

## Prevalence of chlamydial infection in acute epididymo-orchitis

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**SUMMARY** The prevalence of sexually transmitted infection was studied in 40 men presenting with acute epididymo-orchitis in Leeds. *Chlamydia trachomatis* infection was identified in 13 of 29 men (45%) aged under 35 years. *Neisseria gonorrhoeae* was isolated from four of these 13 men with chlamydial urethritis. *C trachomatis* was isolated from the urethra of only one of 11 men (9%) aged over 35. Appreciable bacteriuria was found in six of these 11 men (55%). Noting details of sexual history and screening for sexually acquired pathogens is advocated in younger men with acute epididymo-orchitis.

### Introduction

Acute epididymo-orchitis is a recognised complication of gonococcal and non-gonococcal urethritis (NGU). In 1982 genitourinary medical departments in England and Wales reported 93 983 cases of non-specific genital infection in men.<sup>1</sup> *Chlamydia trachomatis* has been isolated from 30-60% of patients with NGU.<sup>2</sup> One report suggests that acute epididymitis may complicate 3% of cases of NGU.<sup>3</sup> From these figures we estimate that more than 1500 cases of acute epididymo-orchitis related to chlamydiae may occur in England and Wales each year. *C trachomatis* has been found to be the sole pathogen in epididymal aspirates from acute cases of epididymitis, and significant antibody titres to *C trachomatis* measured by microimmunofluorescence have been observed.<sup>4</sup> Experimental work has also shown that acute epididymitis may be induced in grivet monkeys by inoculation with *C trachomatis*.<sup>5</sup>

Sexually acquired pathogens have been reported in association with 45-68% of cases of acute epididymo-orchitis in young men.<sup>6,7</sup> One urological practice in Manchester in one year recognised 26 cases of epididymitis related to chlamydiae.<sup>8</sup> Our study investigated the prevalence of sexually transmitted disease in men with acute epididymo-orchitis presenting to the departments of urology and genitourinary medicine in Leeds.

### Patients and methods

All men who presented to the departments of urology or genitourinary medicine in Leeds with a clinical diagnosis of acute epididymo-orchitis in January to October 1985 were included in this study. Patients were excluded if their symptoms had been present for more than seven days or they had received antimicrobials during the previous four weeks. The diagnosis of epididymo-orchitis was based on clinical criteria and ultrasound examination of the testis. When any doubt existed about the possibility of torsion of the testis, the testis was explored surgically. We studied 40 men, whose ages ranged from 16 to 80 (median 23.5) years. Epididymo-orchitis occurred on the right in 20 patients, on the left in 19 and bilaterally in one.

A full genitourinary and sexual history was obtained, the presence of any urethral discharge was noted, and a Gram stained smear prepared. A diagnosis of urethritis was made when there were more than five polymorphonuclear leucocytes per high power field. A urethral swab for the culture of *C trachomatis* was transported in 0.2 mol/l sucrose phosphate medium and kept at 4°C until inoculated on to McCoy cells treated with chlorheximide. Cell monolayers were examined for typical inclusions with Giemsa staining after incubation for 48 hours. Urethral material was cultured for *Neisseria gonorrhoeae* by direct inoculation on to modified Thayer-Martin medium. A midstream urine specimen (MSU) was examined by microscopy and cultured quantitatively on CLED (cystine, lactose, and electrolyte deficient) agar.

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IgM and IgG antibody titres (serotypes A-C and D-K) to *C trachomatis* were kindly measured by microimmunofluorescence at the Institute of Ophthalmology in London.<sup>9</sup> Paired serum samples were obtained in 15 patients after a mean interval of 14 days. Serology tests for *Treponema pallidum*, mumps virus, coxsackie virus, influenza virus, Epstein-Barr virus, and cytomegalovirus were also performed.

Patients with Gram negative intracellular diplococci on their Gram stained smear were treated with ampicillin 3 g and probenecid 1 g. All patients received doxycycline 100 mg twice daily while awaiting the results of cultures.

## Results

We divided the patients into two groups by age, 29 were aged under 35 years, and 11 were aged 35 or more. Table I shows the recent sexual history of the patients, all of whom were heterosexual.

TABLE I Recent sexual history of 40 men with acute epididymo-orchitis in Leeds

Sexual history	No (%) of men aged:	
	under 35 (n=29)	35 or more (n=11)
No sexual contact within previous four weeks		3 (27)
New sexual partner within previous four weeks	19 (66)	1 (9)
Monogamous relationship for more than four weeks	10 (34)	7 (64)

Urethral symptoms in the preceding month were described by four (10%). No patient gave a history suggestive of urethral stricture. Urethral discharge was noted by the examining doctor in 18 (45%). Urethritis was present in 20 (50%); all were aged under 35. Of the patients with urethritis, 16 (80%) had had intercourse with a new sexual partner within the preceding four weeks.

Of the 29 patients aged under 35, chlamydial infection was diagnosed in 13 (45%); *C trachomatis* was isolated from the urethra of 11, and two further patients were diagnosed on the basis of a fourfold rise in chlamydial IgG titres together with isolation of *C trachomatis* from their sexual partners. *N gonorrhoeae* was isolated from four patients from whom *C trachomatis* was also isolated (see table II). In the 11 men aged 35 or over, *C trachomatis* was isolated from one. He was the only patient in this group who had had a new sexual partner.

TABLE II Pathogens associated with acute epididymo-orchitis in 40 men in Leeds

Pathogens	No (%) of men aged:	
	under 35 (n=29)	35 or more (n=11)
<i>Chlamydia trachomatis</i> only	9 (31)	1 (9)
<i>C trachomatis</i> and <i>Neisseria gonorrhoeae</i>	4 (14)	
Coliforms (> <sup>5</sup> organisms/ml) in midstream urine		6 (55)
Mumps virus (complement fixation test and haemagglutination test)	1 (3)	

*Escherichia coli* (more than 10<sup>5</sup> organisms/ml) was cultured from MSU specimens from six (55%) patients aged 35 or over. No other urinary pathogens were isolated, and all MSU specimens from patients aged under 35 were sterile. A viral antibody response to influenza, coxsackie, and cytomegalovirus was not detected in any of the 34 patients whose serum was examined. One patient, aged 19, with bilateral epididymo-orchitis had a fourfold rise in mumps virus antibodies by complement fixation and haemagglutination tests. Syphilis serology tests gave negative results in all patients.

## Discussion

Patients with acute testicular pain are commonly referred to a surgeon. The important differential diagnosis is torsion of the testis, and when any doubt exists the testis must be explored.<sup>10</sup> Patients with epididymo-orchitis are usually treated empirically with antimicrobials, though most urine cultures are sterile. It is well recognised that in younger men further urological investigation rarely shows any abnormality.<sup>11</sup> Older patients, however, may have bladder outflow obstruction, which may be important in the aetiology of their epididymo-orchitis.

This study has shown that half of 40 men presenting with acute epididymo-orchitis had gonococcal or non-gonococcal urethritis, of whom 65% (13) were infected by *C trachomatis*. These findings concur with studies undertaken in the United States of America<sup>7</sup> and Denmark.<sup>12</sup> The importance of taking a sexual history and investigating younger patients with acute epididymo-orchitis for sexually transmitted infection is apparent from the high prevalence of such infection in our study. The sexual partners of all patients with urethritis or positive cultures were invited to attend for investigation. Of 10 women examined, nine had gonococcal or chlamydial infection of the cervix. This emphasises the need to identify sexually transmitted disease in men with epididymo-orchitis.

At present serological tests for chlamydiae are of limited diagnostic value. A fourfold or greater rise in serial antibody titres is, however, accepted as definitive evidence of a recent chlamydial infection.<sup>13</sup> Using this criterion we identified recent chlamydial infection in two patients from whom no organisms had been identified. Paired serology is thus a useful addition to culture in this group of patients.

We did not perform epididymal aspiration in this study because the procedure does not provide information that could not be obtained from urethral and urine cultures alone.<sup>6,7</sup>

We recommend that all patients aged under 35 with acute epididymo-orchitis be investigated for sexually transmitted infection. Close liaison between urologists and genitourinary physicians should be encouraged.

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