORT

A 52-year-old Saudi man presented on the July 1, 2013, to the urology clinic complaining of urinary urgency, dysuria, frequency and burning sensation on ejaculation. He also complained of intermittent incomplete urination accompanied by suprapubic pain. He reported recurrent episodes of similar symptoms and chronic lower abdominal pain for the past 20 years. On January 31, 2011, the symptoms increased in severity negatively affecting his quality of life with depression that necessitated frequent visits to the psychiatry clinic. During this period, he was diagnosed to have benign prostatic hyperplasia and chronic prostatitis and given short courses of ciprofloxacin and Xatral (alfuzosin). He denied having any respiratory tract symptoms. On examination, he was generally well, and his systemic examination was normal. Per-rectal examination revealed an enlarged, painful, symmetrical smooth prostate. Complete blood count, Urea and electrolytes, liver function test and coagulation profile were normal. Prostate specific antigen concentration was 1.76 ng/mL. Bladder ultrasonography revealed a large prostatic adenoma and 120 ml residual urine in his bladder. Cystoscopy showed normal urethra, mild tri-lobar prostatic enlargement with evidence of congested prostatic mucosa suggestive of chronic prostatitis. Bladder mucosa and ureteric orifices were normal. Urine obtained after prostatic massage (voiding bottle 3) was sent to

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the microbiology laboratory for analysis and culture. Microscopic analysis of the urine specimen revealed 10 white blood cells per high power field. Overnight culture of a specimen on blood, MacConkey and chocolate agar showed no growth. Prolonged incubation (72 h) of chocolate agar at 10% CO₂ showed >10⁵ cfu/ml of tiny growth of grey watery colonies [Figure 1]. Gram-stain of the culture revealed Gram-negative coccobacilli that were oxidase positive. Vitek 2 (bioMérieux, France) automated identification and susceptibility testing showed 97% probability of *H. influenzae* with excellent identification. β-lactamase test was negative. The organism was ampicillin, augmentin, cefuroxime, cotrimoxazole and ciprofloxacin sensitive. Accordingly, the patient was given a 3-month course of oral Augmentin (1000 mg BD). During follow-up visits, the patient showed an improvement in his urinary symptoms and a reduction of prostate size and pain on rectal examination. Microbiological cultures of the prostatic fluid taken one and 6 weeks after treatment were negative.

DISCUSSION

Few bacteria other than *E. coli*, other Enterobacteriaceae, such as *Klebsiella*, *Enterobacter*, *Proteus* and *Serratia*, and rarely *Pseudomonas aeruginosa* are considered as causes of chronic bacterial prostatitis.^[2,3] Bacteria causing prostatitis are capable of replicating in the prostate, causing relapsing urinary tract infections, and may be detected in expressed prostatic excretions. Of the 276 patients with microbiologically proven chronic prostatitis, *E. coli* was detected in 9.42% of patients, enterococci in 9.05%, *Proteus mirabilis* or *Klebsiella pneumoniae* in 7.25%, and *Streptococcus agalactiae* in 2.90%, whereas in 4.35% of patients the cause of the infection mixed.^[4] A number of other fastidious organisms have been reported as likely causes of chronic prostatitis. *Chlamydia trachomatis*, *Trichomonas*



Figure 1: Chocolate agar showing small watery colonies of *Haemophilus influenzae*

vaginalis, *Ureaplasma urealyticum*, *Gonococci*, Genital viruses, and occasionally mycobacteria, have all been implicated in prostatitis.^[4-6] Isolation of *H. influenzae* from a urine sample was first reported by Kretz^[7] in 1898. Since then, nearly 33 cases that implicate *H. influenzae* as the cause of adult urinary tract infections has been reported.^[8-11] *H. influenzae* urinary tract infections in adults and elderly patients usually affect men with anatomical or functional genitourinary abnormalities.^[9-11] The bacterium has been isolated from the urine of eight men,^[11] all of whom had anatomic or functional genitourinary abnormalities. Three patients had acute cystitis, two had prostatitis, two had pyelonephritis, and one patient had asymptomatic bacteriuria with pyuria. The prostate was suspected to be the site of infection, where the oxygen is likely to be lower than that of bladder urine and permit the multiplication of organisms that require CO₂. Persistent severe urinary symptoms or sterile pyuria despite negative urine culture are usually the clinical symptoms, which promote the search for fastidious organisms. Prolonged incubation in an atmosphere containing 7% CO₂ on chocolate agar is indicated when such organisms are suspected.

Haemophilus influenzae urinary tract infections can be associated with bacteremia and lead to serious systemic complications, particularly in immunocompromised elderly patients.^[9] Underlying conditions, such as chronic lung disease, malignancy, human immunodeficiency virus (HIV) infection, alcoholism, hypogammaglobulinemia, as well as pregnancy, increase the risk of *H. influenzae* infections.^[9,10] An adult with HIV infection who presented with epididymo-orchitis and bacteremia due to *H. influenzae* has been described.^[12] Another report gave an account of *Haemophilus parainfluenzae* prostatitis in a homosexual man with chronic lymphadenopathy syndrome and human t-lymphotropic virus-III infection.^[13] Aerobic growth of *H. influenzae* requires two factors: Hemin (X factor) and nicotinamide adenine dinucleotide (V factor).^[14] Because supplemented media (e.g. chocolate agar) are not used routinely in culturing urine specimens and because the organism may be overgrown by other bacteria, the frequency of *H. influenzae* urinary tract infections may be underestimated. In addition, the growth of *H. influenzae* is inhibited by urine even if supplemented with the necessary growth factor. In suspected bacterial infections, laboratories are advised to subculture specimens onto chocolate agar.

CONCLUSION

Haemophilus influenzae may be a more common uropathogen in adults than previously recognized. There should be more sensitive culture techniques, and greater physician awareness of the genitourinary pathogenicity of this bacterium,

particularly in male elderly patients with anatomical or functional genitourinary abnormalities.

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