Urethritis and Cervicitis

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Case 1

**History:** 26yo heterosexual male presents with urethral “itching” and intermittent urethral discharge for 7 days. He began a new sexual relationship 6 wks ago

**Examination:** cloudy urethral discharge

**Lab:** Gram stain with 15 PMNs/oil field, no Gram-negative diplococci seen

**Diagnosis:** ???
Case 1 continued

- Gram stain c/w nongonococcal urethritis (NGU)
- Urethral swab tested for chlamydia, GC, and trichomoniasis
- Empirically treated with doxycycline 100 mg bid x 7d
- Counseled about
  - sexually acquired nature of infection
  - abstinence until treatment complete
  - need to arrange for exam and treatment of partner
  - return if symptoms do not resolve or they recur
  - return in approximately 3 months after treatment for repeat chlamydia and gonorrhea testing if he tests positive for one of these infections
Urethritis in Men

Background

- Usually asymptomatic but sometimes urethral discharge or dysuria present
- Bacterial etiology established firmly only for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* (*Mycoplasma genitalium* and *Ureaplasma urealyticum* likely etiologies)
- Coinfection with gonorrhea and chlamydia common
- *Trichomonas vaginalis* is an established parasitic etiology of urethritis
- HSV is a viral cause of urethritis
Urethritis Evaluation

- Genital examination
- Urethral Gram stain if urethral sx or findings
  - $>5$ WBCs (PMNs) per oil field usually present
  - Gram-negative diplococci c/w gonorrhea
- Urine leukocyte esterase if Gram stain N/A
- Chlamydia test
- Gonorrhea test
- Trichomoniasis test (if available)
Urethritis: Urethral Discharge

Photographed by Dr. James Sizemore

www.answers.com/topic/gonorrhoea-1
“Bull-headed Clap” in GC

Photographed by Dr. James Sizemore
Urethral Gram Stain

Gonorrhea

Nongonococcal (e.g., Chlamydia)
2010 CDC STD Treatment Guidelines

Nongonococcal Urethritis

Recommended:
- Azithromycin 1 g PO single dose
- Doxycycline 100 mg BID for 7 days

Alternative:
- Erythromycin base 500 mg QID for 7 days
- Ofloxacin 300 mg BID for 7 days
- Levofloxacin 500 mg daily for 7 days

(Quinolones approved for adolescents)
Recommended

- Ceftriaxone 250 mg IM x 1

OR IF NOT AN AVAILABLE...
- Cefixime 400 mg PO x 1 OR
- Single-dose injectible cephalosporin regimens

PLUS
- Azithromycin 1gm PO x 1 (preferred) OR
- Doxycycline 100mg PO BID x 7d

➔ If cephalosporin allergy: azithromycin 2g PO once
• If a cefixime regimen or an azithromycin 2g regimen is used: **test of cure** by culture in 1 week (NAAT if culture N/A)
  – Culture provides opportunity for susceptibility testing

• **Recommendations for GC treatment failures**
  – Ceftriaxone 250mg IM once **plus** azithromycin 2g once
  – Gonorrhea culture and susceptibility testing
  – Consultation with infectious disease specialist
  – Report to the CDC through health department
Other Urethritis Treatment Issues

- Rescreen men 3 months after treatment of chlamydia or gonorrhea
  - Repeat positive chlamydia or gonorrhea tests most likely due to reinfection

- Sexual partners should be evaluated and treated
Recurrent/Persistent NGU

- Occurs in up to 25% of NGU cases
- If patient noncompliant with treatment or re-exposed, then treat with standard NGU regimens
- If patient initially compliant and exposure absent:
  - Treat with metronidazole or tinidazole 2 g PO plus a standard NGU regimen not used for the initial NGU episode
  - If patient fails repeat NGU treatment and remains compliant, consider moxifloxacin 400mg PO daily x 7 days to cover *Mycoplasma genitalium*

2010 CDC STD Treatment Guidelines
**Case 2**

**History:** 16yo female presents with increased vaginal discharge for 10 days that is slightly yellow, but no pelvic or abdominal pain. New partner 2 weeks ago.

**Examination:** Cervix shows ectopy, easily-induced endocervical bleeding, mucopurulent exudate in the cervical os

**Lab:** vaginal fluid: 20 WBCs per 400x, pH < 4.5, whiff test negative, no clue cells, no yeast, no trichomonads

**Diagnosis:** ???
Case 2 continued

- Endocervical swab tested for chlamydia, gonorrhea, and trichomoniasis
- Empirically treated with azithromycin 1 g PO and ceftriaxone 250mg IM
- Counselled about
  - sexually acquired nature of infection
  - abstinence until treatment complete
  - need to arrange for exam and treatment of partner
  - return in approximately 3 months after treatment for repeat chlamydia and gonorrhea testing if she tests positive for one of these infections
Cervicitis

- Majority of cervicitis cases are asymptomatic
- Symptoms nonspecific
  - increased vaginal discharge
  - intermenstrual or postcoital bleeding
  - dysuria (from concomitant urethritis)
- Cervix examination often normal
- Endocervical discharge (cloudy, purulent, or bloody) or easily induced endocervical bleeding on exam diagnostic of cervicitis
Cervicitis

Etiology

- *C. trachomatis* and/or *N. gonorrhoeae* account for 40-50% of cervicitis cases (co-infection)

- Other etiologies (60%)
  - Usually unknown
  - Bacterial vaginosis
  - *Mycoplasma genitalium*
  - *Ureaplasma* (??)
  - Herpes simplex viruses
  - *Trichomonas vaginalis*
Cervicitis
Evaluation

• Examination

• Cervical Gram stain not recommended
  – may show $\geq30$ PMNs per oil immersion field, but not standardized or diagnostic

• Test for Chlamydia and Gonorrhea

• Test for trichomoniasis (if available)
CERVICITIS  NORMAL

http://www.brooksidepress.org/Products/Military_OBGYN/Textbook/Discharge/Discharge.htm
2010 CDC STD Treatment Guidelines

CERVICITIS

- Empirically treat for chlamydia
- Also empirically treat for gonorrhea if local prevalence is high
- Same regimens for nonpregnant women as for chlamydia and GC urethritis in men
- Doxycycline and fluoroquinolones contraindicated in pregnancy
  - Use azithromycin for chlamydia coverage
Other Cervicitis Treatment Issues

- A “test of cure” should be performed 3-4 weeks following treatment of chlamydia-infected pregnant women

- Rescreen women approximately 3 months after treatment of chlamydia or gonorrhea
  - Repeat positive chlamydia or gonorrhea tests most likely due to reinfection

- Sexual partners should be evaluated and treated
Chlamydia Overview

- An estimated 2.8 million cases each year in the U.S.
- Superficial mucosal infection
- Often asymptomatic and clinically mild
- Reinfection is common (10-20%)
- Can be chronic (persisting months to years)
- Still lack of screening and reporting
- Highest U.S. rates in the Southeast
- Strongest predictors:
  - Single, adolescence, prior chlamydia, new or multiple partners, African American race
In 2010, 1,412,791 chlamydial infections were reported to the CDC, corresponding to a rate of 457.6 cases per 100,000 population, up 8% compared with the rate of 426 in 2010.
### Chlamydia—Rates by Age and Sex, United States, 2011

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Gonorrhea
Epidemiology

• Rates declined in the 80’s and 90’s, more stable in recent yrs
• An estimated 700,000 new cases each year in the U.S.
• Highest rates remain in younger people
• Increasing rates in MSM in 90’s
• Race/ethnicity: Black > Latino or Native American, > White or Asian
• Highest rates in the Southeast, and in inner cities
• Drug use and prostitution are risk factors
• Quinolone-resistant *N. gonorrhoeae* (QNRG) highly prevalent
• GC susceptibility to oral cephalosporins becoming a concern
  – especially among MSM
Gonorrhea—Rates, United States, 1941–2011

Rate (per 100,000 population)
FIGURE. Percentage of urethral *Neisseria gonorrhoeae* isolates (n = 32,794) with elevated cefixime MICs (≥0.25 µg/mL) and ceftriaxone MICs (≥0.125 µg/mL) — GISP, U.S., 2006–August 2011

Abbreviation: MICs = minimum inhibitory concentrations.
Gonorrhea and Chlamydia Diagnosis

- **Nucleic acid amplification test - NAAT**
  - CDC recommended test for chlamydia and gonorrhea detection
  - most sensitive tests available (sensitivity >90%)
  - can performed on urine or swabs (urethral, endocervical, vaginal); also on oral and anal specimens though not FDA approved
  - CDC-recommended samples for screening – urine in men, vaginal swabs in women

- **Culture**
  - culture less sensitive than NAAT
  - gonococcal culture still has an important role in resistance testing
Prevention: Surveillance

- Screening, universal or selective, can have a dramatic impact on prevalence and complications of chlamydia

  → Marrazzo et al. *Sex Transm Dis* 1997;24
  - Extensive screening among young women attending all family planning clinics in region X (Pacific Northwest) in 1998
  - Chlamydia prevalence declined from 10-12% in late 1980s to 3-5% in 1995 in all participating states

  - Women attending a large HMO in Seattle randomized to either cervical screening for Chlamydia versus usual care but no screen
  - Screening group had marked reduction in subsequent symptomatic PID (odds ratio, 0.44; 95% CI, 0.2-0.9)
**Prevention: Prevalence Monitoring**

Use of noninvasively collected specimens tested by nucleic acid amplification techniques provides opportunities for community-based screening.

- School-based health clinics
- Juvenile detention clinics
- Adult correction facilities
- Other institutionalized settings
- Military settings
- Rehabilitation programs

- Managed care organizations
- Emergency department settings
- Family planning clinics
- Private gynecology practices
- Youth hostels
Other Prevention Considerations

- Educational and behavioral interventions
- Rescreening for recurrent infections
- Partner testing/treatment
- Male screening
- Development of rapid, cheaper diagnostic tests
- STD vaccines
Partner Treatment

Self-Referral

• The naming of partners is voluntary
• A partner is NEVER told who named him/her
• Patient’s test results are not disclosed to partners
• Third parties are never given any specific information as to why the partner is being contacted

Expedited Partner Therapy

• Patient-delivered or provider-delivered
• Consider for partners of heterosexual patients with chlamydia or gonorrhea
• Not yet standard of care
• Has advantages and disadvantages
• Legal issues

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Summary

• NAAT should be used for chlamydia and gonorrhea testing
• Men with presumed GC on Gram stain are treated for GC and chlamydia
• NGU: treat with NGU regimen (directed against chlamydia)
• Recurrent/persistent NGU w/o noncompliance or re-exposure: treat again for NGU with the addition of trichomoniasis treatment
• Cervicitis: treat for chlamydia and if high GC prevalence, then GC
• Recommended GC Rx: ceftriaxone 250mg IM and azithro 1g PO
• Sexual partners should be referred for evaluation and treatment (against the specific pathogen or disease if known)
  – Consider expedited partner treatment (in heterosexual patients) if standard partner referral not feasible