Australian STI Management Guidelines for Use in Primary Care

Mycoplasma genitalium

Overview

- Asymptomatic screening for *M. genitalium* is not currently recommended due to lack of knowledge regarding its natural history, rising antimicrobial resistance and increasing complexities around access to effective treatments.
- Established cause of urethritis, cervicitis and pelvic inflammatory disease (PID) and associated with preterm delivery. Evidence suggests a role in tubal factor infertility and proctitis although studies do not show a strong and consistent association.
- Antimicrobial resistance that impacts on available treatments is increasing globally and is particularly prevalent in our region. Azithromycin (macrolide) resistance exceeds 60% in Australia in the majority of cases and exceeds 80% in men who have sex with men. Fluoroquinolone resistance is also rising and approaching 20% in many urban settings impacting on the efficacy of moxifloxacin.
- Use of macrolide-resistance assays and resistance guided therapy for *M. genitalium* have been shown to improve first-line cure from 60 to >90% .

Cause

- *Mycoplasma genitalium*

Clinical presentation

Symptoms

• Often asymptomatic, but can be associated with similar symptoms and signs as chlamydia • Dysuria • Urethral discharge • Urethral discomfort • Symptoms and signs of PID and cervicitis • Specific symptoms other than post-coital vaginal bleeding and pelvic pain have not independently been associated with *M. genitalium*
Complications
• PID, spontaneous abortion and pre-term delivery • Post-abortal PID • Limited evidence suggests a possible role in sexually acquired proctitis and reactive arthritis • Possible role in tubal factor infertility

Diagnosis

Site/Specimen	Test	Consideration
First pass urine (FPU)	NAAT	In people who do not have a vagina or if endocervical swab/self-collected vaginal swab cannot be taken Less sensitive than self-collected vaginal swab
Anorectal swab	NAAT	If rectal testing is indicated Any patient with anorectal symptoms Self-collection or during clinical examination
Vaginal swab	NAAT	Most studies suggest vaginal swabs are the most sensitive specimen. Sample can be clinician or self-collected
Endocervical swab	NAAT	Endocervical swabs are slightly less sensitive than vaginal swabs

NAAT – Nucleic acid amplification test

Specimen collection guidance

Clinician collected | Self-collection

Investigations

- Throat swabs are not recommended as pharyngeal infection is uncommon.
- NAAT tests that detect macrolide resistance mutations and facilitate resistance-guided therapy improve antimicrobial stewardship and first-line cure.

Clinical indications for testing

- Acute, persistent and recurrent non-gonococcal urethritis
- Cervicitis
- Pelvic inflammatory disease
- Post-coital bleeding
- Ongoing sexual contacts of M. genitalium infection.

Special considerations

- Ongoing sexual contacts, even if asymptomatic should be offered testing.
- Men who have sex with men require both urine and anorectal swabs.
- Treatment of contacts should be based on the macrolide-resistance profile of their infection if available, but if not available, should be informed by infection status and treatment history of the index.

Management

- Macrolide-resistance testing in *M. genitalium i*s recommended where available, and the following treatment options are based on the treating clinician's knowing that an infection is macrolide-susceptible or resistant.
- Without access to resistance testing, it is reasonable to assume macrolide resistance is present in infections persisting after failure of azithromycin and in men who have sex with men, where macrolide resistance exceeds 80% in most urban settings in Australia.

Principal treatment options		
Situation	**Recommended**	**Alternative**
M. genitalium infection known or suspected to be macrolide susceptible	Doxycycline 100 mg twice a day for 7 days followed by Azithromycin 1 g immediately then 500 mg daily for 3 days (total 2.5 g)	See Special Treatment Situations
M. genitalium infection known or suspected to be macrolide resistant	Doxycycline 100 mg twice a day for 7 days followed by Moxifloxacin 400 mg daily for 7 days	See Special Treatment Situations

Pelvic inflammatory disease due to *M. genitalium*	Moxifloxacin 400 mg daily for 14 days*	See Special Treatment Situations

**M.genitalium* results are often received about a week after presumptive PID treatment has begun. Empirical therapy, consisting of doxycycline and metronidazole, has recently shown some efficacy against *M.genitalium*-associated *PID*. If a patient is clinically responding to this 14 day empiric regimen then complete it and undertake a test of cure to ensure *M.genitalium* eradication. If a patient remains symptomatic, then recall them and switch to 14 days of moxifloxacin. This regimen was evaluated in a randomised controlled trial of all-cause PID and has been used in patients with *M. genitalium*-associated PID but is not supported by randomised data.

Moxifloxacin requires a private prescription, is not recommended for use in pregnancy or breast feeding, and is expensive. It can be associated with diarrhoea, uncommonly with tendinopathy, neurological and cardiac events. Assess all patients in whom you consider a quinolone for contraindications and risk of adverse effects and review concurrent medications.

Fluoroquinolone resistance mutations are increasing and detected in 15-20% of *M. genitalium* infections in urban centres; however, not all mutations are strongly associated with failure of fluoroquinolones. Alternative antimicrobial options for *M. genitalium* are limited, so if you are using a fluoroquinolone resistance and/or susceptibility assay it is important to understand how well it predicts moxifloxacin treatment outcomes (ie cure/failure). Speak to your laboratory about the predictive value of their assay.

Other immediate management

- Advise no condomless sex until tested for cure (**14-21 days** after completion of treatment).
- Advise no sex with untested previous sexual partners.
- Provide patient with a factsheet.
- *M. genitalium* is not a notifiable condition.

Special Treatment Situations

Special considerations

Complicated infection

If moxifloxacin fails or cannot be used and *M. genitalium* persists, seek specialist advice. The following regimens have been used with efficacy reported in published case series:

1. Pristinamycin: 1 g 3 times daily combined with doxycycline 100 mg twice daily for 10 days. Cures 75% of macrolide-resistant infections. Pristinamycin is available through hospital pharmacies, using the Special Access Scheme of the Therapeutic Goods Administration (TGA).
2. Minocycline: 100 mg twice daily for 14 days. Cures 70% of macrolide-resistant infections. Minocycline is available on private script.
3. Combination therapy with doxycycline 100 mg twice daily and sitafloxacin 100 mg twice daily for 7 days. This regimen has been used in cases who have failed all other available therapies with > 90% efficacy. Sitafloxacin is more effective than moxifloxacin and is available through hospital pharmacies, using the Special Access Scheme of the TGA.

Pregnancy

Decisions regarding treatment in pregnancy need to be made on a case by case basis and involve the patient. Published studies support an association between *M.genitalium* and pre-term birth but have tended not to adjust for STIs and other confounders, so more data is needed. If *M.genitalium* is detected, it is macrolide-susceptible, and treatment is being considered, then azithromycin is category B1 and can be prescribed in pregnancy. If a patient is pregnant and diagnosed with or considered at risk of macrolide-resistant *M. genitalium* infection this case should be discussed with a specialist as moxifloxacin is category B3 and contraindicated. Pristinamycin may be recommended at a dose of 1 g 4 times daily for 10 days. While limited data are available for the use of pristinamycin in pregnancy and breast feeding this antibiotic is used in pregnancy in Europe and Australia.

If pristinamycin fails, or it is not available, there are very limited treatment options. Moxifloxacin is category B3 and generally avoided in pregnancy. It is important to discuss the benefits and risks associated with further treatment with the patient. If treatment is considered necessary, then discuss this case with a specialist, as moxifloxacin may be recommended after consultation, if no other options are available and the benefits outweigh the risks.

Allergy to treatment of choice

If a patient has an allergy or contraindication to a specific antimicrobial, use an alternative based on these guidelines. Allergies and contraindications to fluoroquinolones can present challenges in managing macrolide-resistant *M. genitalium*, however pristinamycin or minocycline are both alternatives that display 70-75% efficacy. Please discuss any potential drug interactions, which are most common with fluoroquinolones, with your pharmacist.

Rural and remote patients

Access to effective therapies for *M. genitalium* can be challenging in rural and remote settings. Please seek specialist advice as required.

Contact Tracing

- The time period for contact tracing is unknown. Contact tracing is recommended for ongoing sexual partners.

See Australasian Contact Tracing Guideline – Mycoplasma genitalium for more information.

Follow Up

Review can be undertaken:

- To confirm patient adherence with treatment and assess for symptom resolution.
- To confirm contact tracing procedures have been undertaken or offer more contact tracing support.
- Educate about condom use, contraception, HIV PrEP/PEP, safe injecting practices, consent, CST and vaccinations for HAV, HBV and HPV as indicated.

Test of cure

A need for a test of cure should be informed by presence of ongoing symptoms and/or ongoing risk of reinfection or sequelae.

Test of cure by NAAT should not be done earlier than 14-21 days after treatment is completed. Test of cure before this time can result in false positive results.

Special considerations

In cases of ongoing persistent *M. genitalium* that has failed to respond to antimicrobials, the impact of repeated courses of antimicrobials and likelihood of adverse effects needs to be balanced against the likelihood of harm caused to the patient from *M. genitalium*. The decision regarding ongoing testing and treatment requires considered discussion so that an informed decision can be reached between the clinician and the patient. Specialist advice can be sought to assist in this process.

Further reading

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Endorsement: These guidelines have been endorsed by the Blood Borne Viruses and Sexually Transmitted Infections Standing Committee (BBVSS).

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Funded by: The Australian Government Department of Health