Sexually Transmitted Infections, Vaginitis, Vaginosis

Learning Objectives

1. Discuss the common clinical presentations for patients experiencing STDs
2. Demonstrate the contemporary use of testing to diagnose STDs and treatment of STDs
3. Review major infections with identification of appropriate therapy

Case

22 yo G0 woman presents for an annual well-woman evaluation; c/o vaginal discharge for two days.
Pelvic: no lesions on the vulva or vagina; cervix appears reddened, almost strawberry texture. There is a generous amount of yellowish, malodorous leukorrhea, but no notable pus at the cervical os.
Bimanual exam - questionable cervical tenderness and fullness in both adnexa; exam is limited due to the patient's obesity.

1. Of the following, which is the most likely diagnosis?
   A. Herpes simplex virus (HSV) infection
   B. Trichomonas vaginalis infection
   C. Candida albicans infection
   D. Bacterial vaginosis

Vaginal Discharge

- Herpes simplex virus (HSV) infection
  - Painful vesicles that ulcerate
- Trichomonas vaginalis infection
  - Malodorous discharge; occasional vulvar and vaginal irritation
  - Cervicitis can be somewhat tender to touch; patients often c/o non-specific pelvic pain
- Candida albicans infection
  - Very itchy with thick white discharge, typically
- Bacterial vaginosis (mixed vaginal flora)
  - Shift/overgrowth in bacterial flora
  - Malodorous discharge, vulvar itching; NO cervicitis or pelvic pain

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Trichomoniasis

• Pap smears and *T. vaginalis*
  – Conventional -
    • Warrants treatment if high-risk patient (Am J Med 2000;108)
  – Liquid–based cytology
    • Warrants treatment without further testing (Torre. AJOG 2003;188)

2. Trichomonas vaginal infection is best treated with which of the following agents?

A. Metrogel-Vaginal (topical vaginal metronidazole) 5 g applied nightly for 5 days
B. Zithromax (azithromycin) 1 g orally in a single dose
C. Flagyl (metronidazole) 2 g orally in a single dose
D. Levaquin (levofloxacin) 250 mg orally in a single dose

Is There Necessary Follow-up?

• High rates of reinfection – 17% in one series
  – Rescreen women at 3 months – benefit of this approach has not been fully evaluated
  – No data support rescreening in men
• Most recurrent infections thought to result from having sex with an untreated partner
  – Limited number due to low-level metronidazole resistance (2-5%)
    • Use higher dose metronidazole or tinidazole

Trichomonas: CDC 2010

• Recommended Regimens
  – Metronidazole (resistance is rare)
    • 2g single oral dose
  – Tinidazole
    • 2 g single dose
• Alternative regimen
  – Metronidazole 500 mg po BID for 7d
• Metronidazole gel considerably less efficacious (<50%) compared to oral preparations
• Treatment failure
  – Repeat oral dose
• Treat the sexual partner

Treatment Failure… and Reinfection Is Excluded?

• First choice
  – Metronidazole 500 mg po BID for 7 days
• IF that fails…
  – Tinidazole or metronidazole 2 g po q day for 5 days
**Trichomoniasis – CDC 2010**

**Pregnancy**
- Women can be treated with 2 g metronidazole in a single dose at any stage of pregnancy.
- Multiple studies and meta-analyses have not demonstrated an association between metronidazole use during pregnancy and teratogenic or mutagenic effects in infants.

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3. A 30 yo AA presents with vaginal discharge. On examination the discharge is homogeneous with a pH of 5.5, a (+) whiff test, and many clue cells.

Which one of the following findings in this patient is most sensitive and specific for the diagnosis of bacterial vaginosis?

- A. pH of the discharge
- B. Presence of clue cells
- C. Character of the discharge
- D. Whiff test

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**Bacterial Vaginosis**

- Current clinical criteria (Amsel Criteria, 3 of 4)
  - Discharge – homogeneous grayish-white
  - pH > 4.5
  - Greatest sensitivity; lowest specificity
  - Need vaginal pH paper
- Clue cells
  - >20% on HPF microscopy
  - MOST SPECIFIC AND SENSITIVE SIGN OF BV
- Whiff test - (+) amine
  - Volatilized amines released after 10% KOH (semen does the same thing)

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**BV Is Not an “Annoyance Ailment”**

- Premature rupture of membranes
- Preterm delivery
- Postpartum endometritis
- Salpingitis and PID
- Postoperative infections
- Vaginitis
- Acquisition of HIV

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**Bacterial Vaginosis Treatment**

- **Primary Treatment**
  - Metronidazole 500 mg po BID times 7 days
  - Avoid alcohol during treatment and 24 hours after
  - Metronidazole vag gel (0.75%) 5 g in vagina qD times 5d
  - Clindamycin vag cream (2%) 5 g in vagina qD times 7d
- **Alternative treatment**
  - Clindamycin 300 mg po BID times 7d
  - Clindamycin ovules 100 g in vagina qHS times 3d
- **Recurrent**
  - Metronidazole vag gel (0.75%) 5 g in vagina 2x/week for 4-6 months

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4. Which of the following statements is true when considering a patient with vulvovaginal candidiasis (VVC)?

A. Diaphragm use is a predisposing factor to uncomplicated VVC
B. 80% of patients with symptomatic VVC will have candida documented on culture
C. Complicated VVC is typically associated with a non-albicans species of candida
D. Clinical and mycological cures are greater with oral as opposed to topical treatment

VVC

CDC 2010

Uncomplicated
- Infrequent
- Mild to moderate symptoms
- Immunocompetent, non-pregnant

Complicated
- Recurrent
- Severe symptoms
- Non-albicans species
- Women with uncontrolled DM, debilitation, immunosuppression, pregnancy

Non-Albicans Species

- Prevalence of 17%
  - C. glabrata, C. tropicalis, C. krusei
- Increased OTC use or incomplete courses of therapy
  - Elimination of more sensitive albicans and selection for more azole-resistant non-albicans species
- No hyphae on wet prep
  - Buds present, but can be missed

Uncomplicated VVC

- Cochrane Systematic Review - 2002
- Clinical and mycological cures are the same – oral OR topical treatment
- All topical agents are highly effective
  - No evidence that one formulation is superior to others
- Oral fluconazole present in vagina for at least 72 hours
  - More side effects, but preferred by women
Recurrent VVC

• Defined
  – Four specific episodes occurring in 12 months or
  – At least three episodes unrelated to antibiotic therapy within 12 months

Recurrent VVC

CDC 2010

• Induction Therapy
  – Fluconazole – 150 mg q 72 hours x 3 initially or 7-14 days of topical treatment
• Maintenance Therapy
  – Fluconazole 150 mg once weekly for 6 months
• Long-term cure remains elusive

5. Which of the following statements is true regarding Herpes Simplex Virus?

A. The USPSTF recommends offering screening for HSV to asymptomatic patients
B. Antiviral therapy is not indicated for the first clinical episode of HSV
C. Latex condoms are effective in preventing transmission of HSV
D. Following a primary HSV outbreak, the typical time to recurrence is 36 months.

Genital Herpes Simplex Virus (HSV)

• Most infections are subclinical or mild
• HSV is a potent facilitator of HIV
• Screening – USPSTF 2002
  – Routine screening of asymptomatic persons is not recommended
• Latex condoms are effective in preventing transmission
  – 37% of couples do not use condoms as advised

Primary HSV

• No antibodies to HSV 1 or 2
• Lesions appear 2-14 days following exposure
• Tender vesicles, ulcers
• Fever, HA, myalgias
• 75% asymptomatic
• Viral shedding for 12 days
First Clinical Episode of Genital Herpes

- Most patients should receive antiviral therapy

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<th>Duration</th>
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Recurrent HSV

- 50% of patients will develop prodromal symptoms such as tingling or shooting pains into the hips or buttocks
  - Usually unilateral and much smaller than primary – consistent area of outbreak
- 90% of persons with primary HSV-2 will have at least one recurrence in the next 12 months

Episodic Therapy for Recurrent Genital Herpes – CDC 2010

- Initiate therapy within 1 day of lesion onset or during prodrome that precedes some outbreaks

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<tr>
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HSV – Suppressive Therapy

CDC - 2010

- Reduces frequency of recurrences by 70-80% (with frequent recurrences > 6/year)
- Reduces but does not eliminate subclinical viral shedding – therefore ? prevention of transmission

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*Valacyclovir 500 mg q day might be less effective in patients who have very frequent recurrences (i.e., > 10 episodes per year)

HSV Management in Pregnancy

- If 1 or more outbreaks, oral acyclovir (no adverse fetal effects known)
- Suppression @ 36 wks (400 tid, Valtrex 500 qd)
  - Decreases risk of genital HSV at delivery (OR 0.25)
  - Decreases need for C/S (OR 0.30)
- Vaginal delivery if no active lesions or prodromal symptoms
- BUT, C/S if active lesions present, especially if primary infection
  - Decreases neonatal transmission rate (1/85 or 1.2% vs. 9/117 or 7.7%; OR 0.4)

6. Which of the following is the best strategy regarding an asymptomatic patient with a positive gonorrhea test and negative chlamydia test?

A. Repeat the test in 2 weeks
B. Prescribe erythromycin 500 mg 4 times a day for seven days
C. Administer ceftriaxone 125 mg IM in the office and prescribe doxycycline 100 mg twice daily for seven days
D. Administer ceftriaxone 250 mg IM and azithromycin 1 g PO

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**Gonorrhea—Rates by County, United States, 2010**

**Uncomplicated Neisseria Gonorrhea**

*Cervix, Urethra, Rectum*

Ceftriaxone 250 IM

Plus

Azithromycin 1 g po

*This regimen is recommended for all adult and adolescent patients, regardless of travel history or sexual behavior*

**Neisseria Gonorrhoeae Treatment in Pregnancy**

- CDC
  - Use ceftriaxone and azithromycin
  - Remain vigilant for gonorrhea cephalosporin treatment failures
  - Persistent symptoms
  - Positive follow-up test despite treatment as CURRENTLY recommended
  - Obtain specimens for gonococcal culture from patients with possible treatment failure
  - Report treatment failures to local and state health departments
  - Clinicians caring for patients with gonorrhea, particularly MSM in the western US, might consider having patients return 1 week after treatment for test of cure with culture, preferably, or with nucleic acid amplification tests
  - If a patient experiences a ceftriaxone treatment failure, consult with ID expert and CDC regarding re-treatment

**Neisseria Gonorrhoeae Treatment in Pregnancy**

- Cephalosporin regimen
- Women who can’t tolerate cephalosporin regimen may receive 2 g spectinomycin IM
- No tetracycline regimen
- Erythromycin or amoxicillin for presumptive or diagnosed chlamydial infection
Gonorrhea

USPSTF 2005

• All high-risk sexually active women should be screened
  – Age <25
  – Multiple sex partners
  – No barrier contraception
  – Incarcerated
  – Illicit drug use

• Insufficient evidence for or against routine screening in high-risk men
• Recommend AGAINST routine screening of low-risk men and women

7. A 21 yo had a pelvic examination and a normal Pap test 1 week ago. Her screening test for Chlamydia returned positive. She is now being treated for chlamydia cervicitis with azithromycin, 1 g in a single dose. When should she have a test of cure for Chlamydia?

A. 1-2 weeks
B. 3-4 months
C. 9 months (at her next routine pelvic examination)
D. No test of cure is required

Chlamydia—Rates by County, United States, 2010

Test of Cure?

• Except in pregnant women, test of cure (repeat testing 3-4 weeks after completing therapy) is not recommended when treated with the recommended or alternative regimens. Exceptions:
  – Therapeutic compliance is in question
  – Symptoms persist
  – Reinfection is suspected

Test of Reinfection?

• A high prevalence of C. trachomatis infection is observed in women who were treated for chlamydial infection in the preceding several months
• Recently infected women are a major priority for repeat testing; consider advising all women with chlamydial infection to be retested approximately 3 months after treatment.
• Limited evidence is available on the benefit of retesting for chlamydia in men previously infected
Chlamydia Trachomatis

USPSTF - 2007

• Strongly recommends (Grade A)
  – Screening of all sexually active non-pregnant women aged < 25 years AND
  – Sexually active non-pregnant women ≥ 25 yrs with risk factors (new partner, multiple sexual partners)
• Recommends against (Grade C)
  – Routine screening for women ≥ 25 (pregnant or not) if they are not at increased risk
• Evidence is insufficient to assess the balance of benefits and harms of screening for chlamydial infection for men (Grade I)

CDC - “High-Risk” Sexual Behaviors

• Previous STDs
• New or multiple sex partners
• Inconsistent condom use
• Engage in commercial sex work and drug use
• Those living in communities with a high prevalence of disease

Non-Culture Tests for Chlamydia and GC

• DNA-amplification tests (Gold standard now)
  – More sensitive than culture (detects 20% more) and 100% specific for GC and Chlamydia (CDC 2007)
• Appropriate specimens
  – Endocervical secretions or urine samples in females
  – Urethral swab or urine in males
  • Gram stain of a male urethral sample for intracellular gram(-) diplococci is highly sensitive and specific; diagnostic in symptomatic men

Chlamydia

Treatment - CDC 2010

• Recommended – equally effective, no test of cure required
  – Doxycycline 100 mg po BID x 7 d
  – Azithromycin 1 g po single dose
• Alternative regimens
  – Ofloxacin 300 mg po BID x 7 d
  – Levofloxacin 500 mg qD X 7 d
  – Erythromycin base 500 mg qid for 7 d*
  – Erythromycin ethylsuccinate 800 mg qid for 7 *

*Less effective; consider TOC 3 weeks after treatment

CDC 2006

Males with Urethritis

• Mucopurulent or purulent discharge or dysuria or urethral pruritus
  – “Test now, treat now, diagnose later”
• Empiric treatment recommended if:
  – Gram stain of urethral secretions ≥ 5 WBC per oil immersion field
  – Positive leukocyte esterase on first void urine or ≥10 WBC per high power field
  – High risk who are unlikely to return

8. Which of the following statements characterizes pelvic inflammatory disease the best?

A. The diagnosis of pelvic inflammatory disease is based on laboratory evaluation
B. Empiric antibiotic therapy prior to confirming PID impairs the diagnosis of other important causes of lower abdominal pain
C. Mucopurulent discharge is a necessary criteria to make the diagnosis of PID
D. Cefotetan plus doxycycline is first-line parenteral treatment of PID in the patient requiring hospitalization

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Pelvic Inflammatory Disease

- Clinical diagnosis, not laboratory-based
- Untreated PID has significant morbidity and mortality – empiric treatment is recommended if the patient meets the following minimal diagnostic criteria:
  - Uterine/adnexal tenderness or
  - Cervical motion tenderness, and
  - No other cause for illness identified
- Empiric therapy unlikely to impair diagnosis and management of other important causes of lower abdominal pain – do not delay treatment while pursuing additional evaluation if history and physical are suggestive of PID

Other Helpful (but Not Necessary) Criteria Include:

- Mucopurulent discharge
- Temperature > 38.3°C (101°F)
- WBC on wet prep
- ↑ ESR
- ↑ C-reactive protein
- Laboratory evidence of GC or Chlamydia

Management of PID

- Increased risk of ectopic and infertility
  - Delay > 3 days = 3X risk (observational data)
- Start empiric therapy if minimal criteria present
- Polymicrobial infection is likely present if the patient has symptoms
  - Broad-spectrum regimen necessary
- Treat sexual partner if had sex with patient during 60 days preceding onset of symptoms

PID – Oral Treatment

*Mild to moderate disease: CDC 2007*

- **Regimen A**
  - Ceftriaxone 250 mg IM in a single dose **PLUS**
  - Doxycycline 100 mg orally BID x 14 days
  - **WITH OR WITHOUT** metronidazole 500 mg po BID X 14 days

- **Regimen B**
  - Cefoxitin 2 g IM in a single dose and probenecid 1 g po administered concurrently in a single dose **PLUS**
  - (Doxy and metronidazole as above)

Criteria for Admission for the Treatment of PID

- Uncertain diagnosis
- Surgical emergencies like appendicitis cannot be excluded
- Suspected pelvic abscesses
- Concurrent pregnancy (due to high risk of maternal mortality, fetal wastage, and preterm delivery)
- Adolescent patient with uncertain compliance with therapy
- Severe illness
- Patient cannot tolerate outpatient regimen (e.g., severe vomiting)
- Lack of response to 72 hours of treatment
- Concurrent HIV infection
- Clinical follow-up cannot be arranged within 72 hours

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**PID**

*Parenteral Treatment – CDC 2007*

- **Regimen A**
  - Cefotetan 2 g IV q 12 hours OR Cefoxitin 2 g IV q 6 hours PLUS
  - Doxycycline 100 mg po or IV q 12 hours
- **Regimen B**
  - Clindamycin 900 mg IV q 8 hours PLUS
  - Gentamicin load followed by 1.5 mg/kg q 8 hours. (Single dosing may be substituted.)

*Discontinue 24 h after clinical improvement and complete therapy with doxycycline 100 mg po BID or clindamycin 450 mg po qid x 14 days*

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**HIV:**

*CDC Recommendations*

- Screening should be offered to ALL individuals in health care-settings (must be voluntary)
  - Estimated 1.1 million people in US with HIV, and 25% are undiagnosed; only 36.6% of adults have had an HIV test
  - (+) Enzyme immunoassay (EIA) must be confirmed by Western blot or immunofluorescence assay
  - HIV-1/2 antibody detectable in 95% of patients within 3 months after infection
  - Prevention strategies should be discussed at the time of diagnosis
  - Partner notification should be encouraged


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**HIV Negative**

- Doesn’t require direct personal contact
- Reinforce HIV prevention/risk reduction
- Give concrete recommendations about when to re-test

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**HIV Positive**

- Must give results confidentially in person!
- Brief HIV disease education
- Psychosocial support services
- Communicable disease reporting: all new diagnoses must be reported to local/state health authorities
- Partner notification (screen for DV)
- Linkage to care; confirm contact information & insurance status!

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**HIV References**

- Carolyn Chu, MD, MSc, and Peter A. Selwyn, MD, MPH. Diagnosis and Management of Acute HIV Infection. Am Fam Physician. 2010;81(10):1239-1244.

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9. All of the following infections cause genital ulcers EXCEPT:

- A. Human papillomavirus
- B. *Treponema pallidum*
- C. *Haemophilus ducreyi*
- D. Herpes simplex virus
9. All of the following infections cause genital ulcers EXCEPT:

- Human papillomavirus (A)
- Treponema pallidum (B)
- Haemophilus ducreyi (C)
- Herpes simplex virus (D)

Genital Ulcers

- Think Herpes (HSV), syphilis, chancroid
- Specific tests:
  - Serology for T. pallidum
  - Culture or antigen for HSV
  - Culture for H. ducreyi
  - HIV testing
- Biopsy ulcers that do not respond to initial therapy

Primary and Secondary Syphilis—Rates by County, United States, 2010

Diagnosis of Syphilis

- Definitive test
  - Dark-field microscopy
- Nonreponemal serology
  - RPR and VDRL (screening)
  - Correlates with disease activity (4-fold decline in titer by 6 months); Rarely (+) for life
- Treponemal antibody
  - FTA-ABS (confirmation test)
    - Correlates poorly with disease activity; not used to assess treatment response; may remain (+)
- VDRL-CSF for neurosyphilis
  - Highly specific; low sensitivity

USPSTF 2004

Syphilis

- Strongly recommends that persons at increased risk for syphilis be screened
  - Sex workers
  - IVDA
  - HIV+
  - Other STDs
  - Known partner with active syphilis
    - Increase in MSM (high rates of co-infection with HIV)
- Recommends AGAINST screening persons NOT at increased risk

Syphilis

Treatment CDC 2010

- Parenteral PCN G
  - 2.4 million units IM
  - Preferred drug for treatment of ALL stages EXCEPT late latent/tertiary neurosyphilis
- Desensitization if PCN allergy
  - Documented limited data on alternatives –
    - doxycycline/tetracycline – advise 14-day course
  - Emergence of azithromycin-resistant T. pallidum – should not be routinely used to treat
- Jarisch-Herxheimer
  - Acute febrile reaction occurring in first 24 hrs after treatment
Syphilis

Treatment CDC 2010

- Late latent/tertiary
  - Benzathine PCN G
    - 7.2 million units administered as 3 doses of 2.4 million units IM q week
- Neurosyphilis
  - Aqueous crystalline PCN G
    - 18-24 million units/day, administered as 3-4 million units IV q 4 hours or continuous infusion for 10-14 days
  - Procaine penicillin
    - 2.4 million units IM once daily plus probenecid 500 mg po QID for 10-14 days

Chancroid

- Painful genital ulcers; painful inguinal lymphadenopathy
- 10% co-infected with HIV/Syphilis
- H. ducreyi
  - Co-factor for HIV transmission [more tx failures if HIV (+)]
  - Check HIV, VDRL
- Primary Treatment
  - Azithromycin
  - Ceftriaxone
  - Ciprofloxacin
  - Erythromycin

Granuloma Inguinale

- Painless, ulcerative lesions
  - No lymphadenopathy
  - Highly vascular lesions
- Klebsiella granulomatis
  - Donovan bodies on biopsy
- Primary Treatment
  - Doxycycline
- Alternatives
  - Ciprofloxacin
  - Erythromycin
  - Azithromycin
  - Trimethoprim-Sulfamethoxazole

Lymphogranuloma Venereum

- Rare in USA
- Chlamydia trachomatis
- Painful lymphadenopathy
- Primary treatment
  - Doxycycline
- Alternative
  - Erythromycin

10. In considering Hepatitis B, which of the following statements is true?

A. The USPSTF recommends routinely screening the general asymptomatic population for chronic hepatitis B virus infection
B. The USPSTF does not recommend screening for HBV infection in pregnant women at their first prenatal visit
C. Hepatitis B vaccine is no longer part of the routine immunizations in the United States
D. Newborns of mothers infected with HBV should be given Hepatitis B immune globulin after delivery and start on the hepatitis B vaccine series

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Screening

• The USPSTF strongly recommends screening for HBV infection in pregnant women at their first prenatal visit
  Grade: A Recommendation
• The USPSTF recommends against routinely screening the general asymptomatic population for chronic hepatitis B virus infection
  Grade: D Recommendation

Prevention

• Hepatitis B vaccine is part of the routine immunizations in the United States
• A Cochrane review confirmed that hepatitis B vaccination decreased HBV infection in health care professionals

Screening – Hepatitis C

• The USPSTF recommends against routine screening for hepatitis C virus infection in asymptomatic adults who are not at increased risk (general population) for infection
  Grade: D Recommendation
• The USPSTF found insufficient evidence to recommend for or against routine screening for hepatitis C virus infection in adults at high risk for infection
  Grade: I Statement

Prevention

• Health care professionals exposed to HBsAg-positive patients
  – Give Hepatitis B immune globulin after the exposure and start on the hepatitis B vaccine series if not previously vaccinated
• Newborns of mothers infected with HBV
  – Give Hepatitis B immune globulin after delivery and start on the hepatitis B vaccine series

HPV/Genital Warts

Condyloma acuminata

• Caused by various types of HPV (6 and 11 most commonly – 90%)
• Average time to development of new anogenital warts after infection is ~ 2-3 months
• Young sexually active people
  – Range of manifestations
    • Small, unnoticed, regress without therapeutic intervention (immunocompetent)
    • Multiply, expand in size; produce symptoms
      – Itching, irritation, bleeding
      – Mass effect
      – Interfere with hygiene, function, sexual activity
  – Range of emotions
    • Psychological sequelae – typical concerns about STI
Summary – CDC 2010

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<th>Possible Treatments</th>
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<td>Anogenital (Keratinized epithelium)</td>
<td>Podophyllotoxin, Cryotherapy, DCA/TCA, Surgical Removal, Interferon alpha, Imiquimod, Sinecatechins</td>
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<tr>
<td>Vagina (Mucosal epithelium)</td>
<td>DCA/TCA (can be repeated weekly, if necessary), Cryotherapy with liquid nitrogen; avoid cryo-probe, Laser Vaporization</td>
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<tr>
<td>Cervix</td>
<td>Exclude HSIL; Cryotherapy</td>
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<td>Anal</td>
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HPV in Pregnancy
Treatment Options

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<th>Unacceptable Therapies</th>
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<td>• Laser ablation</td>
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Typically NOT used in pregnancy:
• Interferon (Intralesional injection – Class C)

Cervical Cancer

• Cervical cancer is an STD caused by HPV!
• Highest cause of worldwide death in women
• Screening programs have dramatically reduced the rate in screened population
  • 70% reduction in the US over the past five decades
• Condoms appear to be an effective barrier against HPV transmission (NEW)

So Who Is Getting Cervical Cancer?

• Median age is 45-50 years
  – Older women from lack of screening
  – Younger women from rapidly progressing disease
• Profile of woman with invasive cancer:
  – 50% have never had a pap smear
  – Another 10% have not been screened within 5 years prior to their diagnosis

11. Which of the following is a risk factor for Cervical Cancer?

A. Exogenous Hormones
B. Family History
C. Smoking
D. Pregnancy

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Assessing the Patient’s Risk for Cervical Cancer

- **Risk Factors**
  - Onset of sexual activity before age 20
  - Multiple sexual partners
  - Low SES
- **Co-Factors**
  - Other STDs
  - HIV infection
  - Smoking*
  - Nutritional deficiency
- **NON-Risk Factors**
  - Family history
  - Menstrual history
  - Exogenous hormones
  - Pregnancy

Cigarette smoking is the only non-sexual behavior consistently and strongly correlated with cervical dysplasia and cancer, independently increasing the risk two- to four-fold.

References

- Summary Chart of 2006 CDC Treatment Guidelines for STDs. Pharmacist’s Letter/Prescriber’s Letter. 2006;22(9):220912

Answers

1. B
2. C
3. B
4. C
5. C
6. D
7. D
8. D
9. A
10. D
11. C