Mgen-The New STD on The BLOCK

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Disclaimer

- The term ‘*woman*’ or ‘man’ may be used throughout this presentation. It should be read as including nonbinary, gender diverse and transgender people who have the sexual and reproductive organs appropriate for the information.

Objectives

1. Recognize the common clinical symptoms in both males and females and discuss asymptomatic cases and their implications for transmission and diagnosis.

2. Understand the available diagnostic methods and highlight the challenges in diagnosing *Mycoplasma genitalium*, including testing availability and specificity.

3. Identify the current treatment options and guidelines for managing *Mycoplasma genitalium* infections and address the issue of antibiotic resistance and its impact on treatment strategies.

The facts About *Mycoplasma genitalium*

- Pathogenetic bacteria that lives on mucous epithelial cells on the urinary and genital tracts of males and females
- Organism of the class *Mollicutes*
  - Smallest prokaryote capable of independent replication
- Sexually transmitted vaginal and anal (unclear about oral, but very uncommon to be seen in throat)
  - Documented cases without penetration.

Is this new?

- Sexually Transmitted Infections Treatment Guidelines, 2021
  - First paragraph, one of the top 9 updates to the 2015 document
- First identified 1981
  - Male nongonococcal urethritis
- No reliable lab test until 2017.

Prevalence

- 10.2% females and 10.6% of males in the United States under 25 years of age
- 1.7% in the general global population aged 18-44 years.
- Female sex workers 15-20%
- Men who have sex with men (MSM) is 3-9%.
- More common in individuals with multiple sexual partners, low to no condom use, Afro-Caribbean ethnicity and smokers.
    - Sliferski, 2017 and Baumann, 2018.

Epidemiology

- Unlike *Chlamydia* (which both the epidemiology and infectiousness are very well established) that is not the case with Mgen which is still poorly understood

Global Health Issue

- Worldwide---2%
- Europe---3%
- South Africa
  - MG prevalence was 24% in HIV-infected and 12% in HIV-uninfected pregnant women.
  - MG incidence during pregnancy and early post partum was 4.7 infections per 100 woman-years
  - Adjusting for maternal age, HIV-infected women had over three times the odds of being infected with MG
    - (Smullin et al., 2020)

Etiology

- FEMALE:
  - Twofold increased risk for cervicitis, pelvic inflammatory disease (PID), preterm labor, spontaneous abortion, and infertility
  - Detected in up to 30% of females with clinical cervicitis
  - Up to 22% of PID cases

- MEN:
  - 15-20% of Non-gonococcal urethritis (NGU)
  - 20-25% of non-chlamydial NGU
  - 40% chronic/persistent/recurrent urethritis

- Rhonda et al, 2018

Screening-Who (2024)

- Focus on treatment and antimicrobial resistance, not routine screening.
- Testing is recommended only for symptomatic cases (urethritis, cervicitis, PID) or when other STIs have been ruled out.
- Emphasizes antibiotic stewardship because of global resistance trends

Screening---CDC (2021)

- CDC (U.S.) 2021 STI Treatment Guidelines
- Routine screening is NOT recommended for asymptomatic individuals.
- Testing is indicated for:
  - Men with persistent or recurrent nongonococcal urethritis (NGU).
  - Women with recurrent cervicitis.
  - Consider testing in women with pelvic inflammatory disease (PID).
- Extragenital testing (rectal or pharyngeal) is not recommended.
- Resistance testing should accompany Mgen testing when available, due to high macrolide resistance rates

European, IUSTI/BASHH (2025)

- No population-level screening.
- Test symptomatic individuals:
  - Men with NGU.
  - Women with cervicitis or PID.
- Partner management: Test and treat recent sexual partners.
- Macrolide resistance testing is strongly advised before prescribing azithromycin; alternative regimens (e.g., moxifloxacin) for resistant strains

Symptoms in Females

- Polyuria
- Abnormal vaginal or penile discharge
- Vaginal irritation or itching
- Dyspareunia
- Dysuria
- Abdominal pain
- Menstrual irregularities
  - Menorrhagia
  - Intermenstrual Bleeding
  - Postcoital bleeding

Symptoms in Males

- Urethritis
- Pain on ejaculation
- Watery or cloudy discharge from the tip of the penis
- Proctitis
- Inflammation of the foreskin and penis.

OFTEN ASYMPTOMATIC

- Seven out of every ten affected men do not have symptoms
- Six out of every ten affected women do not have symptoms

Differential Diagnosis

- Yeast
- Bacterial Vaginosis
- Trichomoniasis
- Chlamydia
- Gonorrhea
- Pelvic Inflammatory Disease

Diagnosis

- Extremely slow growing and can take up to 6 months to grow culture
- “In clinical practice, if testing is unavailable, M. genitalium should be suspected in cases of persistent or recurrent urethritis or cervicitis and considered for PID.” (CDC, 2021)
- NAAT is FDA cleared for use with:
  - Urine
  - Swab samples: urethral, penile meatal, endocervical, and vaginal

Treatment Key points

- Do not treat empirically
- Resistance testing not available in US currently, but under evaluation
- Increasing resistant to azithromycin (avoid single dose)
- Recommended PID treatments NOT appropriate
- Resistance Guided Therapy
  - Selecting antibiotics based on the macrolide resistance profile

Treatment Comparisons

Guideline	First-line regimen	Resistance-guided therapy	Alternative options	Partner management
CDC (2021)	Doxycycline 100 mg BID × 7 days	If macrolide-susceptible: Azithromycin (1 g day 1, then 500 mg daily × 3 days); If resistant: Moxifloxacin 400 mg daily × 7 days	If moxifloxacin contraindicated: Pristinamycin or sitafloxacin (where available)	Test and treat recent partners
WHO (2024)	Doxycycline 100 mg BID × 7 days	Same staged approach; avoid single-dose azithromycin	Same as CDC	Test and treat recent partners
IUSTI/BASHH (2025)	Doxycycline 100 mg BID × 7 days	Azithromycin extended regimen if susceptible; Moxifloxacin if resistant	Pristinamycin or sitafloxacin	Test and treat recent partners

Recommended Regimen if M. genitalium Resistance Testing Is Not Available

- Doxycycline 100 mg orally 2 times/day for 7 days
- Followed by moxifloxacin 400 mg orally once daily for 7 days”

- CDC, 2021

Routine Test of Cure

- Not recommended

What if moxifloxacin not an option?

- Resistance has been reported
- Adverse side effects
- Cost should be considered (up to $43 for course)

- Doxycycline 100 mg orally 2 times/day for 7 days, followed by azithromycin (1 g orally on day 1 followed by 500 mg once daily for 3 days)
  - WITH a **test of cure** 21 days after completion of therapy

- CDC, 2021

Case Study

- **Patient Profile:**
- **Name:** Alex Thomas
- **Age:** 27 years old
- **Gender:** Female
- **Occupation:** Marketing Executive
- **Location:** Los Angelos, CA
- **Marital Status:** Single
- **Sexual History:** Reports multiple male sexual partners over the past year, inconsistent condom use, oral and vaginal

Chief Complaint (CC) and History of Present Interest

- **CC:** Alex presents to the clinic with complaints of lower abdominal pain, increased vaginal discharge, and pain during intercourse for the past two weeks.
- **HOPI:** Alex describes the onset of symptoms as gradual, beginning with mild discomfort during urination, which she initially attributed to a possible urinary tract infection (UTI). Over the past week, the symptoms have intensified, with noticeable vaginal discharge and increased pain during sexual activity. She reports no fever or systemic symptoms.

History

- **Past Medical History:**
  - No significant past medical history
  - No known allergies
  - No history of sexually transmitted infections (STIs)
  - LNMP 2 weeks ago
- **Sexual History:**
  - Alex reports having two new male sexual partners in the last three months (vaginal and oral).
  - She mentions using condoms inconsistently and has not been tested for STIs in the past year.
  - She is currently not using any form of hormonal contraception.
  - No history of STI’s

Physical Exam

- **Physical Examination:**
- **Vital Signs:** Stable
- **General Appearance:** No acute distress
- **Abdominal Examination:** Mild tenderness in the lower abdomen, no guarding or rebound tenderness
- **Pelvic Examination:** Cervical motion tenderness noted; increased vaginal discharge observed, no visible lesions

Initial Differential DIAGNOSES:

1. **Mycoplasma genitalium infection**
2. **Chlamydia trachomatis infection**
3. **Gonorrhea**
4. **Bacterial vaginosis**
5. **Urinary tract infection**

Lab tests

- Nucleic acid amplification test (NAAT) for Mycoplasma genitalium
- NAAT for Chlamydia trachomatis and Neisseria gonorrhoeae
- Urinalysis and urine culture
- Vaginal swab for bacterial vaginosis and yeast infection
- Pregnancy test
- HIV/Hep B/RPR

LAB results

- **NAAT for Mycoplasma genitalium:** Positive
- **NAAT for Chlamydia and Gonorrhea:** Negative
- **Urinalysis:** Normal
- **Vaginal swab:** No evidence of bacterial vaginosis or yeast infection
- **UHCG**: negative
- **Serum STD tests**: pending

Diagnosis

- Mycoplasma genitalium infection

Treatment

- **First-line:** Doxycycline 100 mg orally twice daily for 7 days, followed by Moxifloxacin 400 mg orally once daily for 7 days

Patient Education

•Discuss the nature of Mycoplasma genitalium and the importance of completing the full course of antibiotics.

•Educate on the potential for antibiotic resistance and the need for follow-up testing if symptoms persist.

•Advise on consistent condom use to prevent future STIs and the importance of informing recent sexual partners for testing and treatment.

Follow-up

- RTO 2 weeks if symptoms persist
- Schedule routine GYN exam visit and discuss contraception methods

Patient notification

- Encourage Alex to inform her recent sexual partners about the infection so they can seek evaluation and treatment.

- Provide guidance on how to notify partners, including anonymous notification services if needed.

Take aways

- 2021 CDC Guidelines recommend Mgen to be tested for persistent or recurrent urethritis, and considered for cervicitis and PID

- Testing facilitates identifying the causative pathogen(s), given co-infection and overlapping symptoms with other common STIs

- Incorporating Mgen testing for symptomatic patients is simple to implement and critical for determining appropriate treatment

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Questions?

