Obstetrics & Gynecology
TEAM

Lower Genital tract infections + PID

Leader: Sara Alhaddab

Done By: Maria Alayed

◆very important ◆mentioned by doctor ◆team notes ◆not important

What is normal?

- The normal vaginal flora is predominately aerobic organisms
- The most common is the H+ peroxide producing lactobacilli
- The normal PH is <4.5
- Normal vaginal secretions ↑ in the middle of the cycle because of ↑ in the amount of cervical mucus .
- -it is clear or white. It may become stretchy and slippery during ovulation or OC
- Complains could be abnormality in the amount, smell or color.

-Normal vaginal secretion is called leucorrhoea.

When exposed to air it might change in color "mustard like"

Making the Diagnosis:

- Symptoms:
  - discharge, odor, irritation, or itch
  - discharge
  - Clear, white, green, gray, yellow
  - Consistency – thin, thick, or curd like
- Signs:
  - excoriations
  - erythema
  - discharge

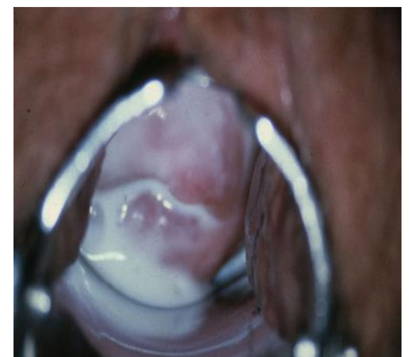
99.999% of my clinic complaints are abnormal bleeding or abnormal discharge.

Vaginal Complaints:

- Most common reason for gyn visits
- 10 million office visits annually
- PE and laboratory data are recommended
- 3 most common etiologies are: **vaginal candidiasis / bacterial vaginosis / Trichomoniasis**

Bacterial Vaginosis (BV):

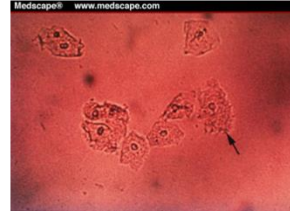
- Most common cause of vaginitis in premenopausal women
- It is caused by alteration of the normal flora, with over-growth of anaerobic bacteria
- It is triggered by ↑ PH of the vagina (intercourse, douches)
- Recurrences are common
- 50% are asymptomatic
- Itching and inflammation are uncommon
- It is not a STD, doesn't require STDs screening

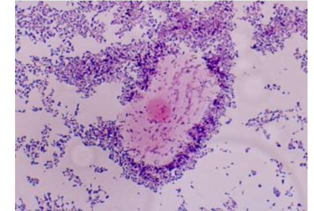


BV

Complications:

- Increases risk for:
  - Preterm labor in pregnant women
  - Endometritis and postpartum fever
  - Post-hysterectomy vaginal-cuff cellulitis
  - Postabortal infection
  - Acquiring other STDs, especially HIV





clue cells
(very characteristic for BV)

Diagnosis:

1. Fishy odor (especially after intercourse) Bec semen is alkaline so similar effect to KOH
2. Gray secretions
3. Presence of clue cells
4. PH >4.5
5. +ve whiff test (adding KOH to the vaginal secretions will give a fishy odor)

Treatment:

1. Flagyl 500mg Po Bid for one week (95% cure)
2. Flagyl 2g PO x1 (84% cure)
3. Flagyl gel PV
4. Clindamycin cream PV
5. Clindamycin PO

- Treatment of the partner is not recommended

Candidiasis:

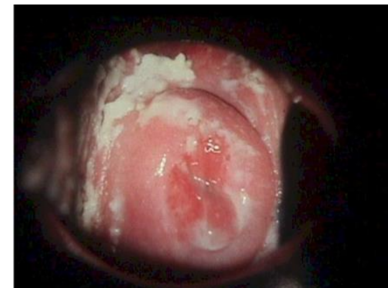
- 75% of women will have at least once during their life
- 45% of women will have two or more episodes/year
- 15% have chronic infection
- Rare before menarche, but 50% will have it by age 25
- Less common in postmenopausal women, unless taking estrogen
- It is not aSTD
- 90% of yeast infections are secondary to Candida Albican
- Other species (glabrata, tropicalis) tend to be resistant to treatment

It doesn't affect the fetus or anything **unlike BV**, so if patient doesn't complain **leave it**.

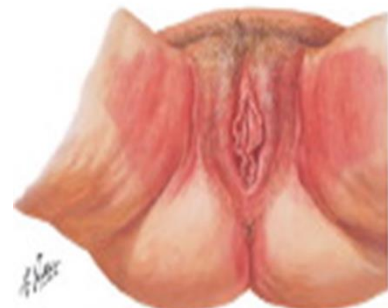
Predisposing factors:

1. Antibiotics: disrupting the normal flora by ↓ lactobacilli
2. Pregnancy (↓ cell-mediated immunity)
3. Diabetes
4. OCP
5. Disinfecting the vagina (As some women wash it with detol or soap ……)

Diagnosis:



1. Vulvar pruritis and burning
2. The discharge vary from watery to thick cottage cheese discharge
3. Vaginal soreness and dysparunea
4. Splash dysuria
5. O/E: erythema and edema of the labia and vulva
6. The vagina may be erythematous with adherent whitish discharge
7. Cervix is normal
8. PH< 4.5budding yeast or mycelia on microscopy



Treatment:

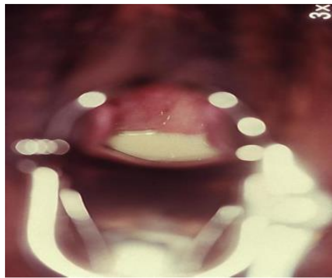
1. Topical Azole drugs (80-90% effective)
2. Fluconazole is equally effective (Diflucan 150mg PO x1), but symptoms will not disappear for 2-3 days
3. 1% hydrocortisone cream may be used as an adjuvant treatment for vulvar irritation
4. Chronic infections may need long-term treatment (6 months) with weekly Fluconazole

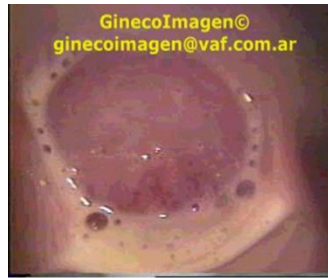
Trichomonas Vaginalis

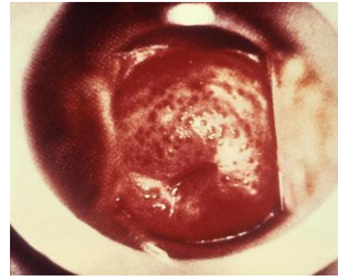
- It is an anaerobic parasite, that exists only in trophozite form
- 3rd most common vaginitis
- 60% of patients also have BV
- 70% of males will contract the disease with single exposure
- Virtually always sexually transmitted
- Patients should be tested for other STDs (HIV, Syphilis, hepatitis)

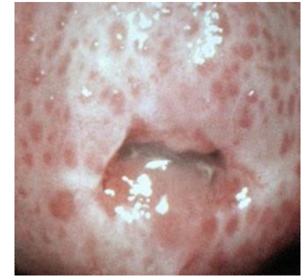
Diagnosis:

1. Profuse, purulent malodorous discharge
2. It may be accompanied by vulvar pruritis
3. Secretions may exudate from the vagina
4. If severe → patchy vaginal edema and strawberry cervix
5. PH >5
6. Microscopy: motile trichomands and ↑ leukocytes
7. Clue cells may if BV is present
8. Whiff test may be +ve





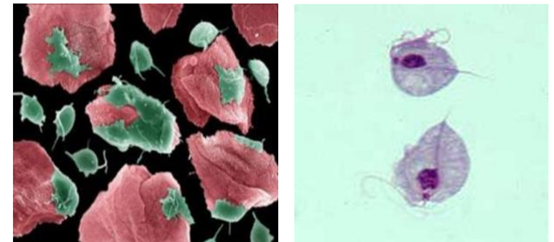




Strawberry cervix

Wet mount:

- Trichomonads seen only in 50 – 70%
- Elevated pH
- Can increase leukocytes
- Paps



Tricomonads

Treatment:

1. Falgyl PO (single or multi dose)
2. Flagyl gel is not effective
3. The partner should be treated
4. If refractory to treatment
    - Retreat with 7 day course
    - If fails again, try 2gm dose daily x 3 – 5 days
    - Assure compliance with partner/culture

Other causes of Vaginitis:

- Atrophic vaginitis (in post menopausal women or anything that lowers estrogen like oophorectomy “surgical menopause”)
  - High vaginal pH, thin epithelium, d/c
  - Parabasal cells on wet mount
  - Topical estrogen cream

Atrophic vaginitis is not an infection, it is menopause symptoms.

- Atypical manifestations: HSV, HPV
- Noninfectious vulvovaginitis
  - Irritants/allergens
  - Lichens syndromes (sclerosus, simplex chronicus, planus) (Skin condition, you treat it with steroids)

Herpes Simplex Virus

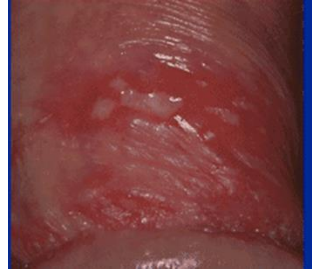
- The “silent epidemic”
- > 45 million in the US
- > 1 million newly diagnosed annually
- The most common STD in US, and likely the world
- Almost 25% of Americans have HSV2 antibodies by the age of 30
- **HSV – 1**
  - Mostly oro-labial, but increasing cause of genital herpes
- **HSV – 2**
  - Almost entirely genital
  - > 95% of recurrent genital lesion

Primary Herpes – Classic Symptoms:

- Systemic – fever, myalgia, malaise

  Can have meningitis, encephalitis, or hepatitis
- Local – clusters of small, painful blisters that ulcerate and crust outside of mucous membranes

  Itching, dysuria, vaginal discharge, inguinal adenopathy, bleeding from cervicitis
- New lesions form for about 10 days after initial infection, but can last up to 3 weeks
- Shedding of virus lasts 2 – 10 days

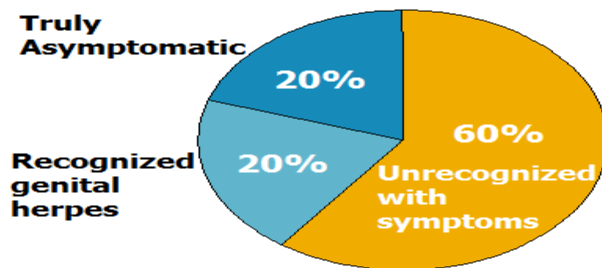


Genital Herpes
If it was active, we can't let her deliver vaginally!

Recurrent herpes:

- Reactivation of virus
- Mild, self-limited
- Localized, lasting 6-7 days
- Shedding: 4-5 days
- Prodrome: 1-2 days

The Clinical Spectrum of HSV - 2 positive people:



Diagnosis:

- Viral isolation (culture)
  - High specificity, low sensitivity
    - 50% for primary infxn
    - 20% for recurrent infxn
- Direct detection of virus (Tzcank smears, PCR)
- Serology (doesn't tell if it was active or not !)
  - Newer tests that are specific for type of virus (HerpesSelect 2, herpes glycoprotein for IgG, ELISA)

Management Goals:

- Relieve symptoms
- Heal lesions
- Reduce frequency of recurrent episodes
- Reduce viral transmission
- Patient support and counseling

Oral Antiviral Therapy:

- Valacyclovir (Valtrex)
- Famciclovir (Famvir)
- Acyclovir (Zovirax)

Cervicitis:

- My cause abnormal vaginal discharge ,postcoital bleeding or irregular bleeding
- Neisseria Gonorrhea and Chlamydia Trachomatis infect only the glandular epithelium and are responsible for mucopurulent endocervisitis (MPC)
- Ecto-cervix epithelium is continuous with the vaginal epithelium, so Trichomonas, HSV and Candida may cause Ecto-cervix inflammation
- Tests for Gonorrhea (culture on Thayer- martin media) and Chlamydia (ELISA, direct IFA) should be performed

Treatment

Depends whether acute or chronic.

But usually:

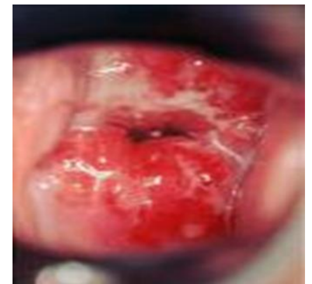
-**Chlamydia**: doxy twice daily for 7 – 10 days

-**Gonorrhea**: cephalosporin

Table 15.2 Treatment Regimens for Gonococcal and Chlamydial Infections

***Neisseria gonorrhoeae* endocervicitis**
Ceftriaxone 125 mg intramuscularly (single dose), or
Ofloxacin 400 mg orally (single dose), or
Cefixime 400 mg orally (single dose), or
Ciprofloxacin 500 mg orally (single dose)
***Chlamydia trachomatis* endocervicitis**
Doxycycline 100 mg orally b.i.d. for 7 days, or
Azithromycin 1 gram orally (single dose), or
Ofloxacin 300 mg orally b.i.d. for 7 days, or
Erythromycin base 500 mg orally 4 times a day for 7 days, or
Erythromycin ethylsuccinate 800 mg orally 4 times a day for 7 days

Morbidity and Mortality Weekly Report. Centers for Disease Control and Prevention. *MMWR* 1993;42: 51–57.



What is bad about STDs is that they cause **tubal factor infertility** ☹

Pelvic Inflammatory Disease (PID)

- Ascending infection, ? Up to the peritoneal cavity
- Organisms**: Chlamydia, N Gonorrhea**
- Less often: H Influenza, group A Strept, Pneumococci, E-coli (also TB which is more in south are)
- acute PID 1-2% of young sexually active women each year
- 85% because of STD- 15% occur after procedures that break cervical mucous barrier (like infertility procedures)

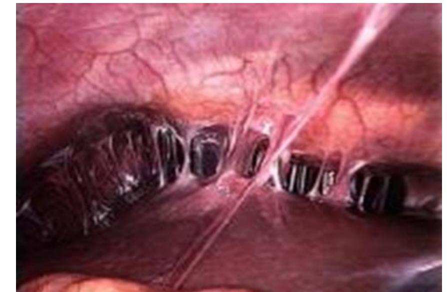
Diagnosis: difficult because of wide variation of signs and symptoms

- Clinical triad: pelvic pain (90%) ,cervical motion & adnexal tenderness
- fever
- Cervical motion tenderness indicate peritoneal inflammation
- Patients may or may not have mucopurulent discharge
- leukocytosis

Cervical motion tenderness: during digital exam when we move the cervix they jump bec of pain

Differential diagnosis:

- acute appendicitis
- Endometriosis
- torsion/rupture adnexal mass
- ectopic pregnancy
- lower genital tract infection
- 75% associated endo-cervical infection & coexisting purulent vaginal discharge.
- **Fitz-Hugh-Curtis syndrome** :
  - 1-10%
  - perihepatic inflammation & adhesion
  - s/s ; RUQ pain, pleuritic pain, tenderness at RUQ on palpation of the liver
  - mistaken dx ; acute cholecystitis, pneumonia



Fitz-Hugh-Curtis syndrome

Table 15.3. Clinical Criteria for the Diagnosis of Pelvic Inflammatory Disease

Symptoms
None necessary
Signs
Pelvic organ tenderness
Leukorrhea and/or mucopurulent endocervicitis
Additional criteria to increase the specificity of the diagnosis
Endometrial biopsy showing endometritis
Elevated C-reactive protein or erythrocyte sedimentation rate
Temperature higher than 38°C
Leukocytosis
Positive test for gonorrhea or chlamydia
Elaborate criteria
Ultrasound documenting tuboovarian abscess
Laparoscopy visually confirming salpingitis

1 major 2 minor
Abdominal pain + 2

-Also if we find bilateral abscess then it is PID

Risk factors:

- Sexual behavior
- others
  - IUD user (multifilament string “not used anymore”)
  - surgical procedure
  - previous acute PID
  - Reinfection → untreated male partners 80%
- Decrease risk

- barrier method
- OC

Sequelae:

- Infertility~20%
- Ectopic pregnancy ~6fold increase
- Chronic pelvic pain
- TOA~ 10% (tubo-ovarian abscess)
- Mortality -acute 1%
  -after rupture TOA ~10%

Medications:

- Empirical ABx cover wide range of bacteria
- Treatment start as soon as culture & diagnosis is confirmed/suspected
  - failure rate, OPD oral ATB → 10-20%
  - failure rate, IPD iv ATB → 5-10%
- reevaluate 48-72 hrs of initial OPD therapy

Table 15.4 CDC Guidelines for Treatment of PID

Outpatient treatment

Regimen A:

Cefoxitin 2 g intramuscularly, plus *probenecid,* 1 g orally concurrently, or *ceftriaxone,* 250 mg intramuscularly, or equivalent cephalosporin
<*PLUS*>
Doxycycline 100 mg orally 2 times daily for 14 days

Regimen B:

Ofloxacin 400 mg orally 2 times daily for 14 days
<*PLUS*>
Clindamycin 450 mg orally 4 times daily, or *metronidazole* 500 mg orally 2 times dail[illegible] for 14 days

Inpatient treatment

Regimen A:

Cefoxitin 2 g intravenously every 6 hours, or
Cefotetan 2 g intravenously every 12 hours,
<*PLUS*>
Doxycycline 100 mg intravenously or orally every 12 hours

Regimen B:

Clindamycin 900 mg intravenously every 8 hours
<*PLUS*>
Gentamicin loading dose intravenously or intramuscularly (2 mg/kg of body weight) fol[illegible] lowed by a maintenance dose (1.5 mg/kg) every 8 hours

Morbidity and Mortality Weekly Report. Centers for Disease Control and Prevention. *MMWR* 1993;4[illegible] 78–80.

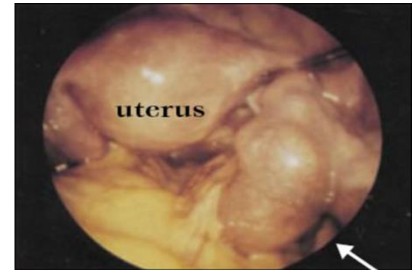
Criteria for hospitalization:

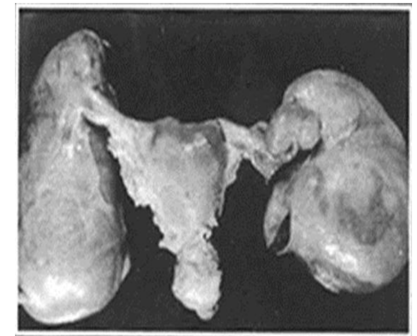
TABLE 28.3.
Criteria for Hospitalization of Patients With Acute Pelvic Inflammatory Disease

The following criteria for hospitalization are based on observational data and theoretical concerns:

- Surgical emergencies such as appendicitis cannot be excluded.
- The patient is pregnant.
- The patient does not respond clinically to oral antimicrobial therapy.
- The patient is unable to follow or tolerate an outpatient oral regimen.
- The patient has severe illness, nausea and vomiting, or high fever.
- The patient has a tuboovarian abscess

Tubo-ovarian Abscess

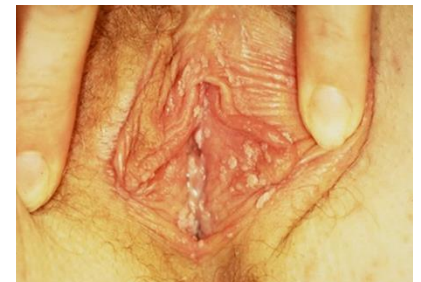




- End-stage PID
- Causes agglutination of pelvic organs (tubes, ovaries and bowel)
- 75% of patients respond to IV antibiotics
- Drainage may be necessary

Genital Warts (highly infectious)

- Condyloma accuminata secondary to HPV infection (usually 6&11), these are non-oncogenic types
- Usually at areas affected by coitus (posterior fourchette)
- 75% of partners are infected when exposed
- Recurrences after treatment are secondary to reactivation of



subclinical infection

Table 15.5 Treatment Options for External Genital and Perianal Warts

Modality (%)	*Efficacy (%)*	*Recurrence risk*
Cryotherapy	63–88	21–39
Podophyllin 10–25%	32–79	27–65
Podofilox 0.5%*	45–88	33–60
Triochloroacetic acid 80–90%	81	36
Electrodesiccation or cautery	94	22
Laser†	43–93	29–95
Interferon	44–61	0–67

*May be self-applied by patients at home.
†Expensive, reserve for patients who have not responded to other regimens.