Conjunctivitis Associated with *Mycoplasma genitalium* Infection

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Conjunctival and first-void urine specimens from a patient with unilateral conjunctivitis and urethritis were found to be positive for *Mycoplasma genitalium* but negative for *Chlamydia trachomatis*, by polymerase chain reaction analysis. Identical *M. genitalium* DNA sequences were found in both types of specimens.

Evidence that *Mycoplasma genitalium* can cause sexually transmitted nongonococcal urethritis (NGU) and cervicitis has been accumulating [1]. Prevalence studies have shown that 20%–30% of male patients with NGU who visit sexually transmitted infection (STI) clinics harbor *M. genitalium*. This bacterium was first discovered in 1981, but more extensive studies of *M. genitalium* could not be conducted until the development of sensitive and specific PCR techniques, because the bacterium is extremely difficult to grow. In addition to urogenital and urine samples, *M. genitalium* has been detected by PCR in rectal, synovial fluid, and respiratory tract specimens [1]. In this report, we describe the first case of detection of *M. genitalium* in a conjunctival swab specimen from a patient with chronic conjunctivitis.

A 22-year-old, white, heterosexual male came to our open STI clinic at Huddinge University Hospital for a general examination. He reported having had intermittent mild dysuria for several months and redness and irritation of his right eye for 5 months. He was otherwise healthy and had never had an examination for STIs. He reported having had 4 sexual partners during his lifetime, with whom he had had unprotected sexual intercourse. Initially, he had been given eye drops for the treatment of allergy symptoms, which had no effect. He had not had symptoms. At the clinical examination, a diffuse redness of the right conjunctiva was noted; in addition, microscopic signs of urethritis (i.e., >30 polymorphonuclear leukocytes per high-power field [magnification, ×1000]) were found, but no overt discharge was noted. Diplococci were not detected in the urethral smear. Two samples were taken, with ear-nose-throat swabs, from the conjunctival sac. One swab was placed in SP-4 mycoplasma broth medium (SSI Diagnostica) and was transported together with a first-void urine specimen to the Mycoplasma Laboratory in Copenhagen, for detection of *M. genitalium* by PCR [2]. The other swab was placed in 2SP sucrose phosphate buffer (Media Unit, Depand was sent together with a first-void urine specimen to a local laboratory, for detection of *Chlamydia trachomatis* by PCR (Roche Amplicor). Coinfection of the eye and the urethra with *C. trachomatis* was suspected, and the patient received 100 mg doxycycline b.i.d. for 10 days. He was asked to contact his sexual partners, for control of transmission of infection, and was urged to abstain from sexual intercourse until after a follow-up visit.

Both the conjunctival swab and the urine specimens were positive for *M. genitalium* DNA, whereas both types of specimen were negative for *C. trachomatis*. At a follow-up visit 6 weeks later, the clinical signs and symptoms had diminished. The patient had taken the medication as prescribed and denied having had any sexual contact during the follow-up period. However, some conjunctival erythema remained, and 5–10 leukocytes were detected in the urethral smear. No additional treatment was given. PCR analysis of conjunctival specimens from both eyes was negative for *M. genitalium*, but a first-void urine specimen was positive. By the second follow-up visit, 9 weeks after initiation of treatment, the symptoms had cleared, and conjunctival and urine specimens were found to be negative for *M. genitalium*, by PCR, without further treatment.

The PCR amplicons obtained, with the MgPa-1/MgPa-3 primer set, from the positive conjunctival specimen and from the 2 positive urine specimens were sequenced, and identical DNA sequences were found in all 3 specimens. These sequences were compared with those obtained from cultures of 14 *M. genitalium* strains and from 30 patient specimens that were part of a validation study of a real-time PCR method [3]. As can be seen in figure 1, the sequences found in the 3 specimens from the patient with conjunctivitis clustered with sequences in 4 other specimens, which had been collected from 3 men and 1 woman in Örebro, Sweden, during a 5-week period 8 months earlier, but no information regarding contact between the patients could be obtained.
Figure 1. Rooted cladogram, generated by ClustalW (MegAlign software, DNASTAR), showing the relatedness between sequences obtained from 14 isolated Mycoplasma genitalium strains and 30 M. genitalium–positive clinical specimens sequenced, by PCR, as part of a previous study [3]. The sequences obtained from the patient with conjunctivitis (in boldface) clustered with sequences from specimens from 3 men and 1 woman, collected within a 5-week-period 8 months earlier in another town. “M30 early” refers to passage 7 of the strain and “M30 late” refers to the strain deposited in the American Type Culture Collection. “FVU” denotes sequences obtained from a first-void urine specimen, and “Cervix” denotes sequences obtained from a cervical swab specimen. *Sequences obtained from the same patient. **Sequences obtained from the same patient at different visits. ***Sequences obtained from sequential M. genitalium isolates.

It is well known that C. trachomatis can be isolated from the conjunctiva and that it is associated with unilateral conjunctivitis in adults [4]. The mode of transmission is believed to be by autoinoculation via the hands, during a concomitant urogenital infection. Similarly, this case of M. genitalium–associated conjunctivitis may have been caused by contamination of the eye with genital secretions. This speculation is substantiated by the fact that the patient was found to have urethritis and prolonged intermittent dysuria and that urine samples were found to be positive for a strain of M. genitalium with a sequence identical to the sequence obtained from the conjunctival specimen.

M. genitalium and C. trachomatis infections share several other similarities: individuals with either infection are often asymptomatic, and both infections may cause cervicitis in women and NGU in men and women, may invade the upper genitalia in women, and may be found in the rectum, especially in men who have sex with men. However, the response to treatment with doxycycline is often different; M. genitalium is much less susceptible to treatment that is standard for C. trachomatis infection [5]. A better alternative is treatment with azithromycin, which shows a higher response rate when compared with doxycycline [5]. In this case, the patient responded clinically and microbiologically to doxycycline, although, 6 weeks after the start of treatment, a PCR-positive urine specimen was obtained and signs of urethritis were present. However, the positive PCR result may have been caused by nonviable M. genitalium cells, since the infection was cleared after another 3 weeks without further treatment. To our knowledge, this is the first report of M. genitalium–associated unilateral conjunctivitis. The emerging evidence that M. genitalium is a common STI indicates that a commercially available testing method is urgently needed.

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References