



Therapeutic Pearls

A case of *Mycoplasma genitalium* possible resistance in a woman [☆]Ismael Maatouk, MD, MPH ^{a,*}, Moubadda Assi, MSc ^b^a Department of Dermatology, Clemenceau Medical Center Affiliated with Johns Hopkins, Faculty of Health & Life Sciences, De Montfort University, Leicester, United Kingdom^b National AIDS Program, Beirut, Lebanon

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ABSTRACT

Mycoplasma genitalium (MG) is an increasingly recognized sexually transmitted infection. In women, MG is particularly associated with endometritis, cervicitis, pelvic inflammatory disease, HIV, and long-term negative reproductive health and obstetric outcomes. In addition, MG has the potential to show resistance to antibiotics. We present here a case of possibly resistant MG in Lebanon, where MG prevalence and MG antibiotic resistance status are unknown.

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Introduction

Mycoplasma genitalium (MG) is an increasingly recognized sexually transmitted infection that in women is associated with endometritis, cervicitis, pelvic inflammatory disease (PID), and HIV (Lis et al., 2015). Polymerase chain reaction (PCR) detection of MG was launched in the early 1990s and allowed investigations to recognize the long-term negative reproductive health and obstetric outcomes of MG (Lis et al., 2015). The resistance of MG to antibiotics, when studied, shows variations by geography and sex (Ona et al., 2016).

We present here a case of possibly resistant MG in Lebanon, where the prevalence of MG and the status of its resistance to antibiotics are not known. In Lebanon, as in other countries, dermatologists are venereologists and manage sexually transmitted infections even if the skin is not involved.

Case

A 34-year-old woman with an unremarkable medical history presented in February 2018 with persistent genital discomfort. Her symptoms had started 3 months prior when she felt constant discomfort in the low abdominal/genital area, with occasional post-

coital bleeding. The patient had no discharge or burning with urination. Her sexual history consisted of a male partner for 12 months and a female partner for 6 months. Both partners were asymptomatic and had unprotected sexual contact with the patient. The patient had failed to respond to both topical and systemic antifungals. The results of a clinical examination were strictly normal.

Investigations for HIV, hepatitis B and C, and syphilis returned mycological and bacteriological cultures that were all negative. A vaginal swab for PCR analyses to detect MG and other pathogens (*Chlamydia trachomatis*, *Neisseria gonorrhoea*, *Trichomonas vaginalis*, and *Ureaplasma urealiticum*) was only positive for MG. Administration of doxycycline 200 mg/day for 7 days (February 2018), azithromycin 1 g on day 1 followed by 4 days of 250 mg (May 2018), and moxifloxacin 400 mg/day for 10 days (August 2018) did not achieve cure, and the PCR analysis results 5 weeks after each regimen remained positive for MG.

In October 2018, the patient was administered pristinamycin (1 g four times daily for 10 days). Her symptoms resolved 2 weeks later, and the PCR test results of the vaginal swab 5 weeks later showed that MG was not present. The patient's two partners tested negative for MG and other pathogens in pharyngeal, anal, and genital sites.

Discussion

MG prevalence estimates vary worldwide, and community-based data for women estimate an MG prevalence of 2.4% in Australia, 2.3% to 3.3% in the United Kingdom, and 0.8% in the United

[☆] No human subjects were included in this study. No animals were used in this study.

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States (Ona et al., 2016). MG infection rates among sexually active women increase with ≥ 2 sexual partners (Wiesenfeld and Manhart, 2017). Women age ≤ 24 years, those with a history of abortion, and those with first intercourse after age 20 years were found to be at a higher risk of MG infection. Fifty-six percent of women are asymptomatic for MG, but this can lead to PID (Wiesenfeld and Manhart, 2017).

According to Lis et al. (2015), MG infection is significantly associated with increased risk of cervicitis (pooled odds ratio [OR], 1.66; 95% confidence interval [CI], 1.35–2.04), PID (pooled OR, 2.14; 95% CI, 1.31–3.49), preterm birth (pooled OR, 1.89; 95% CI, 1.25–2.85), and spontaneous abortion (pooled OR, 1.82; 95% CI, 1.10–3.03). Risk of infertility is also elevated (pooled OR, 2.43; 95% CI, 0.93–6.34).

Women should be tested for MG if they have symptoms or signs of cervicitis (cervical or vaginal discharge, intermenstrual or post-coital bleeding) or pelvic pain and/or PID. As for asymptomatic carriers, guidelines have produced varying recommendations. For instance, the public health value of testing asymptomatic persons for MG has not been established in the United States, but persons with high-risk sexual behavior (age < 40 years and > 3 new sexual contacts in the last year) should be considered for testing in Europe (Jensen et al., 2016).

Treatment of MG infections is challenging. Doxycycline (100 mg twice daily for 7 days) ensures MG eradication in approximately 30% of cases (Ona et al., 2016). The efficacy of a single dose of 1 g of azithromycin has declined to 60% (Ona et al., 2016; Wiesenfeld and Manhart, 2017). Treatment failure with azithromycin is due to an isolated mutation on the 23 rRNA gene in MG. Alternative azithromycin regimens, such as an extended 1.5 g azithromycin (500 mg on day 1, followed by 250 mg daily for 4 days) and a single higher dose (2 g azithromycin once) showed similar trends of declining microbiological cure rates, 25% to 81% (wide range based on study heterogeneity) and 73%, respectively (Ona et al., 2016; Wiesenfeld and Manhart, 2017).

In light of increasing azithromycin resistance, moxifloxacin (400 mg/day for 10–14 days) had been introduced as a treatment option where failure rates range between 10% and 15% (Wiesenfeld and Manhart, 2017). Due to the frequent treatment failures with azithromycin, certain guidelines recommend moxifloxacin as a first-line option and others recommend the use of a combined diagnostic resistance assay that can facilitate rapid administration of more effective second-line agents when macrolide mutations are detected. Other fluoroquinolones, such as gatifloxacin and sitafloxacin, have proven to be effective (Wiesenfeld and Manhart, 2017). Furthermore, pristinamycin of the streptogramin antibiotic group (1 g, four times daily for

10 days) appears promising for the treatment of multidrug-resistant MG but has not been well studied and documented to date. Optimal dosing recommendations to ensure cure and avoid gastrointestinal side effects are still lacking.

Debates are ongoing regarding possible costs, benefits, and harms of universal screening for MG among asymptomatic patients. Most evidence suggests a low prevalence of MG among asymptomatic women, which will cause screening efforts to return low yields (Wiesenfeld and Manhart, 2017).

Conclusions

For the current case, antibiotic resistance tests were not available, and compliance was achieved on the basis of the patient's verbal confirmation. Thus, MG was probably resistant to three antibiotics. The exact context of this pathogen and its possible resistance in Lebanon are unknown. No publications in the literature describe MG prevalence estimates in women from Lebanon or the impact of MG on long-term reproductive health and obstetric outcomes (infertility, ectopic pregnancy, spontaneous abortion, and preterm delivery). This is particularly alarming in settings where sexual intercourse outside of marriage is still stigmatized. Thus, research in this area is highly encouraged.

Conflict of Interest

None.

Funding

None.

Study Approval

NA.

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