

Prostatic abscess caused by *Streptococcus mutans*

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ABSTRACT: The first reported case of prostatic abscess caused by *Streptococcus mutans* isolated in pure culture is described. Urethral dilation for obstruction was unsuccessful, so suprapubic cystostomy was performed. Perineal aspiration under ultrasonic guidance resulted in 10 mL of pus containing pure *Strep mutans*. Diag-

nosis of prostatic abscess is difficult since the clinical manifestations are nonspecific. **Can J Infect Dis 1990;1(3):82-84**

Key Words: Prostatic abscess, *Streptococcus mutans*, *Streptococcus viridans*, Ultrasound

PROSTATIC ABSCESS, AN INFECTION USUALLY OCCURRING as a complication of acute or chronic prostatitis (1), is most common in the fifth and sixth decades of life (2). Predisposing factors include local conditions such as benign prostatic hypertrophy, prostatic carcinoma and bladder outlet obstruction, or following procedures such as urethral instrumentation, needle aspiration and biopsy of the prostate (2-4). In addition, diabetes mellitus is a common risk factor (3).

In the pre-antibiotic era, *Neisseria gonorrhoea* was one of the most common causes of prostatic abscess (1); however, in recent years Gram-negative bacilli have become more prominent as etiologic agents of this infection (3). Prostatic abscesses are usually complications of contiguous genitourinary infections, and less often they occur via hematogenous spread. Common organisms

were Gram-negative bacilli and *Staphylococcus aureus*, with some anaerobes, fungi and mycobacteria. In addition, polymicrobial prostatic abscesses can occur with either route of infection (3). *Streptococcus viridans* and enterococci have been reported in some cases of chronic prostatitis (2,5,6). Other than two cases of prostatic abscesses caused by *Enterococcus faecalis* and one case by a '*Streptococcus species*' that was not further identified (7,8), no case of prostatic abscess due to viridans streptococci was reported.

A case of prostatic abscess is reported in which *Strep mutans*, a species of the viridans streptococci group, was isolated in pure culture.

CASE PRESENTATION

In June 1989, a 39-year-old patient was admitted to the Jewish General Hospital in Montreal because of fever, dysuria, hesitancy and hematuria. He had had suprapubic removal of an obstructing vesicular stone at age four years. He had been otherwise well until one week prior to admission when dysuria, hesitancy and hematuria occurred. Without blood or urine cultures, he was treated by his family physician with amoxicillin for one week with initial improvement, but soon developed left flank pain that radiated to

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the scrotum with fever and chills. There had been no recent dental problems or procedures performed, and no history of prior cardiac valvulopathy.

On examination, he appeared ill with a temperature of 38.5°C. No dental caries or gingival infection was found; there was left lower quadrant but no costovertebral angle tenderness; rectal examination revealed a nontender, normal size prostate. Cardiovascular examination was entirely normal and no cardiac murmur was heard. There were no manifestations of endocarditis. Blood leukocyte count was $17.2 \times 10^9/L$ with 86% neutrophils. Although there was pyuria, multiple urine and blood cultures were negative. An intravenous pyelogram was normal. Treatment was begun with intravenous ampicillin and gentamicin.

On day 3 the patient developed perineal pain with a swollen tender prostate. Although pelvic ultrasound showed a small prostatic abscess, perineal aspiration revealed no pus. Urethral obstruction from the abscess then developed. As urethral dilation was unsuccessful, suprapubic cystostomy was performed. Antibiotic coverage was changed to ceftriaxone with little improvement. On day 8 transrectal ultrasound revealed a large multiloculated abscess, and perineal aspiration under ultrasonic guidance resulted in 10 mL of pus. Culture of this material yielded a pure growth of *Strep mutans*. The patient recovered uneventfully and completed a six week course of amoxicillin. A cystostomy catheter was removed eight months later with only residual hesitancy persisting.

The organism was identified as *Strep mutans* as follows: fermentation of mannitol, lactose, raffinose, sucrose and sorbitol but not of sorbose, ribose, and arabinose; failure to grow at 10°C; and sodium hippurate negative. The organism was sensitive to penicillin.

DISCUSSION

Prostatic abscesses usually occur following acute or chronic prostatitis (1). They may occur even when patients are on appropriate therapy (9), as demonstrated in the present case. Although he had a urological problem at age four years, this patient did not seem to have any risk factors usually associated with this condition. Diagnosis may be difficult since the clinical manifestations are nonspecific, with fever and urinary retention occurring in one-third of patients. Other symptoms such as dysuria, frequency and difficulty voiding occur less frequently (3). This patient presented initially with symptoms resembling urinary tract infection with hematuria and flank pain; these occur in only 7 and 1% of patients with prostatic abscesses, respectively

(10). Although prostatic enlargement occurred in 75% of cases, tenderness and boggy texture were present in only 35 and 12%, respectively (2). As such, prostatic abscesses can be easily missed on rectal exam.

A variety of techniques have been used to improve the diagnostic yield. Transurethral ultrasound has been replaced by the transrectal approach, shown to be more useful as periprostatic structures can be better visualized and cystoscopy is not needed (11). As in the present case it also allowed guidance for transperineal prostatic abscess drainage which results in fewer complications than other approaches (transurethral or transrectal) (4,12,13). Computed tomography has been used with success (14,15), but Peeling and Griffiths (16) found ultrasound superior to computed tomography in detecting different diseases within the prostatic capsule.

Strep mutans is one of several species of viridans streptococci known to colonize tooth surfaces and contribute to the formation of dental plaques and caries (17). Although it has been isolated from intestinal and genitourinary sources, *Strep mutans* is primarily a cause of endocarditis and bacteremia - rarely urinary tract infections (10,18). Because of these facts, it is probable that the present patient had a bacteremia with this organism from an oral source that seeded the prostate, resulting in abscess formation. It is unlikely that the patient had endocarditis as the initiating event, since the cardiovascular exam was entirely normal and there were no manifestations of infective endocarditis during the entire course of his illness. Viridans streptococci have been isolated occasionally in chronic prostatitis (2,5,6), and a review of the medical literature reveals only one case of prostatic abscess caused by a '*Streptococcus* species' that was not further identified (8). The present patient is the first reported case of prostatic abscess caused by *Strep mutans* isolated in pure culture.

Studies on antibiotic penetration into prostatic tissue and abscess are few. Excellent concentrations in the prostate were found with trimethoprim (19), ciprofloxacin (20) and carbenicillin (21). Concentrations for cephalosporins are largely unknown, and poor levels occurred with aminoglycosides (22). Treatment recommendation in terms of antibiotic choice and duration is largely empirical, depending on organisms isolated from abscess and blood cultures, as well as clinical response. Surgical therapy may require more than just simple aspiration, and on occasion transurethral resection of the prostate with subsequent drainage of the abscess may be required.

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