Prostatic enlargement associated with symptomatic and asymptomatic gonorrhoea in adolescent men: An argument for routine rectal examination

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SUMMARY Ten adolescent men presented with prostatic enlargement and positive anterior urethral cultures for gonococci. Six of them had urethritis, but four were asymptomatic; the prostate is therefore implicated as a reservoir for the asymptomatic carrier and it is strongly recommended that the rectum should be included in the routine physical examination of sexually active adolescent men.

Introduction

Before the discovery of antibiotics, gonococcal urethritis in men was usually characterised by the spread of disease from the anterior urethra where it produced discharge, dysuria, and meatal erythema to the posterior segment resulting in frequency and urgency of urination, terminal haematuria, and pain throughout the penile shaft. Invariably extension to the prostate followed leading to hesitance, constipation, and pain to the perineum and the lower back (Litt *et al.*, 1974). Successful treatment with antibiotics has led many to make two assumptions. The first is that in most cases, current treatment regimens will effectively curtail the infection, limit the disease to its initial site, and eradicate all organisms. The second is that gonorrhoea in the male urethra is symptomatic with a very limited carrier state as most of those infected seek treatment. Recent experience has forced reconsideration of these assumptions and has led to the conclusion that physical examination in the sexually active male should always include the prostate.

This view is supported in this report by data collected from 10 adolescent men who had positive gonococcal cultures from the anterior urethra and enlarged prostates. They presented during a six-month period at the Adolescent Health Center of the Door (a multiservice centre for youth in New York City's west village) and the Bellevue Hospital Center's Adolescent Clinic. After prostatic massage, cultures were obtained in all patients from the first

5 cm of the anterior urethra using a calcium alginate swab, then smeared on to New York City Medium (a highly selective growth medium for pathogenic *Neisseria gonorrhoeae* (Faur *et al.*, 1973), and incubated in reduced oxygen tension for 24 hours. Prostate examinations were all carried out by the author.

Results

The 10 cases can be divided into three groups according to each patient's clinical presentation at the time of diagnosis.

GROUP 1

The four patients in this group had neither symptoms of anterior or posterior urethritis nor symptoms of prostatic enlargement. All had had some type of urethritis in the past (diagnosed as gonorrhoea and adequately treated in two). In two of them, the prostatic size returned to normal after treatment with antibiotics.

GROUP 2

The two patients in this group had symptoms of anterior urethritis but no complaint referable to the prostate or the posterior urethra. Both men responded to antibiotics with improvement of the anterior urethritis, but in only one did the prostate revert to normal size. It is of interest that it was the patient with a history of an adequately treated infection who required additional treatment.

GROUP 3

The four patients in this group presented with both anterior and posterior urethritis (prostatic tenderness

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Table Ten men presenting with prostatic enlargement

Case	Group 1				Group 2		Group 3			
	1	2	3	4	5	6	7	8	9	10
History of gonorrhoea	Questionable	Yes	Questionable	Yes	No	Yes	No	Yes	No	Yes
Time since last infection (months)	18	4	3	8	—	2	—	1	—	5
Duration of present symptoms (days)	—	—	—	—	7	4	14	4	7	5
Symptoms										
Urethritis										
anterior	Absent	Absent	Absent	Absent	Present	Present	Present	Present	Present	Present
posterior	Absent	Absent	Absent	Absent	Absent	Absent	Present	Present	Present	Present
Prostate										
tender	Questionable	Absent	Absent	Absent	Absent	Absent	Questionable	Absent	Absent	Absent
enlarged	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
Culture results	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive
Initial response										
Culture	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
Urethritis	—	—	—	—	Resolution	Resolution	Resolution	Resolution	Resolution	Resolution
Prostate										
enlarged	Resolution	No resolution	No resolution	Resolution	No resolution	No resolution	No resolution	No resolution	No resolution	Resolution

was suspected in one of them). Two had been treated for gonorrhoea during the previous six months; only one reverted to normal prostatic size with antibiotics alone.

The following case presentations are representative:

CASE 1

This 19-year-old Black, sexually active, heterosexual man presented for routine physical examination with no specific medical complaints. Eighteen months earlier he had had dysuria and a urethral discharge which had cleared spontaneously after four days. Otherwise the history and physical examination were unremarkable; a rectal examination, not a routine procedure at that time, was not done. As with all our sexually active patients, his blood for serological tests for syphilis and a culture for gonorrhoea were taken.

While dressing, this patient asked how long it should take him to start a urinary stream. Further questioning revealed that for as long as he could remember, he had to strain before he could urinate. Rectal examination demonstrated an enlarged, boggy, non-tender prostate gland which when subsequently massaged for 30 seconds expressed fluid to the meatus.

In 24 hours a culture of the fluid obtained by massage showed gonococci, but the first urethral culture was sterile. The patient remembered being treated with 2 g of oral probenecid and 4.8 million units of intramuscular penicillin.

Within 10 days a repeat postmassage culture was negative, but the patient reported that he continued

to strain and on examination his prostate was unchanged. Five weeks after a 14-day course of ampicillin (250 mg four times a day) and weekly prostatic massage, the gland had returned to normal size and the patient stated that he had a normal urinary stream. He also reported that his previously unmentioned constipation had resolved. The patient has been followed-up for an additional six months and remains well with negative cultures.

CASE 2

This 21-year-old White homosexual man's sexual partner had developed gonococcal pharyngitis 48 hours after oral intercourse with him. The patient had no symptoms but did give a history of confirmed and treated gonococcal urethritis four months earlier. On physical examination, the only finding was an enlarged, boggy, non-tender prostate. An anterior urethral culture taken after prostatic massage grew gonococci. He was treated with 2 g of oral probenecid followed by 4.8 million units of intramuscular procaine penicillin. Within one week the prostate had returned to normal size and a repeat culture was negative.

CASE 3

A 17-year-old sexually active White man presented with dysuria and urethral discharge of one week's duration; there were no symptoms referable to the prostate or posterior urethra and the patient denied any previous history of venereal disease.

Physical examination revealed a slightly enlarged, non-tender, boggy prostate which was gently massaged for 30 seconds. Culture from the anterior

urethra was positive for gonococci. He was treated with 4.8 million units of intramuscular procaine penicillin. Within one week the urethritis had subsided and the prostate had returned to normal size. All repeat cultures were negative.

CASE 4

An 18-year-old White sexually active homosexual man, presented with a history of one week of dysuria and discharge, difficulty in starting urination, and constipation. These signs had begun several days after an episode of mutual anal intercourse. He denied any history of previous venereal infection.

Physical examination demonstrated a very tender, enlarged, boggy prostate. After oral, anal, urethral, and urine cultures he was empirically treated with 2 g of oral probenecid and 4.8 million units of intramuscular procaine penicillin. Only the urethral culture was positive for the gonococcus. (The urethral culture in this case was taken without prostatic massage as it was contraindicated by evidence of acute inflammation.)

Within five days there was slight improvement in urinary hesitancy and constipation, and the other symptoms had cleared; however, the prostatic size remained unchanged although it was no longer tender. In view of experience with others this patient had a two-week course of ampicillin and weekly prostate massage. During the next five weeks, the gland gradually decreased in size, the urinary stream returned to normal, and the constipation subsided. All repeat cultures were negative.

Discussion

A search of the literature leads to the conclusion that these cases present what should have been a predictable matter. Danielsson and Molin (1970), using an immunofluorescent technique, demonstrated that in 40% of a male population adequately treated for uncomplicated anterior gonococcal urethritis, the organism remained in the prostatic fluid for as long as three weeks. They concluded that the prostate could be colonised during an anterior urethral infection and that conventional treatment could fail to eradicate the organisms resulting in a carrier state. Hansfeld *et al.* (1974) reported 49 asymptomatic men (some known to have had contact with infected women) who had positive cultures for gonococci from both the prostate and the anterior urethra. Almost half of these patients had a history of adequately treated gonococcal urethritis during the five years before culture. They also found that there was no case of a positive culture from the prostate alone, and concluded that a culture from the anterior urethra was sufficient to detect this

group. In view of the limited data presented here this point cannot be argued; however, it must be affirmed that the prostate must always be considered a possible reservoir of infection that should be examined.

It seems clear that apparently uncomplicated anterior gonococcal urethritis may be associated with prostatic colonisation and perhaps mild infection as well, and that the causative organism may not always be eradicated from the prostate by conventional treatment. Presumably, this failure is because of the poor concentration of these antibiotics in the prostate fluid; Winningham *et al.* (1968) demonstrated that most of the conventional antigonococcal agents—including penicillin, oxytetracycline, and ampicillin—diffuse poorly into the prostate. One can only conclude that such individuals become gonococcal carriers, harbouring the organism in prostatic reservoirs, producing semen infested with gonococci which presumably become infective when emission releases them from the bacteriostatic environment of the prostate (Stamey *et al.*, 1968; Molin and Danielsson, 1970).

Conclusion

This series of young men with prostatic enlargement associated with positive gonococcal cultures show that we must revise our current methods of investigating sexually active adolescent men in general and those with gonorrhoeal disease in particular. It is recommended that rectal examination with culture of the anterior urethra in all sexually active males be included as a part of routine screening for gonorrhoeae; furthermore, if disease is identified, the prostate should be examined before antibiotic treatment and re-evaluated if necessary at subsequent visits.

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