Vaginitis and Genitourinary Tract Infections

Patti Wheaton, APRN-CNP
Family & Women’s Health NP
None other than still crazy in many ways – who else goes 30 feet in the air with a chain saw?
OBJECTIVES

- Identify common vaginal infections including STI’s
  - Define vaginitis, various causes and their incidence
  - Differentiate between nuisance infections and STI’s
- Discuss the normal pathophysiology of the vagina
  - Review the physiology of the healthy vagina
  - Discuss effects of hormonal changes on the vagina throughout a woman’s lifespan
  - Discuss other potential causes that may upset the balance of the healthy vagina
- Discuss the various etiologies of vaginitis including STI’s
- Identify various diagnostic techniques for diagnosing vaginitis
OBJECTIVES, (CONT’D)

- Review treatment options for vaginitis including the 2015 CDC guidelines for STI treatment as well as pregnancy
VAGINITIS

- Inflammation of the vagina that may result in changes in vaginal discharge, itching or pain.
- One of the most common office-based gynecology complaints.
- It is undiagnosed up to 72% of the time.
- Most common causes are:
  - Bacterial Vaginitis (40-45%)
  - Vaginal Candidiasis (20-25%)
  - Trichomoniasis (15-20%)
NORMAL PATHOPHYSIOLOGY

Vagina = ecosystem

Delicate balance with normal vaginal flora
NORMAL FLORA

Lactobacilli

Corynebacterium

Constitutes majority of vaginal flora

Also may see WBC’s, RBC’s
NORMAL FLORA, (CONT’D)

Candidiasis

for the life of me, i don't know how i got that yeast infection.
i was in and out of the bakery in less than a minute.
PHYSIOLOGIC DISCHARGE

- Clear to white to pale yellow
- Changes with hormonal changes of cycle
- Occasional itch or discomfort that’s not persistent isn’t unusual
- No odor or a “musky” smell
- Consistency can vary from thin to mucoid to pasty
- Small amount
- Normal pH is 3.8 – 4.2, which naturally suppresses pathogens
POTENTIAL CAUSES FOR UPSETTING THE ECOSYSTEM

- Sexual activity
- Hormonal status
- Hygiene
- Pathological Causes
- Miscellaneous
SEXUAL ACTIVITY

- Irritation due to poor lubrication, excessive activity, exposure to other possible irritants
- STI exposure
HORMONAL STATUS

- Prepubescent
  - More alkaline
  - Vaginal tissue predominantly columnar epithelial
  - No vaginal mucous gland activity
  - Typically increased gram positive cocci, anaerobic gram neg in normal flora
Hormonal Status (Cont’d)

- Pubescent/Adolescent to Adult
  - Acidic PH
  - Tissue changes to stratified squamous in vagina
  - Normal flora mainly lactobacilli

- Pregnancy
  - Increase in overall estrogen, progesterone
  - Increase in vaginal discharge, usually thin, white or clear, without odor
  - Greater propensity to have yeast overgrowth in pregnancy

- Post Menopausal
  - Decreased estrogen, loss of vaginal rugae, thinning of labia
  - Increased gram positive cocci, anaerobic gram negs
HORMONAL STATUS (CONT’D)

- Hormonal contraceptives
  - Oral contraceptives – increased vaginal discharge
    - Progesterone dominant state
    - Usually thick, white tacky
  - Depo Provera
    - Increased white vaginal discharge
  - Nexplanon
    - Increased white or clear discharge
  - IUD’s without progestin
    - Increase physiologic discharge
 Hormonal Status, (Cont’d)

- NuvaRing
  - Estrogenic effect in the vagina
  - Clinical Pearl – good contraceptive choice for perimenopausal women for vaginal dryness)
HYGIENE

- Lack of hygiene
  - Limited access due to environment
    - Nursing home residents
    - Homeless
    - Toddlers
  - Lack of hygiene due to physical limitations
EXCESSIVE HYGIENE

- Internal Cleansing
  - Can cause chemical irritation
  - Washes away “the good, the bad and the ugly” and then the body has to try to re-establish balance but often ends up with overgrowth of something

- “Swizziling”
  - Washing internally with soap and water with every bath or shower

- Douching
  - Issues with sanitation of the reusable bag
YES....THEY REALLY DID
OTHER PATHOLOGY

- Underlying skin disorders
  - Lichen sclerosis
  - Psoriasis
  - Eczema
  - Atypical HSV
  - Skin Cancer

- Other Diagnosis
  - DM
  - Fistulas
  - Rectocele/Cystocele/Vaginal prolapse
**Miscellaneous**

- Non hormonal contraception
  - Condoms – chemical irritation, latex allergies, friction from poor lubrication
  - Contraceptive foams, jellies, film, suppositories, sponge
    - Chemical irritation
  - Diaphragm – incorrect use, hygiene issues, poor fit
- Antibiotics
REALLY MISCELLANEOUS

Patricia's
Where Fun & Fantasy Meet
Get a Good History

- Onset of symptoms
- Associated symptoms, especially related to bowel and bladder
- Contraceptive method(s) used
- Sexual activity
- Internal cleansing
- Changes in laundry or hygiene products
- Review of Systems

- Discharge
  - Color
  - Amount
  - Duration
  - Consistency
  - Odor

- Exposure to anything new or unusual
- Previous occurrences
- Recent antibiotic use
- Any self treatment
BREAKING IT DOWN

Nuisance Infections
OR
Sexually Transmitted Infections
NUISANCE INFECTIONS

90% will be one of the following
- Bacterial Vaginosis
- Candida
- Trichomoniasis

Less common – chemical or atrophic vaginitis
**Bacterial Vaginitis**

- Most common cause of vaginitis
- Overgrowth of gardnerella vaginalis, gram variable coccobacillus
- Complications can include PID and preterm labor
- Symptoms
  - Thin, homogenous discharge that’s greyish – white to yellow
  - Some itching
  - Fishy odor, worse after sex
- Physical Exam Findings
  - Homogenous grey/white discharge on perineum, vagina
  - Mild erythema of perineum, vagina
Diagnosis

- Based on the Amsel Criteria
  - 3 of 4 of the following must be present
    - Homogenous white adherent discharge
    - Vaginal Ph >4.5
    - Positive Whiff or Amine test
    - Clue cells on wet mount
Wet Mount

- Must have Provider Performed Microscopy CLIA status
- Saline in red top test tube
  - Tip - keep in exam drawer on heating pad – trich likes warmth
- Use cotton swab to obtain discharge from posterior cervical pool – not cervix
- Mix well – apply to glass slide and cover with coverslip
- Examine under microscope at 40x power
  - Tip – trich likes the edges of the slide field
**WHIFF OR AMINE TEST**

- Use same slide – after visualizing it under microscope
  - Add KOH+ edge of the coverslip
  - Smell – positive test will smell fishy

- Tip
  - If you are new to doing wet mount, look at the slide again after the whiff test. The cells will all be lysed except yeast, making it easier to identify
Commercial tests are available but are more expensive

- Fem Exam Test Card
  - 2 cards – 1 tests for amine and Ph; 2\textsuperscript{nd} tests for proline iminopeptides (PIP)
TREATMENT

Non pregnant
- Metronidazole 500mg, 1 BID for 7 days
- MetroGel – 1 applicator (5 gms) in vagina for 5 days
- Clindamycin 2% cream – 1 applicator (5 gms) in vagina x 5 days
- Tindamax (tindazole) 2 gms by mouth BID x 2 days or 1 gm daily x 5 days

Pregnant
- Conflicting opinions about testing and tx with regards to PTL
- Metronidazole is category B after 1st trimester

Breastfeeding
- Pump and Dump until 24 hrs after done or wean
CANDIDIASIS

- Overgrowth of candida albicans or non albicans
- Symptoms
  - Perineal and vaginal itching
  - Thick “cottage cheese” type discharge
  - Dysuria
- Physical Exam Findings
  - Splits in perineum, erythema
  - Vagina – erythemic, inflamed, cottage cheese like discharge; usually white but sometimes it’s blue or green
DIAGNOSIS

- Cultures and commercial tests – expensive
- Ph greater than or equal to 4.5
- Wet mount
  - Hyphae or pseudo-hyphae (spaghetti and meatball)
  - Spores
  - Some WBCs
TREATMENT

OTC treatments

- Butoconazole 2% cream sustained release – 1 applicator (5 gms) in vagina once
- Clortrimizole 1% cream – 1 applicator (5 gms) in vagina daily for 7-14 days
- Clortrimizole 2% cream – 1 applicator (5 gms) in vagina daily for 3 days
- Tioconazole 6.5% ointment – 1 applicator (5 gms) in vagina once
- Miconazole 2% cream – 1 applicator (5 gms) in vagina for 7 days
- Miconazole 4% cream – 1 applicator (5 gms) in vagina for 3 days
TREATMENT – CONT’D

- Miconazole vaginal suppositories
  - 100mg daily for 7 days
  - 200mg daily for 3 days
  - 1200mg once

- Prescription treatment
  - Terconazole 0.4% cream – 1 applicator (5 gms) in vagina daily for 7 days
  - Terconazole 0.8% cream – 1 applicator (5 gms) in vagina for 3 days
  - Terconazole vaginal suppository 80 mgs – once in vagina for 3 days
  - Fluconazole (Diflucan) 150mg once by mouth
TRICHOMONIASIS

- Single cell protozoa, motile with flagella
- Sexually transmitted
- Symptoms
  - 50% are without s/s
  - Itching
  - Post-coital bleeding
  - Gray to yellow to green vaginal discharge
TRICH — CONT’D

- Physical exam findings
  - Frothy gray to yellow – green discharge
  - Strawberry cervix or cervical petechiae

- Diagnosis
  - Commercial tests available
  - Ph > 4.5
  - Positive whiff test
  - Wet mount
    - Increased WBC’s
    - Motile flagellated protozoa
Treatment
- Metronidazole 2 gms once by mouth
- Tindazole 2 gms once by mouth
- Metronidazole 500mg, 1 tablet BID for 7 days
- No ETOH during treatment and for another 24 hrs after completion with metronidazole, 72 hrs with Tindazole

Pregnancy
- Metronidazole category B after first trimester

Breastfeeding
- Wean or pump and dump during treatment plus 24 hrs

No sex until pt and partner(s) complete treatment
CHEMICAL VAGINITIS

- Hypersensitivity or irritant reaction to perfumes, laundry or hygiene products – essentially anything that could come in contact with the vagina

- Symptoms
  - Perineal itching, irritation
  - May be only external

- Treatment
  - Less is more
  - Basically contact dermatitis just a very sensitive area
  - Usually no treatment and s/s resolve in 10-14 days
  - Sometimes use diaper type creams, especially with zinc oxide in them

- Diagnosis – exclusion based on history, testing
ATROPHIC VAGINITIS

- Result of decreased estrogenic status
- Symptoms
  - Thin, yellow vaginal discharge
  - Perineum and vagina are pale, thin, atrophic with sparse pubic hair noted
- Diagnosis of exclusion
- Treatment
  - Vaginal estrogen cream, ring
  - Use lowest dose possible, shortest time possible
  - If uterus is intact, consider adding progestin days 14 – 28 of cycle monthly
ATROPHIC VAGINITIS (CONT’D)

- Estradiol vaginal cream 0.01% - 2-4 gms nightly for 2 wks, then 1 gm 1 to 3 times per week
- Vagifem – 10mcg tablet – 1 tablet in vagina daily for 2 wks then decrease to 2 tablets once per week
- Conjugated vaginal estrogen cream – 0.5 to 2 gms in vagina x 2 wks then use 1-3 times per week, and then continue at new dose for 3 wks.
- Estring – 2mg ring – insert in vagina for 90 days. Remove repeat with new ring
SEXUALLY TRANSMITTED INFECTIONS

- Chlamydia
- gonorrhea
CHLAMYDIA

- C. trachomatous
- Most frequently reported infection in US
- Symptoms
  - DUB
  - Change in discharge
  - Pelvic pain
  - Fever
  - Changes in periods
  - Dyspareunia
  - Unusual urinary symptoms
  - May be asymptomatic
  - External and or internal itching or burning
CHLAMYDIA — CONT’D

- Physical Exam
  - Friable cervix
  - Mucopurulent discharge at the os
  - Pelvic pain

- Diagnosis
  - Nucleic acid amplifications test (NAAT) done with vaginal or cervical swabs, urine

- Treatment
  - Azithromycin 1 gam once plus doxycycline 100mg twice daily for 7 days
  - Erythromycin base 500mg, 1 tablet daily for 7 days
  - EES 800mg, QID, for 7 days
CHLAMYDIA — CONT’D

- Levofloxin – 500mg, once daily for 7 days
- Ofloxin 300mg – twice daily for 7 days
- Pregnancy
  - EES 250mg – 4 times per day for 14 days
  - EES 800mg – 4 times per day for 7 days
  - EES 400mg – 4 times per day for 14 days
  - Azithromycin 1 gm once
  - Erythromycin base 500mg – 4 times per day for 7 days
  - Amoxicillin 500mg – 3 times per day for 7 days
GONORRHEA

- N. gonorrhea
- Symptoms
  - Dysuria
  - Post coital bleeding
  - DUB
  - Fever
  - Abnormal discharge
  - Changes in periods
  - Pelvic pain
  - Asymptomatic
Physical exam findings
- Thin purulent malodorous discharge at the endocervix
- Pelvic pain

Diagnosis
- NAAT that uses urine, vaginal, endocervical urethral, or rectal swabs as well as urine

Treatment
- Ceftriaxone 250mg IM x 1 plus azithromycin 1 gm
- May substitute cefiximine 400mg once daily for ceftriaxone
- Same treatment with pregnancy

No sex until pt, partner(s) all complete treatment
Reportable to OSDH per law – advise pts
REFERENCES
