Comparison of Urethral Swabs, Urine, and Urinary Sediment for the Isolation of *Chlamydia*

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In 70 male patients with urethritis, *Chlamydia* was recovered from 18 urethral swabs (26%), 5 urinary sediments (7%), and 3 urine specimens (4%). All *Chlamydia* isolates were recovered from urethral swabs.

Urethral scrapings (2, 4) and urethral swabs (5) from the male genitourinary tract have been used most frequently as specimen sources for the laboratory detection of *Chlamydia* infections. However, some reports indicate that other organisms found in the genitourinary tract, such as T-strain *Mycoplasma* and *Neisseria gonorrhoeae*, can be recovered in high frequencies from the urine or urinary sediment (1, 7, 8, 11, 13).

Because obtaining a urethral specimen with a swab or curet may cause the patient some discomfort and anxiety, we compared *Chlamydia* isolation rates from urine, urinary sediment, and urethral swabs, obtained from each patient. These patients were young men (age range, 15 to 39 years; mean, 23 years) who were seeking medical care at Olmsted County Health Department for symptoms of venereal disease.

The first 20 to 30 ml of urine voided was collected in a small container and 0.2 ml was added directly to 2 SP transport solution. The remainder of the urine was centrifuged at 1,000 rpm (clinical tabletop centrifuge) for 10 min, the sedimented cells were resuspended in 0.4 ml of urine, and 0.2 ml of suspension was transferred to 2 SP transport solution. A urethral swab (Calgiswab, Wilson Diagnostic, Glenwood, Ill.) was then inserted into the urethra for a distance of 2 to 5 cm and then was extracted in 2 ml of a transport solution, 2 SP (6) (0.2 M sucrose in 0.02 M phosphate buffer, pH 7.2), containing gentamicin (50 µg/ml) and nystatin (25 µg/ml) (E. R. Squibb and Co., New York). The specimen extracts were refrigerated at 4°C if they were to be delivered to the laboratory within 2 h or frozen at -20°C for storage for not more than 3 days. If frozen, the specimen was transported to the laboratory and was thawed immediately before inoculation.

Procedures for the pretreatment, inoculation,

and subculture of McCoy cells (obtained from E. Russell Alexander, University of Washington, Seattle) infected with *Chlamydia* have been described (12, 14, 15).

In our study, the most productive specimen for the recovery of *Chlamydia* was the urethral swab (Table 1). There was only one instance in which the urine and urinary sediment both were positive. In no case were these specimens positive and the urethral swab negative. Urethral swabs were the richest source of *Chlamydia* in that, in six of the eight comparisons, there were at least five times more inclusions detected in the urethral swab cultures than in the positive cultures of urine or urinary sediment (Table 2). The sequence of specimen collection was not randomized as in the study of Moore et al. (7). Yet even though we collected urine from each individual before obtaining urethral specimens, the swabs yielded more *Chlamydia* isolates.

Only within the last 3 years have adequately controlled studies established that *Chlamydia* is an important pathogen in urethritis (9, 10). Therefore, it is useful to establish the relative value of various specimens from the genitourinary tract for the recovery of these organisms. Direct comparisons of the recoveries of *Chlamydia* from urine, from various genital sites (5), and from the rectum (3) have not been published. From the results in this report, it is clear that urine is not a suitable specimen for recovery of *Chlamydia*.

TABLE 1. Recovery of *Chlamydia* from 70 males with urethritis

Specimen	Positive	
	No.	%
Urethral swab	18	26
Urine	3	4
Urinary sediment	5	7

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TABLE 2. *Numbers of Chlamydia inclusions in cultures of various specimens*

Specimen	Inclusions (mean number) ^a			Increase ^b
	Urethral swab	Urinary sediment	Urine	
1	2	1	1	2
2	2	1		2
3	12.5	2.5		5
4	17	2.5		7
5	8.5		0.5	17
6	68		2	34
7	54.5	1.5		36
8	65	0.5		130

^a Number of inclusions counted in cells on two cover slips divided by 2.

^b Number from swab divided by number from urine or urinary sediment

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