

# High prevalence of *Mycoplasma genitalium* in men who have sex with men: A cross-sectional study

Sir,

*Mycoplasma genitalium* (*M. genitalium*) and *Chlamydia trachomatis* (*C. trachomatis*) are common causes of nongonococcal urethritis (NGU) mainly in men and an increasingly recognized cause of cervicitis and pelvic inflammatory disease (PID) in women. They are also important cofactors for HIV transmission.<sup>1</sup>

Men who have sex with men (MSM) are considered at high risk of sexually transmitted infections (STIs), MSMs are not routinely tested for *M. genitalium* in India, and therefore there is paucity of data on its prevalence and role in urogenital symptoms in this population.

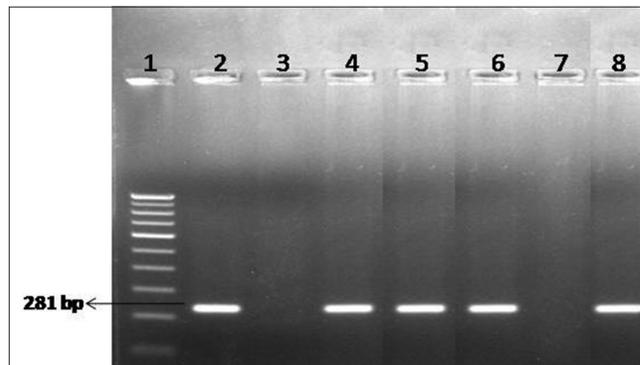
Syndromic management of urethritis is aimed at treating infections with *C. trachomatis* and *Neisseria gonorrhoeae* and consists of therapy with a single oral dose of 1 g of azithromycin and 400 mg of cefexime. Single-dose azithromycin though effective against *C. trachomatis* is often suboptimal treatment for *M. genitalium* and treatment failure is increasingly being reported.

We estimated the prevalence of *M. genitalium* and its co-occurrence with *C. trachomatis*, in MSMs attending the STI Clinic of Department of Dermatology and Venereology at All India Institute of Medical Sciences, New Delhi.

All consecutive MSMs presenting with symptoms of urethritis to the STI Clinic of our hospital between January 2017 and April 2018 were enrolled for the study. "Urethritis" was defined as patients having a recent history of dysuria, urethral discomfort, or urethral discharge on examination;  $\geq$ neutrophils per high-power field on urethral gram stain.<sup>1</sup>

First-void urine and rectal samples were collected routinely for chlamydia polymerase chain reaction (PCR) targeting cryptic plasmid.<sup>2</sup> In addition, oropharyngeal swabs were also collected if the patient gave history of orogenital sex. The residual DNA of these samples was retrieved and used for detection of *M. genitalium* using an "in-house" PCR targeting the *MgPa* gene [Figure 1].<sup>3</sup> This study was conducted with the approval of the institute research ethics committee.

A total of 99 samples collected from 46 MSMs during the study period were included in the analysis. Specimens included urine ( $n = 46$ ), rectal swabs ( $n = 46$ ), and pharyngeal swabs ( $n = 7$ ). Of the 46 patients tested,



**Figure 1:** Agarose gel electrophoresis for detection of *Mycoplasma genitalium* by polymerase chain reaction. Lane 1: 100-bp DNA ladder; Lane 2: positive control; Lane 3: negative control; Lane 4–6: clinical samples – positive; Lane 7: clinical sample – negative; Lane 8: clinical sample – positive

21 (45.6%) were seropositive for human immunodeficiency virus-1 (HIV-1).

A total of 19 (41.3%) patients were positive for *M. genitalium* infection. *M. genitalium* positivity rate varied according to anatomical site. The anorectum was the most commonly infected site (13/19; 68.4%) followed by the urethra (9/19; 47.4%). Three of these patients had infections of both the areas. No oropharyngeal *M. genitalium* infections were detected. Half of the anorectal infections were asymptomatic.

A total of 15 (32.6%) patients were positive for *C. trachomatis* infection. *C. trachomatis* positivity rate varied according to anatomical site with the detection of *C. trachomatis* in 8 of 15 (53.3%) rectal, 10 of 15 (66.7%) urethral, and 1 of 7 (14.2%) at oropharyngeal sites. Of the 8 patients who tested positive for *C. trachomatis* at the anorectal site, 5 (62.5%) did not have concomitant urethral infection.

Of the 46 MSMs diagnosed with urethritis, 14 (30.4%) were infected with *M. genitalium*, 10 (21.7%) with *C. trachomatis*, and 5 (10.8%) were coinfecting with both *M. genitalium* and *C. trachomatis*. *M. genitalium* was more prevalent than *C. trachomatis* (41.3% vs 32.6%;  $P = 0.03$ ) and was significantly associated with HIV positivity (10/19; 52.6%) in contrast to *C. trachomatis* (3/15; 20.0%) ( $P = 0.03$ ).

*M. genitalium* was first isolated in the early 1980s in men with NGU. The infective profile of *M. genitalium* has not been thoroughly highlighted because of the difficulties in detecting the microorganism by culture. Molecular techniques have

revolutionized sexually transmitted infection testing. The diagnosis of *M. genitalium* is exclusively based on PCR technology.

We were unable to find any previous reports from India assessing the prevalence of *M. genitalium* in MSMs. When compared with studies from other countries, our rate of *M. genitalium* infection was higher. In clinic-based surveys in MSMs, prevalence estimates varied widely from 0.6% to 12.6%. *M. genitalium* was detected in 21.0% of MSMs with complaints of urethritis indicating that amplification assay detecting *M. genitalium* should be considered in the sexually transmitted infection management protocols as an important pathogen, particularly in MSMs.<sup>4</sup> Previous studies have shown a strong association between *M. genitalium* and HIV infection, therefore screening and treatment for *M. genitalium* has been suggested as part of HIV prevention strategies.<sup>5</sup> We also observed much higher rates of *M. genitalium* infection in HIV-positive MSMs when compared with HIV-negative MSMs (47.6% vs 36.0%;  $P = 0.04$ ).

The prevalence of *C. trachomatis* in MSMs in our study was 15%. Studies in MSMs have estimated prevalence of *C. trachomatis* ranging from 3.0% to 13.0%.<sup>6,7</sup> Within studies that tested for both pathogens, prevalence estimates for *M. genitalium* and *C. trachomatis* were similar in Great Britain, but higher for *C. trachomatis* than *M. genitalium* in Denmark and the United States.<sup>4</sup>

We did not perform macrolide resistance testing of *M. genitalium* which may have added further insights on the utility of prescribing macrolides, one of the recommended first-line options for NGU. Future work should assess the need for appropriate screening and treatment of *M. genitalium* infection in MSM, particularly those with HIV infection.

**Financial support and sponsorship**  
Nil.

**Conflicts of interest**  
There are no conflicts of interest.

**Benu Dhawan, Jyoti Rawre, Neha Dhawan<sup>1</sup>,  
Riti Bhatia<sup>2</sup>, Vishal Gupta<sup>2</sup>, Neena Khanna<sup>2</sup>**

Departments of Microbiology and <sup>2</sup>Dermatology and Venereology, All India Institute of Medical Sciences, New Delhi, <sup>1</sup>Department of Medical Microbiology, Postgraduate Institute of Medical Education and Research, Chandigarh, India

**Correspondence:** Dr. Neena Khanna,  
Department of Dermatology and Venereology, All India Institute of  
Medical Sciences, New Delhi, India.  
E-mail: neena\_aiims@yahoo.co.in

**References**

1. Pond MJ, Nori AV, Witney AA, Lopeman RC, Butcher PD, Sadiq ST, et al. High prevalence of antibiotic-resistant *Mycoplasma genitalium* in nongonococcal urethritis: The need for routine testing and the inadequacy of current treatment options. Clin Infect Dis 2014;58:631-7.
2. Mahony J, Chong S, Jang D, Luinstra K, Faught M, Dalby D, et al. Urine specimens from pregnant and nonpregnant women inhibitory to amplification of chlamydia trachomatis nucleic acid by PCR, ligase chain reaction, and transcription-mediated amplification: Identification of urinary substances associated with inhibition and removal of inhibitory activity. J Clin Microbiol 1998;36:3122-6.
3. Jensen JS, Uldum SA, Søndergård-Andersen J, Vuust J, Lind K. Polymerase chain reaction for detection of *Mycoplasma genitalium* in clinical samples. J Clin Microbiol 1991;29:46-50.
4. Baumann L, Cina M, Egli-Gany D, Goutaki M, Halbeisen FS, Lohrer GR, et al. Prevalence of *Mycoplasma genitalium* in different population groups: Systematic review and meta-analysis. Sex Transm Infect 2018;94:255-62.
5. Bissessor M, Tabrizi SN, Bradshaw CS, Fairley CK, Hocking JS, Garland SM, et al. The contribution of *Mycoplasma genitalium* to the aetiology of sexually acquired infectious proctitis in men who have sex with men. Clin Microbiol Infect 2016;22:260-5.
6. Family Health International. The Asian Epidemic Model: Projections of HIV/AIDS in Thailand 2005-2025. Bangkok: Family Health International; 2008.
7. Hernandez AL, Lindan CP, Mathur M, Ekstrand M, Madhivanan P, Stein ES, et al. Sexual behavior among men who have sex with women, men, and Hijras in Mumbai, India – Multiple sexual risks. AIDS Behav 2006;10:S5-16.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
<b>Quick Response Code:</b>	<b>Website:</b> www.ijdv.com
	<b>DOI:</b> 10.4103/ijdv.IJDVL_494_18

**How to cite this article:** Dhawan B, Rawre J, Dhawan N, Bhatia R, Gupta V, Khanna N. High prevalence of *Mycoplasma genitalium* in men who have sex with men: A cross-sectional study. Indian J Dermatol Venereol Leprol 2020;86:195-6.

**Received:** July, 2018. **Accepted:** October, 2019.

© 2020 Indian Journal of Dermatology, Venereology and Leprology | Published by Wolters Kluwer - Medknow