Slide 1

Normal vaginal discharge

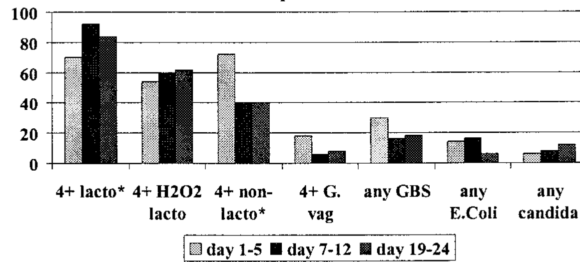
- pH of 4.4-4.6
- lactobacilli predominate
- <3cc total volume
- 0-10 wbc/HPF

Slide 2

Menstrual cycle and normal vaginal ecology

Eschenbach et al. Clin inf dis 2000;30:901-7

percent of 54 women with growth of organisms
***p<.05**



Slide 3

Lactobacilli

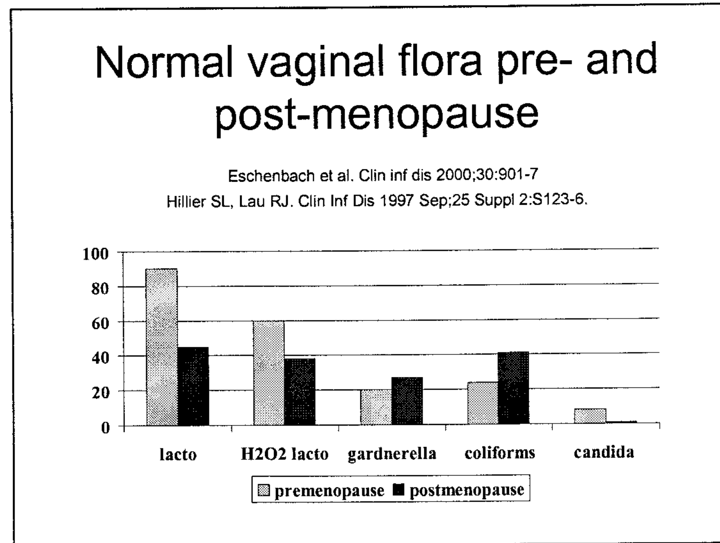
- most common species L. crispatus (32%) and L. jensenii (23%)
- produce hydrogen peroxide
- produce lactic acid
- inhibit potentially pathogenic commensal bacteria
- inhibit STD infection

Slide 4

Abnormal ecology

- may reflect hormonal change
- may reflect contraceptive use
- may reflect infection with a pathogen
  - yeast
  - trichomonas
  - cervical infection
- may reflect bacterial overgrowth
  - anaerobic (BV)
  - aerobic (strep, coliforms)
  - ? lactobacilli

Slide 5



Slide 6

Effect of Nonoxyl 9 on Vaginal Flora

- No change in proportion of women with lactobacilli
- Concentration of lactobacilli decreases
- Increases proportion or women with and concentration of E. Coli
- Transient decrease in proportion and concentration of gardnerella

Slide 7

Vaginitis symptoms

1800 women surveyed by telephone

Foxman B Journal of Womens Health 1998 Nov;7(9):1167-74

- 7.5% white women and 18.1% African American reported symptoms in the last year
- 55% of WA and 83% AA sought medical advise
- almost all of both groups purchased an over the counter antifungal product

Slide 8

Incidence of Vaginitis

- BV is the most common vaginitis
  - prevalence 10% private hospital setting
  - up to 60% in STD clinic
- Yeast is second most common
  - 75% of women report at least one episode
  - up to 8% report recurrent problems
- AA women are 2-3 times more likely to develop either infection than white women

Slide 9

Vaginitis and HIV

- Women with cervical or vaginal infection of any etiology have increased risk of HIV
- vaginal infection is associated with reduced levels of leukocyte secretory protease inhibitor
- this may be the cause of the increased HIV transmission efficiency

Slide 10

Workup for abnormal discharge

- exam of the vulva and vagina
- vaginal pH
- wet mount or gram stain of vaginal pool
- "whiff" test
- test cervix for chlamydia and gonorrhea
- culture vagina only for defined pathogens, and only for recurrent or chronic cases

Slide 11

Overgrowth Syndromes

Slide 12

BV

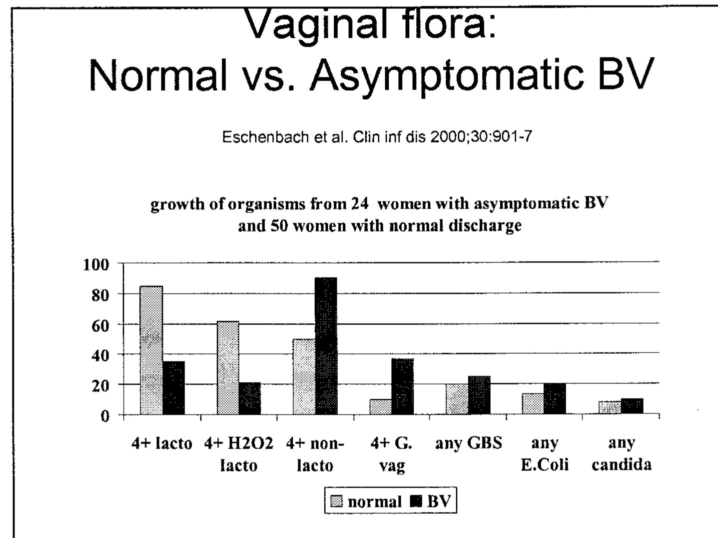
- causes anaerobic overgrowth of up to 1000 fold more bacteria
- inhibits lactobacillus growth and hydrogen peroxide production
- produces enzymes that dissolve cervical mucous

Slide 13

BV

- thin white discharge without inflammation
- amine odor
- alkaline pH
- clue cells
- gram stain

Slide 14



Slide 15

BV Treatment

- metronidazole or clindamycin, PO or intravaginal
- only PO route affects upper tract
- antibiotics only reduce the bacterial count, they do not address the cause of the disease
- recurrent in 30-60%, although recurrence is less likely to be symptomatic

Slide 16

Gynecologic Risks with BV

Complication	Relative risk
PID	3.4
Postabortal PID	4.3
Post-hysterectomy infection	3.2

Slide 17

Perinatal Risks with BV

Complication	Relative risk
Preterm delivery	1.4-3.8
PROM	2.4
Intrapartum Chorioamnionitis	1.5-3.2
Postpartum endometritis	2.2-5.8

Slide 18

Atrophic vaginitis

- postpartum or menopause
- decreased lactobacilli
- vaginal pH is increased
- coliforms overgrow
- thin, dry and itchy mucosa

Slide 19

Treatment of atrophic vaginitis

- local estrogen
  - 1 gm cream equivalent to .625mg premarin
  - estring
  - vagifem 25 micrograms
- antibiotic treatment for purulent discharge
  - topical clindamycin
  - oral metronidazole or Augmentin

Slide 20

Syndromes due to Pathogens

Slide 21

Trichomonas

- Unicellular triflagellate organism
- sexually transmitted
- colonizes newborns
- may cause vaginal or penile discharge, irritation, post-coital bleeding
- diagnose by wet mount or culture in Diamond's medium

Slide 22

Trichomonas Treatment

- Metronidazole 2gm PO x1
- Metronidazole 250mg PO tid x 7 days
- vaginal Metro-gel is not effective

Slide 23

Metronidazole resistance

- reported in 1-2% of strains
- Omidazole or tinidazole - only available through CDC
- paromomycin 250mg bid for 14 days
- nonoxyl-9 has been reported, but only 17% effective in one study

Slide 24

Yeast Vaginitis

- Candida
  - albicans 85-90% of infections
  - (Torulopsis) glabrata 5-10%
  - parapsilosis 1-2%
  - tropicalis 1-2%
  - krusei <1%
- Sacharomyces cerevisiae <1%

Slide 25

Chronic and Recurrent Yeast

- resistant strain
  - C. glabrata, C. krusei, non-Candida
  - tends to recur premenstrually
- impaired immune recognition of yeast
- allergic component

Slide 26

Imidazole resistance

- boric acid 600mg capsules for 14 days
- nystatin vaginal suppositories (only for Candida sp.)
- high dose oral anti-fungals
- bioadhesive technology to deliver higher doses of imidazole to the vaginal epithelium

Slide 27

HSV

- prevalence of genital herpes is 20-24%
- HSV 1 antibody does not protect against HSV2, but HSV2 antibody does protect against HSV1

Slide 28

HSV Diagnosis

- Culture
- DNA probe testing
- Tzank stain
- Serology

Slide 29

HSV: Treatment and Suppression

drug	treatment	suppression
acyclovir	400mg tid 800mg bid	400mg bid
famcyclovir	250mg tid	250mg bid
valacyclovir	1gm bid	500mg qd 1gm qd

Slide 30

HSV Vaccine

- vaccine trials with viral component vaccine failed to protect
- inactivated or genetically altered viral vaccines look more promising both for primary protection and for secondary protection against recurrent outbreaks
- may not prevent silent viral shedding

Slide 31

HSV in Pregnancy

- Risk of primary HSV during pregnancy about 1/3000 births
- Primary HSV carries highest transmission and highest morbidity
- Of reported primary cases during pregnancy, only about 25% are truly primary
- Screen discordant couples with type specific HSV2 antibody test

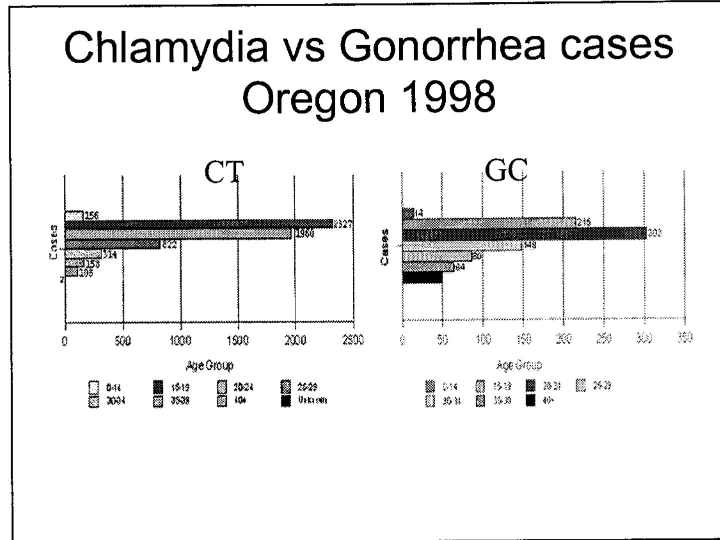
Slide 32

Chlamydia and Gonorrhea

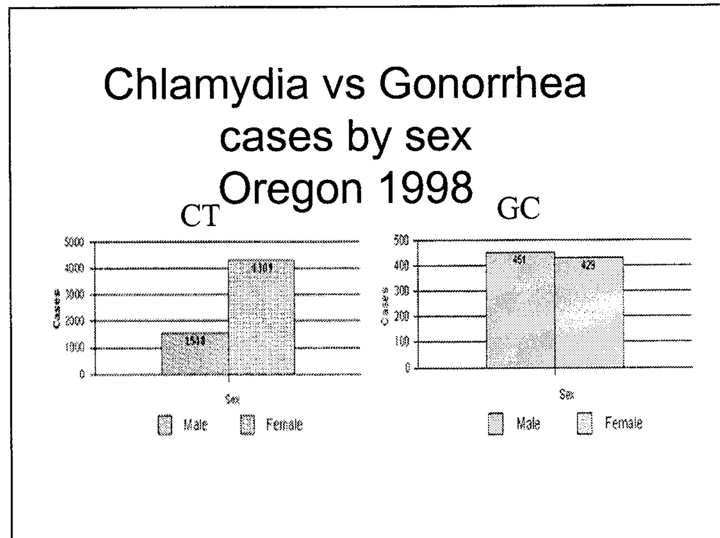
- Obligate intracellular parasite
- infects non-cornified epithelium
- asymptomatic, cervicitis, urethritis, NGU, PID, Reiter's syndrome

- Intracellular gram negative diplococci
- infects non-cornified epithelium
- on gram stain, seen in wbc's
- asymptomatic, cervicitis, urethritis, PID, arthritis

Slide 33



Slide 34



Slide 35

Chlamydia Trachomatis Diagnosis

- culture- the gold standard
- LCR- probably as good as culture- can be done on urine
- IF and DNA-probe tests are only 60-80% sensitive, depending on population prevalence

Slide 36

Who to screen for CT

- CDC guidelines -
  - clinical symptoms
  - new prenatal
  - before inserting IUD
  - multiple partners in last 60 days
  - sexual assault victim
- yearly screening for:
  - men and women <25 yo not using barrier contraception

lide 37

Treatment for cervicitis

- chlamydia
  - azithromycin 1gm PO, one dose
  - doxycycline 100mg PO bid for 7 days
- gonorrhea
  - ceftriaxone 250mg IM, one dose
  - suprax 400mg PO, one dose, etc.
- always treat patients with GC for presumptive chlamydia

Slide 38

Definition of PID - a clinical diagnosis of exclusion

- complaint of pelvic pain
- cervical motion tenderness
- bilateral adnexal tenderness
- positive predictive value compared to laparoscopy is 50-60%

Slide 39

Factors that increase diagnostic accuracy

- mucopurulent cervical discharge
- elevated temperature (>101F)
- elevated sed rate or C-reactive protein
- palpable adnexal mass
- when all factors pertain, positive predictive value is 95% but only 17% of women with PID have all these factors

Slide 40

PID treatment

- IM ceftriaxone 500mg plus doxycycline 100 mg PO bid for 14 days, +/- metronidazole 500 mg PO bid
- PO ofloxacin 400mg plus metronidazole 500mg, both bid for 14 days
- Recheck bimanual exam in 48-72 hours
- Hospitalize for pelvic mass, pregnancy, sepsis, uncertain diagnosis, failed PO therapy