

# Urethritis in Men at the Genito-Urinary Medicine Clinic Kuala Lumpur Hospital

H B Gangaram, FRCP\*, K Akbal, Dip. Dermatology\*, A T Gan, FRCP\*\*, S H Hussein, FRCP\*, S Mangalam, MRCPATH\*\*\*, Y Rohani, MPath\*\*\*, P F Lai, PhD

\*Genito-Urinary Medicine Clinic, Department of Dermatology, Hospital Kuala Lumpur, Jalan Pahang, 50586 Kuala Lumpur, \*\*Gan Skin Specialist Clinic, 1st Floor, Wisma Tai Yoon, 9A, Lorong Medan Tuanku Satu, 50300 Kuala Lumpur,

\*\*\*Department of Clinical and Tropical Medicine, Institute for Medical Research, Jalan Pahang, 50588 Kuala Lumpur

## Summary

The clinical features and aetiology of 100 consecutive symptomatic heterosexual male patients with urethritis were studied from March 1994 to August 1994 in the Genito-Urinary Medicine (GUM) Clinic, Kuala Lumpur Hospital. Gonococcal urethritis (GU) was found to be more common (53%) than non-gonococcal urethritis (47%). All patients with GU confirmed microbiologically had clinically evident urethral discharge. Almost half (41%) of the patients with GU developed post-gonococcal urethritis (PGU). The most common organism isolated in PGU was *Ureaplasma urealyticum* (37%) whilst only 4% had both *Chlamydia trachomatis* and *Ureaplasma urealyticum*. Of the 47% of patients with non-gonococcal urethritis (NGU), 50% had no microorganism isolated, 32% had *Ureaplasma urealyticum*, 7% *Chlamydia trachomatis* and 11% both *Chlamydia trachomatis* and *Ureaplasma urealyticum*.

**Key Words:** Urethral discharge, Clinical features, Microbiological aetiology

## Introduction

Urethral discharge or urethritis is the commonest presenting symptom in men seen at the Genito-Urinary Medicine (GUM) Clinic, Kuala Lumpur Hospital (Annual report, GUM clinic, KLH) and in most other parts of the world. In developed countries, NGU is more common than GU, while the reverse is true in developing countries. The most common cause of PGU and NGU worldwide is *Chlamydia trachomatis*. *Ureaplasma urealyticum* is less common and can sometimes occur as a commensal in the male urethral tract. Other organisms that have been isolated include,

*Mycoplasma hominis*, *Mycoplasma genitalium*, *Candida albicans*, *Trichomonas vaginalis*, and Herpes simplex virus, but these organisms are thought to be uncommon causes of NGU.

In Malaysia, there is no study done as yet on urethral discharge or urethritis in men. This study was done to look at the aetiology and clinical features of urethritis in symptomatic heterosexual men attending the GUM clinic, Kuala Lumpur Hospital. We also looked at the seroprevalence of syphilis, anti-HIV antibody, Hepatitis B and C markers including the antibiotic sensitivity to gonorrhoea.

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Corresponding Author: H B Gangaram, Consultant Dermatologist, Genito-Urinary Medicine Clinic, Department of Dermatology, Hospital Kuala Lumpur, Jalan Pahang, 50586 Kuala Lumpur

## Materials and Methods

### *Patient selection*

100 consecutive heterosexual male patients with symptoms of urethritis were studied from March 1994 to August 1994 (6 months period) at the Genito-Urinary Medicine (GUM) clinic, Kuala Lumpur Hospital. Each patient underwent a thorough history with relevant physical examination. Pretest counselling and consent was obtained from patients for anti-HIV test. Other blood tests done include VDRL, TPHA, HBsAg, HbCAb and Hepatitis C virus antibody test.

A patient was excluded from the study if he has been treated with antibiotics within the previous month.

A written consent was obtained from all the patients for the study.

### *Microbiological Methods*

Urethral discharge was examined for *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *Ureaplasma urealyticum*, *Trichomonas vaginalis*, *Candida albicans* and Herpes simplex virus.

#### *Isolation of N. gonorrhoeae and sensitivity*

A disposable plastic loop was inserted about 2-4 cm into the urethra and a Gram stain as well as direct inoculation onto Modified Thayer-Martin medium was done. The medium was then placed in an incubator at 37° C with 5-10% CO<sub>2</sub>. The colonies were then identified by colonial morphology, characteristic Gram stain and a positive oxidase test and carbohydrate utilization. Susceptibility tests to penicillin, kanamycin, ceftriaxone, spectinomycin and cefuroxime were done by minimum inhibitory concentration (MIC) determination using the technique recommended by the National Committee for Clinical Laboratory Standard (NCCLS)<sup>1</sup>.

#### *Isolation of Chlamydia trachomatis*

A cotton tipped dacron urethral swab was inserted about 2-4 cm into the urethra and transported in antibiotic containing transport

media (2SP) in wet ice. In the laboratory this was inoculated into cycloheximide treated McCoy cells for 48 hours. This was subsequently stained with type specific mononuclear antibody and FITC anti-IgG (Syva microtrak).

#### *Isolation of Ureaplasma urealyticum*

A disposable plastic loop was inserted about 2-4 cm into the urethra and the specimen inoculated in Boston broth for enrichment and incubated at 37° C. A positive result is indicated by the solution turning a clear pink.

#### *Isolation of Trichomonas vaginalis*

A cotton tipped dacron urethral swab was inserted about 2-4 cm into the urethra and a wet preparation examined under light microscopy for motile trichomonads. The specimen was also inoculated in CPLM media (cysteine, peptone and liver maltose of Johnson and Trussel, 1943). A wet preparation from the culture was identified similarly for the motile trichomonads.

#### *Isolation of Candida albicans*

A disposable plastic loop was inserted about 2-4 cm into the urethra and inoculated into Sabourauds media and the *Candida* species identified by germ tube test, slide culture, sugar fermentation with or without sugar assimilation test.

#### *Detection of Herpes simplex virus Type I & II*

A cotton tipped dacron urethral swab was inserted about 2-4 cm into the urethra and smeared onto a glass slide containing 2 wells. Herpes simplex virus was identified by immunofluorescence technique using type specific monoclonal antibody and FITC anti IgG (Syva microtrak).

### *Treatment*

The patients were treated for gonorrhoea with ceftriaxone or spectinomycin if the urethral smear showed Gram negative intracellular diplococci. The rest of the patients were treated for presumed NGU with either tetracycline or erythromycin.

## Results

### Demographic characteristics

83% of patients were in the 20-40 age group. Malays and Indians accounted for 38% of cases each respectively, Chinese 16% and others, which included immigrants (Bangladeshis 5%, Burmese 2%) and Eurasian 1%. The ratio of single to

married men was 2:1. Their partners were all sex workers and none of them used the condom.

### Prevalence of gonococcal and non-gonococcal urethritis

53 men (53%) had gonococcal urethritis (GU) and 47 men (47%) had NGU with a ratio of GU: NGU of 1.1 : 1.

**Table I: Clinical features in gonococcal and non-gonococcal urethritis**

Organism Clinical manifestation	GU			UU			No organism identified	
	GU	UU	CT	GU UU	GU UU CT	CT UU	>5PMN	<5PMN
<b>Symptoms</b>								
UD+Dys+Itch	22	7		10	2	2	5	6
UD+Dys	9	8	3	10		2	2	5
UD								1
Dys						1	2	1
None								1
<b>Signs</b>								
UD	31	7	1	20	2	3	6	1
No UD		8	2			2	3	13
<b>Total</b>	<b>31</b>	<b>15</b>	<b>3</b>	<b>20</b>	<b>2</b>	<b>5</b>	<b>9</b>	<b>14</b>

CT - Chlamydia trachomatis; UU - Ureaplasma urealyticum; GU - Gonococcal urethritis

PMN - Polymorphonuclear leucocytes; UD - Urethral discharge; Dys - Dysuria; Itch - Urethral irritation

Patients with gonococcal and non-gonococcal urethritis had similar symptoms as shown in Table I. A significant finding of note in this table is that gonorrhoea was confirmed microscopically in all patients when there was urethral discharge present clinically.

**Table II: Frequency of recovery of microorganisms from 47 men with NGU**

Microorganism	Number	Percentage of total NGU cases
C. trachomatis (CT)	3	6.4
U. urealyticum (UU)	15	32.0
CT + UU	5	10.6
Negative	24	51.0
<b>Total</b>	<b>47</b>	<b>100.0</b>

CT =  $8/47 = 17.0\%$

UU =  $20/47 = 42.5\%$

The frequency of recovery of microorganisms from 47 men with NGU is presented in Table II. Ureaplasma urealyticum (42.5%) was the commonest organism isolated followed by Chlamydia trachomatis (17.0%). In about half (51%) of the patients, no organism was isolated.

**Table III: Frequency of recovery of microorganism from 100 men with urethritis**

Microorganism	Number (%) of patients with isolate	Number where sole organism isolated
N. gonorrhoeae	53 (53)	32
C. trachomatis	10 (10)	3
U. urealyticum	42 (42)	15
C. albicans	0	0
T. vaginalis	0	0
H. simplex	0	0
Negative	24 (24)	24

The frequency of isolation of microorganisms in all 100 patients with urethritis is as shown in Table III. N. gonorrhoeae was isolated in 53%, U. ureaplasma in 42% and C. trachomatis 10%. None of the patients had C. albicans, T. vaginalis or H. simplex isolated.

**Table IV: Recovery of potential pathogens from 53 men with gonococcal urethritis**

Pathogen	Number	Percentage
C. trachomatis	0	0
U. urealyticum	20	37.7
CT + UU	2	3.8
No organism	31	58.5
<b>Total</b>	<b>53</b>	<b>100.0</b>

UU =  $22/53 = 41.5\%$       CT =  $2/53 = 3.8\%$

As shown in Table IV, the concomitant pathogens isolated in patients with gonococcal urethritis included, U. urealyticum in 41.5% and C. trachomatis in 3.8% of cases.

**Table V: Seroprevalence of anti-HIV antibody, VDRL/TPHA and Hepatitis B and C markers (n=95).**

Pathogen	Number	Percentage
Anti-HIV antibody	4	4.2
VDRL/TPHA	4	4.2
VDRL(negative)/TPHA	3	3.2
VDRL/TPHA(negative)	1	1.0
HBsAg	2	2.1
HBcAb	26	27.0
Anti-HCV antibody	8	8.4

As shown in Table V, the seroprevalence of anti-HIV in this group of 95 men was 4.2%, 7.4% of patients had positive TPHA with or without a positive VDRL, Hepatitis B core antibody was found in 27% and HBs antigen in 2.1% and HCV antibody in 8.4% of patients..

**Table VI: Antibody sensitivity for *N. gonorrhoeae* (n=53)**

Antibiotic	Number resistant	Percentage resistant
Penicillin	23	43.4
Kanamycin	5	9.4
Spectinomycin	0	0
Ceftriaxone	0	0
Cefuroxime	0	0

The PPNG rate was 43.4%. Kanamycin resistance was found to be 9.4%. There was no resistance detected to spectinomycin and cefuroxime.

## Discussion

Urethritis is the commonest presenting problem in men seen at the Genito-Urinary Medicine Clinic, Hospital Kuala Lumpur (Annual clinic report, GUM clinic, HKL). A similar pattern is seen in most other countries.

In various clinics in Africa, *N. gonorrhoeae* has been isolated from 53-80% of cases<sup>2</sup>. Similar findings were observed in our study with gonococcal urethritis occurring in 53% and non-gonococcal urethritis in 47%. This trend is generally observed in developing countries with the reverse occurring in developed countries. In industrialized countries NGU is at least 5 times as common as GU<sup>3</sup>. In Australia, this was attributed to increased use of condoms among the sex workers and their clients<sup>4</sup>.

The percentage of organisms isolated in patients with GU and following treatment of GU (hence post gonococcal urethritis), was 41.5%. *Ureaplasma urealyticum* accounted for 37.7% and *C. trachomatis* only 3.8%. Post gonococcal urethritis in Australia occurred in about 15-25% of heterosexual men<sup>5</sup>. The incidence of isolation of *C. trachomatis* as reported by Oriel et al was 25%<sup>6</sup> and Lim et al 9.2%<sup>7</sup>. In urban clinics in Africa, *C. trachomatis* was isolated from 3-16% of patients<sup>8</sup>. The low isolation of *C. trachomatis* of 3.8% in our study is interesting. Some of the reasons for this low isolation rate could be poor technique of collection, improper transport, poor technique of

isolation, and prior antibiotic therapy. However in our study all these factors were frequently checked and we do not think these could have in anyway contributed to the low isolation rate of *C. trachomatis*.

The clinical features of GU and NGU were similar. In this study, all patients in whom *N. gonorrhoeae* was isolated showed evidence of clinical urethral discharge. However from other studies<sup>9</sup> about 5-10% of patients with GU may not have any urethral discharge.

Among the 47 men with NGU, *U. urealyticum* accounted for 43.5% while *C. trachomatis* accounted for 17.4%. In about 50% of men with NGU, no pathogen could be isolated. This finding is consistent with other studies where they found that *U. urealyticum* could be isolated in 10-40% of men with NGU and *C. trachomatis* in 15-40%<sup>5</sup>. *Trichomonas vaginalis*, *Candida albicans* and Herpes simplex were not isolated, thus supporting their limited role in NGU<sup>10</sup>.

As shown in Table III, the organisms isolated in patients with urethral discharge in order of frequency include *N. gonorrhoeae* (53%), *U. urealyticum* (42%) and *C. trachomatis* (10%). A similar study by Lim et al<sup>6</sup> in Singapore showed the following organisms isolated in order of frequency - *N. gonorrhoeae* (78%), *C. trachomatis* (20%), *Mycoplasma* (13%) and *C. albicans* (10%). In no instance was *T. vaginalis* isolated.

The PPNG rate of 43.4% is similar to findings in other South East Asian countries<sup>11</sup>. Kanamycin resistance was found in 9.4% of cases. The gonococcal isolates were all sensitive to ceftriaxone, spectinomycin and cefuroxime.

The seroprevalence of HIV antibody was 4.2%, VDRL/TPHA 7.4%, HBsAg 2.1%, HB antibody 27% and HCV antibody 8.4% supporting the idea that in the presence of a single sexually transmitted infection (STI), one should always exclude other STIs.

In conclusion, gonococcal urethritis is apparently more common than NGU. PGU occurred in 41% of patients, with *Ureaplasma urealyticum* being the commonest organism isolated (37%) and in 4% both *Chlamydia trachomatis* and *U.*

*urealyticum* were isolated. In patients with NGU, *U. urealyticum* occurred in 32% while 7% was due to *C. trachomatis* and 11% had both. The PPNG rate was very high at 43.4% with kanamycin resistance being 9.4%. This implies that neither penicillin nor kanamycin can be used to treat patients with gonococcal urethritis, thus adding further to the burden of developing countries. The high incidence of other sexually transmitted infection (STI) markers is not surprising in an STI clinic.

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