STD kit 결과에 따른 해석 및 처치

가톨릭대학교 의정부성모병원

송 재 연

STD kit

STD(성병)검사항목

STD 4종검사: 클라미디아,임질,유레아플라즈마,마이코플라즈마 제니탈리움
또는,클라미디아,임질,가드네렐라,트리코모나스

STD 6종검사: 클라미디아,임질,유레아플라즈마,마이코플라즈마 제니탈리움, 마이코플라즈마 호미니스,트리코모나스

STD 7종검사: 클라미디아,임질,유레아플라즈마,마이코플라즈마 제니탈리움,마이코플라즈마 호미니스, 트리코모나스,헤르페스

STD 8종검사 A: 클라미디아,임질,유레아플라즈마,마이코플라즈마 제니탈리움,마이코플라즈마 호미니스, 트리코모나스,
헤르페스, 칸디다

STD 8종검사 B : 클라미디아,임질,유레아플라즈마,마이코플라즈마 제니탈리움,마이코플라즈마 호미니스, 트리코모나스,
헤르페스,인유두종바이러스(HPV)

STD 9종검사: 클라미다아,임질,유레아플라즈마,마이코플라즈마G,마이코플라즈마H, 트리코모나스,헤르페스,가드네렐라,칸디다

STD 10종 A : STD 8종 ㅠ : 헤르페스 type 1,2

STD 10종 B : STD 8종 ㅠ : 헤르페스 type 1,2 + AIDS + VDRL(매독검사)

STD 10종 Full package검사: 클라미디아,임질,유레아플라즈마,마이코플라즈마G,마이코플라즈마H, 트리코모나스,헤르페스,
가드네렐라,칸디다, 인유두종바이러스(HPV)

당일확인이 가능한 검사(10분 소요)
-.소변검사(현미경검사) 및 그람염색검사: 임질,비임균성요도염에 의한 소변내 염증확인,
-.혈액항체검사(신속진단키트검사) : 매독,에이즈,2형헤르페스

유전자증폭검사(PCR검사, 5~7일 소요)
-. 요도염 원인균(임질,클라미디아,유레아플라즈마, 마이코플라즈마, 트리코모나스)정밀확인검사
-. 성기괘양을 일으키는 성병: 매독,헤르페스1,2형,연성하감 --> 실제 궤양이나 분비물 등이 있을때만 가능함
-. 곤지름 여부 및 HPV타입확인검사

혈액검사(2~4일소요)
매독,에이즈,헤르페스에 대한 검사실 의로 혈액항체검사

STD kit

- *Chlamydia trachomatis*
- *Neisseria gonorrhea*
- *Trichomonalis vaginalis*
- *Mycoplasma hominis / genitalicum*
- *Ureaplasma urealyticum / parvum*
- *Gardnella vaginalis*
- *Candida*

- *+ Herpes*
- *+ HPV*

STD kit - partner 치료 필요

- *Chlamydia trachomatis*
- *Neisseria gonorrhea*
- *Trichomonalis vaginalis*
- *Mycoplasma hominis / genitalicum*
- *Ureaplasma urealyticum / parvum*
- *Gardnella vaginalis*
- *Candida*

- *+ Herpes*
- *+ HPV*

STD

Vaginitis

- *Gardnella vaginalis*
- *Candida*
- *Trichomonalis vaginalis*

Cevicitis

- *Chlamydia trachomatis*
- *Neisseria gonorrhea*

PID, Urethritis

- *Mycoplasma hominis / genitalicum*
- *Ureaplasma urealyticum / parvum*

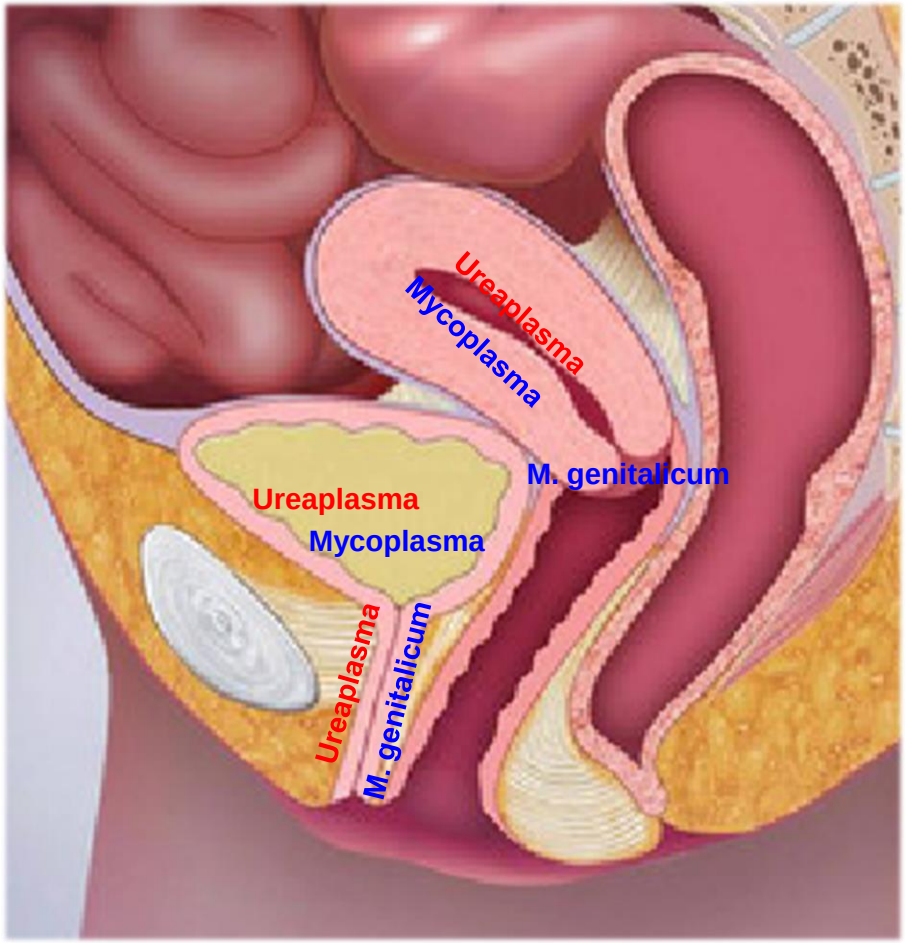
Vulva

- *+ Herpes*
- *+ HPV*

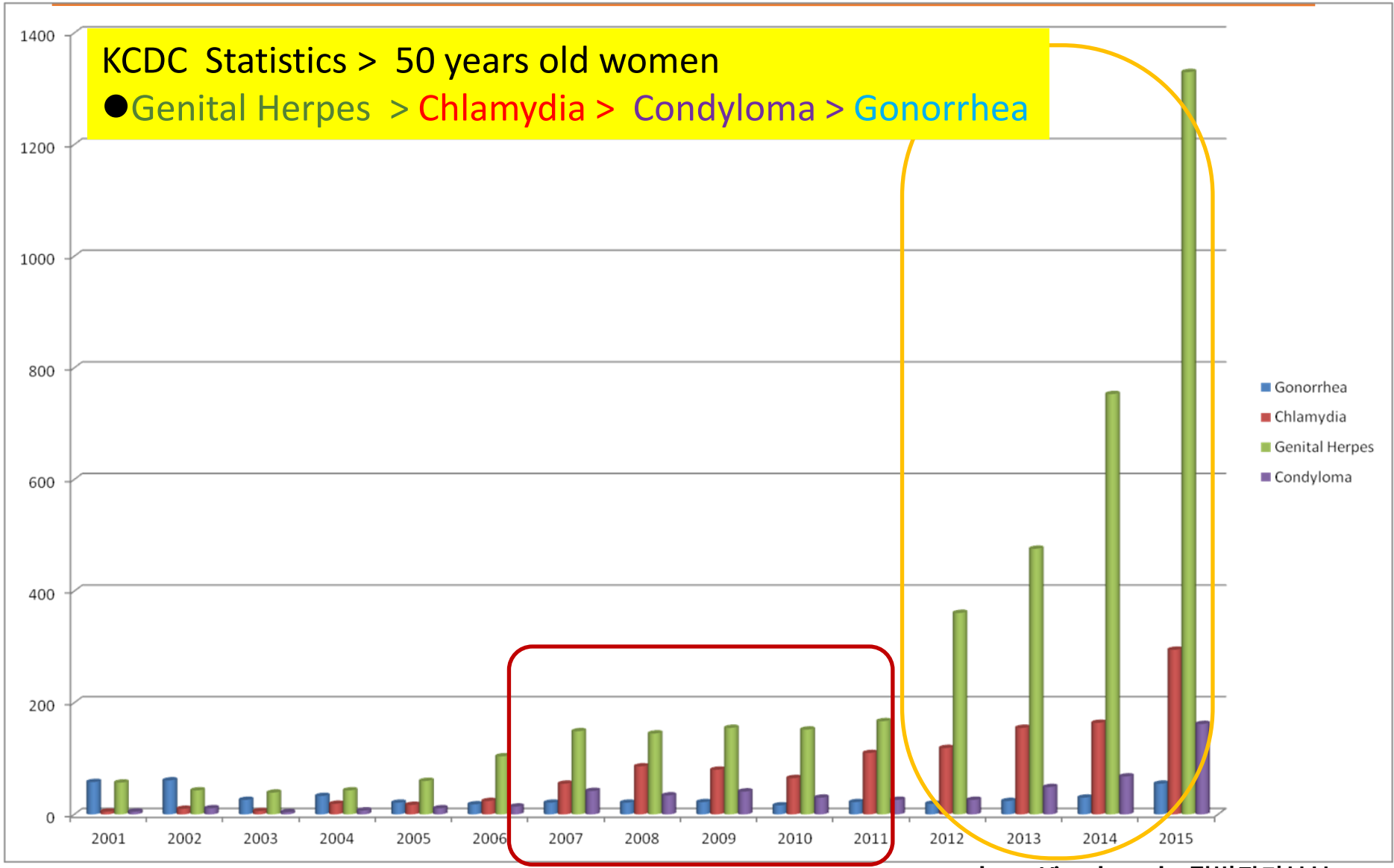
Acute epididymoorchitis : Ureaplasma, Mycoplasma

PID : Mycoplasma

Neonates : Ureaplasma, Mycoplasma



KCDC : Statistics －postMP women



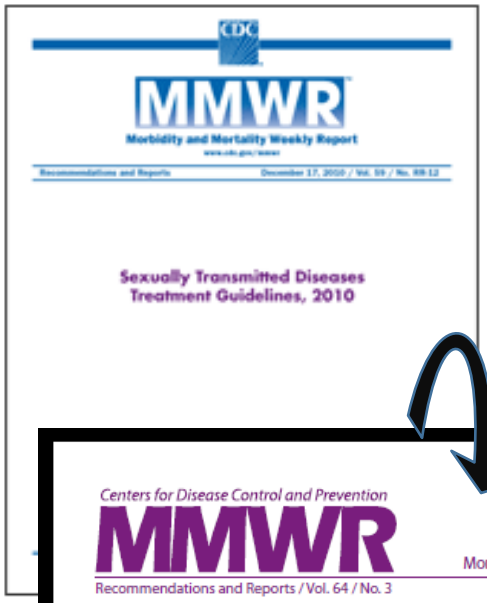
http://is.cdc.go.kr 질병관리본부

Contents

- Sexually transmitted diseases (STDs)

"A variety of clinical syndromes and infections caused by pathogens that can be acquired and transmitted through sexual activity"

Bacterial Vaginosis
Cervicitis
Chlamydial Infections
Epididymitis
Genital Herpes Simplex
Genital Warts (Human Papillomavirus)
Gonococcal Infections
Lymphogranuloma venereum
Non-Gonococcal Urethritis (NGU)
Pediculosis Pubis
Pelvic Inflammatory Disease
Scabies
Syphilis
Trichomoniasis



What's new?

1) Alternative Tx. regimens for N. gonorrhoeae

2) Use of nucleic acid amplification tests for the Dx. of trichomoniasis

3) Alternative Tx. options for genital warts

4) Role of Mycoplasma genitalium in urethritis/cervicitis and treatment-related implications

5) updated HPV vaccine recommendations and counseling messages

6) the management of persons who are transgender

7) annual testing for hepatitis C in HIV(+) person

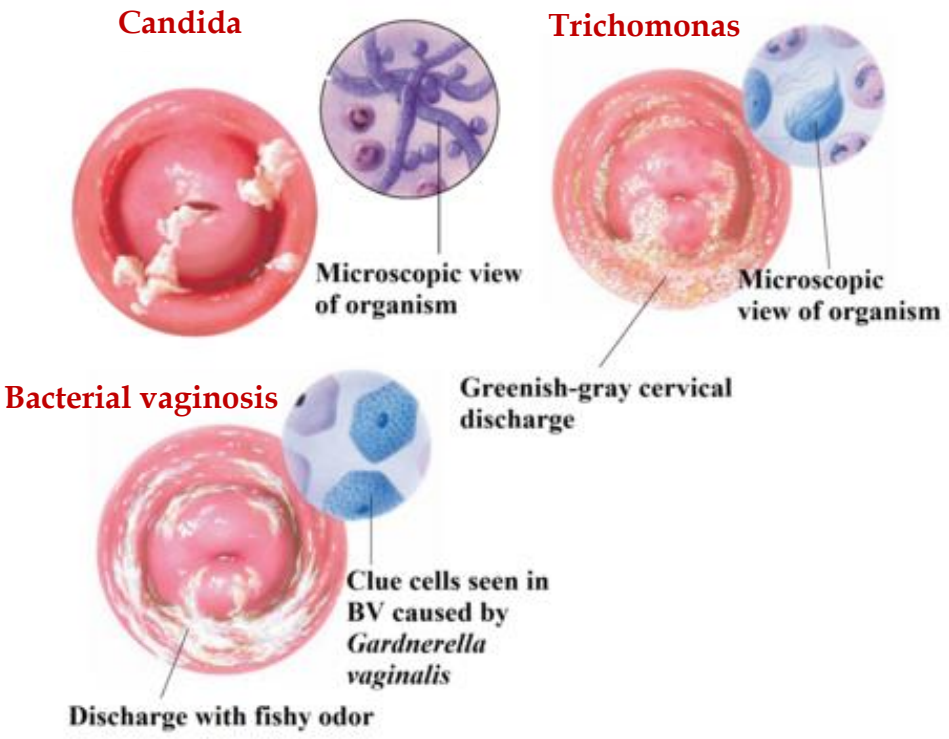
8) updated recommendations for Dx. evaluation of urethritis

9) retesting to detect repeat infection

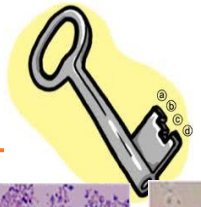
Vaginal discharge

- ✓ *Bacterial Vaginosis (Gardnella)*
- ✓ *Trichomoniasis*
- ✓ *Vulvovaginal Candidiasis*

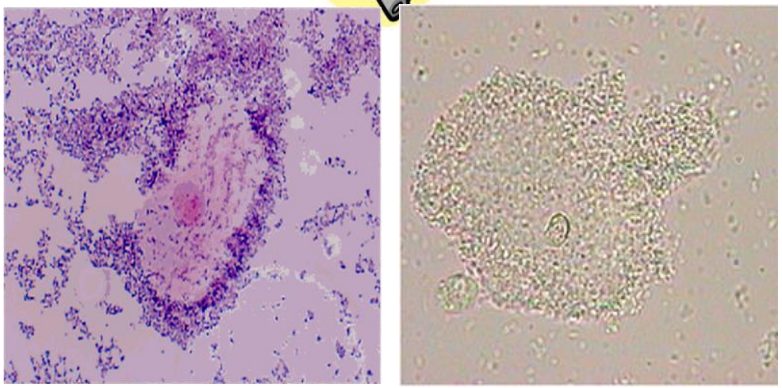
Bacterial Vaginosis



Bacterial Vaginosis (BV)



- Replacement of normal *Lactobacillus sp.* in the vagina ➡ high concentrations of *anaerobic bacteria (e.g., Prevotella sp. and Mobiluncus sp.), G. vaginalis, Ureaplasma, Mycoplasma, and numerous anaerobes*



- BV is the <u>most prevalent</u> cause of vaginal discharge or malodor
- *<u>Multiple</u> male or female partners, a <u>new</u> sex partner, <u>douching</u>, lack of condom use, and lack of vaginal lactobacilli*

- BV ➔ risk for the acquisition of some <u>STD</u>s (e.g., HIV, N. gonorrhoeae, C. trachomatis, and HSV-2),
  - ➔ complications after gynecologic surgery,
  - ➔ complications of pregnancy, and recurrence of BV

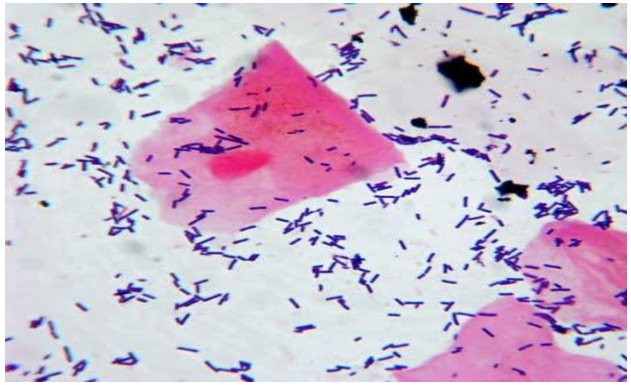
THE WHIFF TEST

+ KOH = Fish Odor

Bacterial Vaginosis (BV)

- Diagnosis – Gold standard ➔ ***Gram stain***
  : relative concentration of ***lactobacilli (long G (+) rods),***
  Gram (-) & Gram-variable rods and cocci (G. vaginalis, Prevotella, Porphyromonas, and peptostreptococci), and curved Gram(-) rods (Mobiluncus)

Lactobacillus ➔ *lactic acid, hydrogen peroxide, bacteriocins*



◆ Clinical criteria : 3 of followings

- homogeneous, thin, white <u>discharge</u> that smoothly coats the vaginal walls
- <u>clue cells</u> (vaginal epithelial cells studded & adherent coccobacilli) on microscopy
- <u>pH</u> of vaginal fluid <u>> 4.5</u>
- a fishy odor of vaginal discharge - <u>10% KOH (whiff test)</u>

Bacterial Vaginosis (BV)

- Treatment – women with symptom for symptom relief

  ➔ *plus, ↓ risk for acquiring C. trachomatis, N. gonorrhoeae, T. vaginalis, HIV, HSV type 2*

Recommended Rx		Dose/Route	Alternatives	
metronidazole oral[1]	OR	500 mg orally 2x/day for 7 days	tinidazole 2 g orally 1x/day for 2 days	OR
metronidazole gel 0.75%[1]	OR	One 5 g applicator intravaginally 1x/day for 5 days	tinidazole 1 g orally 1x/day for 5 days	OR
clindamycin cream 2%[1,2] may weaken latex condoms, diaphragms		One 5 g applicator intravaginally at bedtime for 7 days	clindamycin 300 mg orally 2x/day for 7 days	OR
			clindamycin ovules 100 mg intravaginally at bedtime for 3 days	

★ Treatment is recommended for all symptomatic pregnant women.

- cf) Metronidazole (ex - 후라시닐 , 메트로니다졸 등)
  - 복용 24hr 후까지 금주, Half life - 7.3hr

  Tinidazole (ex - 파시진, 파소질, 티니다졸, 티나진정, 틴다졸 등)
  - 복용 72hr 후까지 금주, 고가, Half life – 12.5hr

    더 높은 혈중/비뇨생식기계 농도, 더 적은 GI side effect

Bacterial Vaginosis (BV)

- Other Management Considerations

✓ All women with BV should be tested for HIV and other STDs

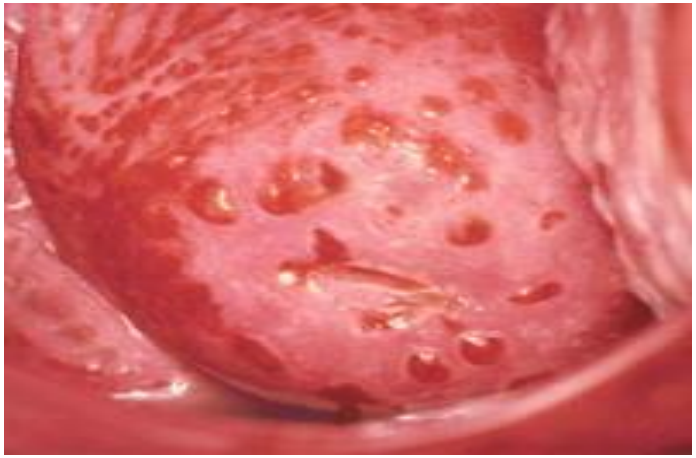
- Follow-Up : Follow-up visits are unnecessary if symptoms resolve

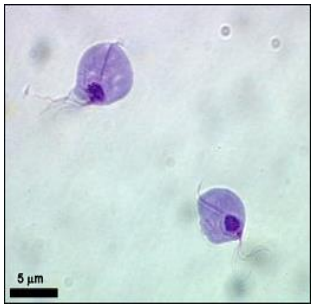
- Sex partner : routine treatment is not recommended

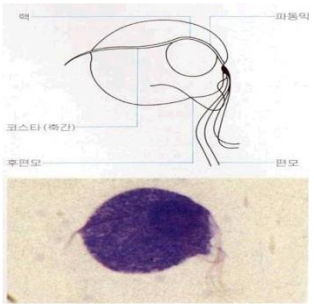
Symptom recur , resistance → persistent or recurrent BV

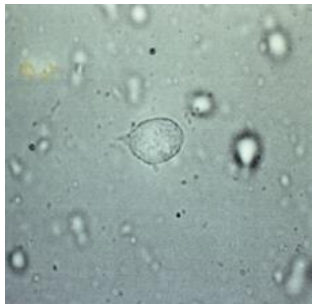
- 0.75% metronidazole gel for 4–6 months
- Oral nitroimidazole (metronidazole or tinidazole 500 mg 2X/day for 7 days)
  - → then, intravaginal boric acid 600 mg daily for 21 days
  - → then, suppressive 0.75% metronidazole gel 2x/ week for 4–6 months
- oral metronidazole 2 g + fluconazole 150 mg / month

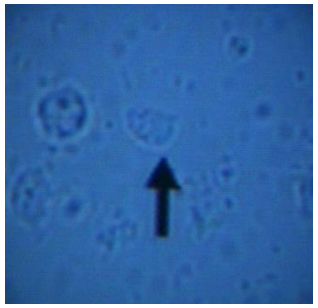
Trichomoniasis









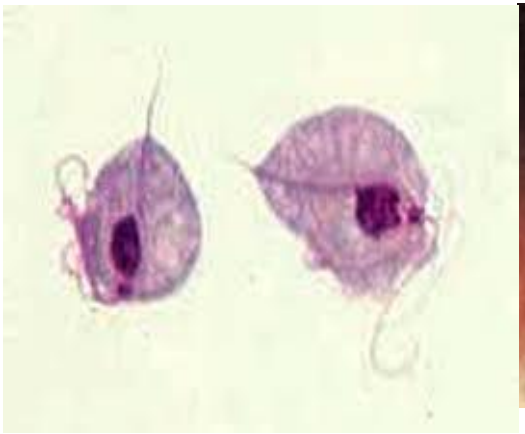


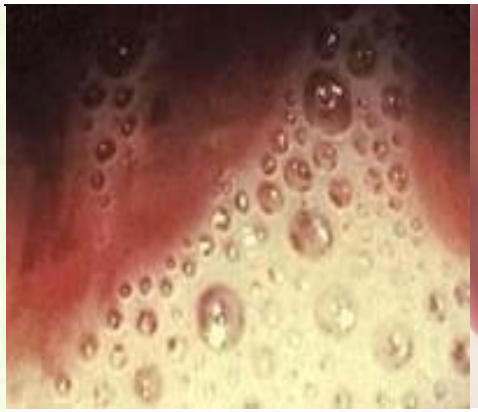
Trichomoniasis

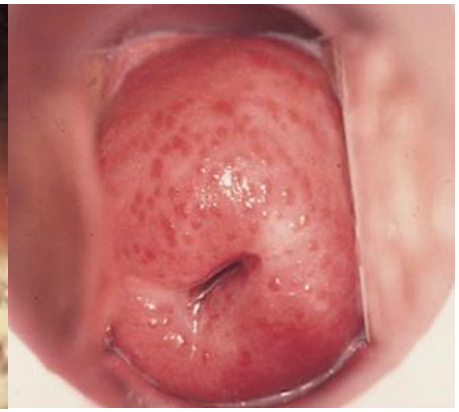
- The most prevalent nonviral STI in the USA

- Symptoms : vaginal discharge (diffuse, malodorous, or yellow-green) with or without vulvar irritation
- *However, most infected persons (70%–85%) have minimal or no symptoms, and untreated infections might last for months to years*

- It is *readily passed* between sex partners during penile-vaginal sex







Trichomoniasis

- ✓ ***Diagnostic testing - should be performed in women seeking care for vaginal discharge***

- ✓ Screening - persons receiving care in high-prevalence settings
  (STD clinics and correctional facilities)
  - asymptomatic persons at <u>high risk</u> for infection
  (multiple sex partners, exchanging sex for payment, illicit drug use, or a history of STD)

Trichomoniasis

- Diagnosis

✓ <u>wet-smear (poor sensitivity 51-65%)</u>

✓ Culture : 75-96% sensitivity, upto 100% specificity

✓ *NAAT is highly sensitive, 3~5 x*

- 82-100% sensitivity, 95-100% specificity
- Among women, *vaginal swab and urine have up to 100% concordance*

- Treatment

Recommended Regimen
Metronidazole 2 g orally in a single dose OR **Tinidazole** 2 g orally in a single dose

Alternative Regimen
Metronidazole 500 mg orally twice a day for 7 days

Trichomoniasis

- Sex partner

✓ *Concurrent treatment of all sex partners is critical* for symptomatic relief, microbiologic cure, and prevention of transmission and reinfections

- Follow up

✓ ***Retesting for T. vaginalis !***

✓ Testing by NAAT - can be conducted as soon as 2 weeks after treatment

✓ High rate of reinfection among women treated for trichomoniasis *(17% within 3 months)*

➔ Retesting for all sexually active women within 3 months following initial treatment regardless of partners treatment.

Trichomoniasis

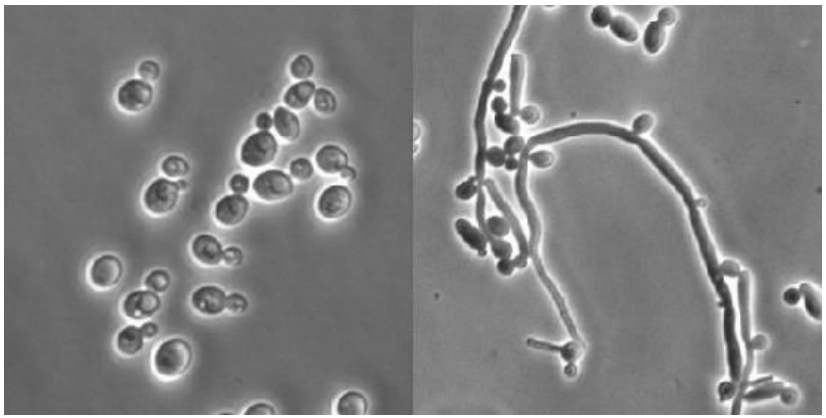
- ***Persistent or Recurrent Trichomoniasis***

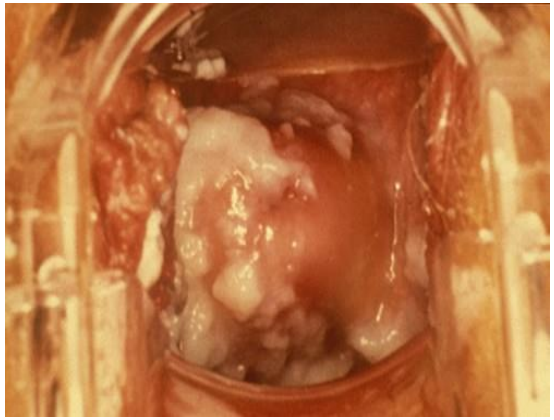
✓ **Antimicrobial resistant T. vaginalis** vs *(mostly by) reinfection*
(metronidazole resistance – 4 ~10%
tinidazole resistance – 1%)

- Single-dose (metronidazole 2 g once) therapy should be avoided (when reinfection is excluded) ➔ should change to *500 mg 2x/day for 7 days*
  if fail, ➔ *metronidazole or tinidazole at 2 g /day for 7 days*
  if fail again, ➔ testing of the organism for metronidazole and tinidazole susceptibility
  ➔ consultation with an expert

- Topically applied agents - minimal success (<50%), not recommended
  intravaginal betadine (povidone-iodine), clotrimazole, acetic acid, furazolidone, gentian violet, nonoxynol-9, and potassium permanganate

Vulvovaginal Candidiasis





Vulvovaginal Candidiasis (VVC)

- C. albicans
  other Candida sp. or yeasts

- Symptom) pruritus, vaginal soreness, dyspareunia, external dysuria, abnormal vaginal discharge

- Sign) vulvar edema, fissures, excoriations, and thick curdy vaginal discharge

- ***Complicated VVC***
  10%–20%.
  vaginal culture should be obtained.
  no usual susceptibility testing

Uncomplicated VVC

- Sporadic or infrequent VVC
  AND
- Mild-to-moderate VVC
  AND
- Likely to be *Candida albicans*
  AND
- Nonimmunocompromised women

Complicated VVC

- Recurrent VVC — **≥ 4 symptomatic VVC within 1 year**
  OR
- Severe VVC
  OR
- Nonalbicans candidiasis
  OR
- Women with diabetes, immunocompromising conditions (e.g., HIV infection), debilitation, or immunosuppressive therapy (e.g., corticosteroids)

Abbreviation: HIV = human immunodeficiency virus; VVC = vulvovaginal candidiasis.

Vulvovaginal Candidiasis (VVC)

- Diagnosis

1) *wet preparation (saline, 10% KOH) or Gram stain* of vaginal discharge → budding yeasts, hyphae, pseudohyphae
   : should perform to all women with sign or symptom of VVC
   : if (-) KOH but, symptom or sign → culture

2) *culture - positive for a yeast species*
   : gold standard diagnostic test for yeast

3) Association with a normal vaginal pH (< 4.5)

- Treatment →
  : OTC prep
  : if fail or recur in 2 months → clinical evaluation

- F/U typically is not required.

Recommended Regimens

Over-the-Counter Intravaginal Agents:

Clotrimazole 1% cream 5 g intravaginally daily for 7–14 days
OR
Clotrimazole 2% cream 5 g intravaginally daily for 3 days
OR
Miconazole 2% cream 5 g intravaginally daily for 7 days
OR
Miconazole 4% cream 5 g intravaginally daily for 3 days
OR
Miconazole 100 mg vaginal suppository, one suppository daily for 7 days
OR
Miconazole 200 mg vaginal suppository, one suppository for 3 days
OR
Miconazole 1,200 mg vaginal suppository, one suppository for 1 day
OR
Tioconazole 6.5% ointment 5 g intravaginally in a single application

Prescription Intravaginal Agents:

Butoconazole 2% cream (single dose bioadhesive product), 5 g intravaginally in a single application
OR
Terconazole 0.4% cream 5 g intravaginally daily for 7 days
OR
Terconazole 0.8% cream 5 g intravaginally daily for 3 days
OR
Terconazole 80 mg vaginal suppository, one suppository daily for 3 days

Oral Agent:

Fluconazole 150 mg orally in a single dose

Vulvovaginal Candidiasis (VVC)

- *Complicated VVC Treatment*

- *Recurrent VVC (RVVC)*
- topical Tx. (7–14 days) or
  oral fluconazole Tx. (100-mg, 150-mg, or 200-mg) 3 doses [day 1, 4, 7]

- 1st line suppressive Tx.
  Oral fluconazole (100-mg, 150-mg, or 200-mg dose) weekly for 6 months
  if fail, ➔ topical treatments intermittently
  if fail, ➔ consultation with a specialist

- Suppressive Tx. is effective, however *30-50% of women will have recurrent disease after maintenance therapy is discontinued*

Vulvovaginal Candidiasis (VVC)

- Complicated VVC
  - Severe VVC

- extensive vulvar erythema, edema, excoriation, and fissure formation
- Low response to short courses of topical/oral therapy
- *Topical azole for 7–14 days or fluconazole 150 mg x 2 times [day 1, 4]*

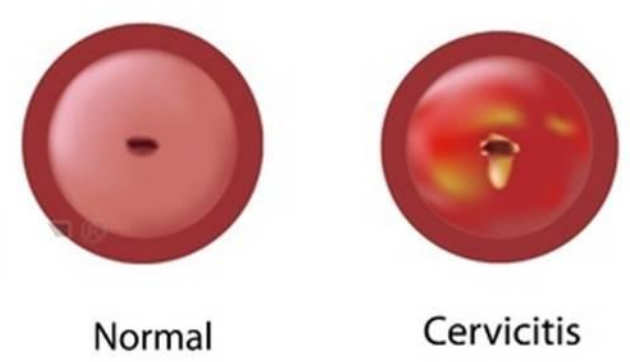
  - Non-albicans VVC

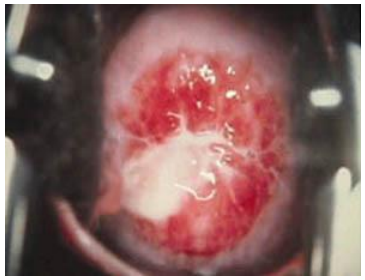
- C. glabrata (no pseudohyphae or hyphae) → not detected on microscopy
- Optimal treatment → unknown
- Options
  - ✓ *longer duration of therapy (7–14 days) with a nonfluconazole azole regimen (oral or topical)*
  - ✓ If fail → 600 mg of vaginal boric acid capsule 1x /day for 2 weeks
    eradication rates (~ 70%)
    if fail, → consultation with a specialist

Vaginitis

	정상	세균성 질염	Trichomonas 질염	Yeast 질염
원인		Lactobacilli 소실 **Anaerobes** Gardnella vaginitis Mycoplasma hominis 등	**Trichomonas vaginalis**	**Candida albicans**
증 상 , 소견		얇은 우유빛깔, 끈적끈적한 분비물 **생선 냄새** 가려움은 덜함	회백색/녹색/노란색 얇은 거품, 냄새, 자극 **딸기모양 자궁경부** 가려움	두꺼운 백색 홍반 **치즈, 비지 모양** **매우 가려움**
진단	pH < 4.5 few WBC Whiff test (KOH) (-)	**pH > 4.5** **Clue cell** Whiff test (KOH) (+)	**pH > 4.5** **꼬리 있는 움직이는 배모양**	pH < 4.5 Mycelia, Hyphae, Spore Whiff test (KOH) (-)
치료		**Metronidazole** Clindamycin 배우자 치료 안 함	**Metronidazole** **배우자 치료**	**-azole** (clotrimazole, fluconazole..) 배우자 치료 안 함

Cervicitis



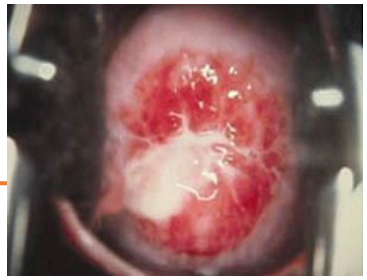


✓ ***Chlamydia trachomatis***

✓***Neisseria gonorrhea***

- 2 major diagnostic signs
  1) a purulent or *mucopurulent endocervical exudate* visible in the endocervical canal or on an endocervical swab specimen (mucopurulent cervicitis)
  2) sustained *endocervical bleeding* easily induced by gentle passage of a cotton swab through the cervical os.

Cervicitis



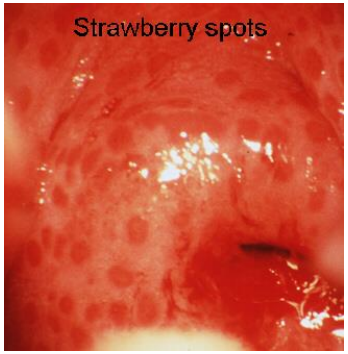
- C. trachomatis or N. gonorrhoeae + trichomoniasis, HSV-2
- Limited data - M. genitalium, BV, frequent douching might cause cervicitis

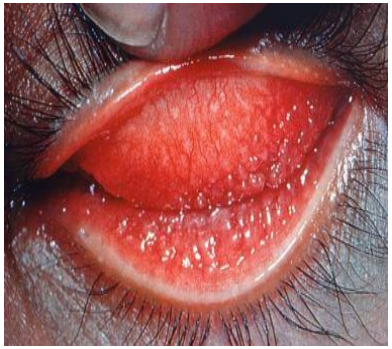
- *Presumptive treatment for C. trachomatis and N. gonorrhoeae*
  should be provided
  for women at increased risk
  (e.g., those aged <25 years, a new sex partner, a sex partner with concurrent partners, or a sex partner who has a STI)
  if follow-up cannot be ensured or if NAAT is not possible

- Patients should FU - for check up of resolution of cervicitis

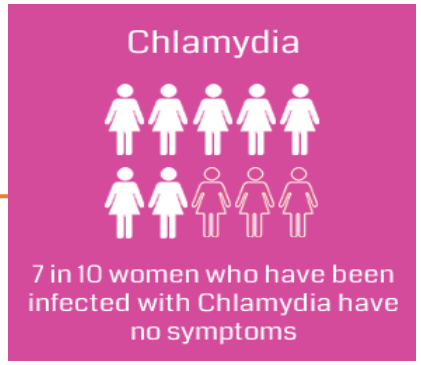
Recommended Regimens for Presumptive Treatment*
Azithromycin 1 g orally in a single dose OR **Doxycycline** 100 mg orally twice a day for 7 days
*Consider concurrent treatment for gonococcal infection if patient is at risk for gonorrhea or lives in a community where the prevalence of gonorrhea is high.

Chlamydial Infection





Chlamydial Infection



- *Asymptomatic infection*
  - ➔ Annual screening of all sexually active *women* <25 years - recommended, of older women at increased risk for infection
  - ➔ To reduce the rates of PID in women
- *Sequelae in women - PID, ectopic pregnancy, and infertility*

- Diagnosis

✓ *first-catch urine* or collecting swab specimens from the endocervix or vagina

✓ Optimal urogenital specimen types for *chlamydia screening using NAAT* include *first catch urine (men) and vaginal swabs (women)*

✓ Liquid-based cytology specimens (Pap) - acceptable specimens for NAAT testing, although lower sensitivity

Chlamydial Infection

- Treatment
  - ✓ equally efficacious
  - ✓ cure rates of 97% / 98%

Recommended Regimens
Azithromycin 1 g orally in a single dose OR **Doxycycline** 100 mg orally twice a day for 7 days

Alternative Regimens
Erythromycin base 500 mg orally four times a day for 7 days OR **Erythromycin ethylsuccinate** 800 mg orally four times a day for 7 days OR **Levofloxacin** 500 mg orally once daily for 7 days OR **Ofloxacin** 300 mg orally twice a day for 7 days

- Test-of-cure to detect therapeutic failure - not advised
  Do test only when, adherence ? symptoms persist, or reinfection ?
- Chlamydial NAATs at <3 weeks after completion of therapy → *not recommended (nonviable organism : false-positive results)*

- *Most post-treatment infections* ← *Reinfection*
- *Men, women who have been treated for chlamydia should be retested 3 months* after treatment, regardless of their sex partner's treatment

Chlamydial Infection

- **Pregnancy women**

✓ For prevention of maternal postnatal complications &
transmission of C. trachomatis to neonates during birth

✓ *CONTRAINDICATION*

No – doxycycline

No – Erythromycin estolate

(hepatotoxicity)

No – levofloxacin

Recommended Regimens
Azithromycin 1 g orally in a single dose

Alternative Regimens
Amoxicillin 500 mg orally three times a day for 7 days
OR
Erythromycin base 500 mg orally four times a day for 7 days
OR
Erythromycin base 250 mg orally four times a day for 14 days
OR
Erythromycin ethylsuccinate 800 mg orally four times a day for 7 days
OR
Erythromycin ethylsuccinate 400 mg orally four times a day for 14 days

✓ Test-of-cure to detect therapeutic failure (NAAT)

➔ *Recommended, 3~4 weeks after* completion of treatment

✓ *All pregnant women who have diagnosed and treated for chlamydia*

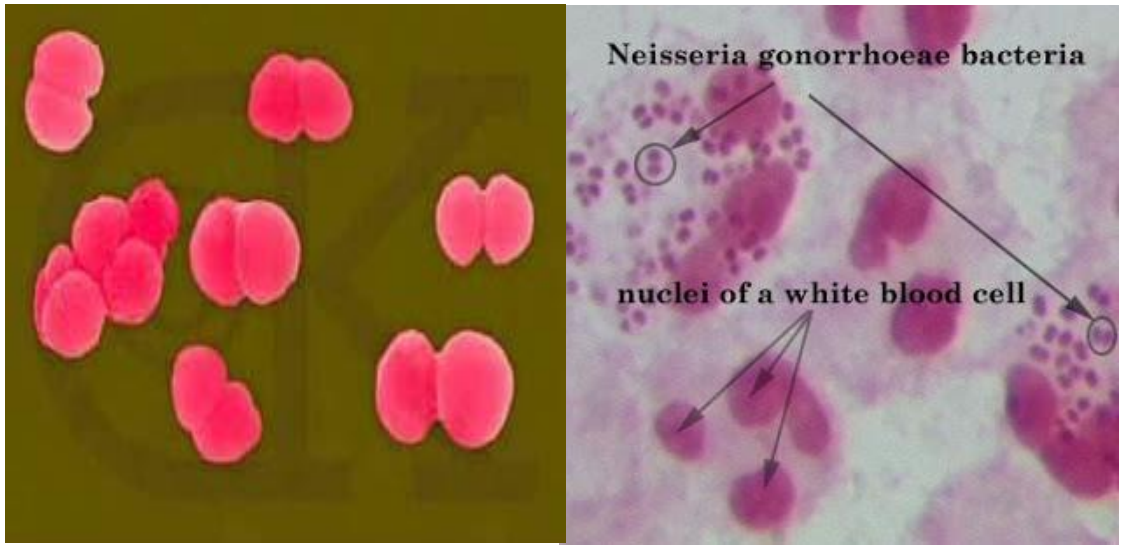
should be retested 3 months after treatment

✓ Women aged <25 years and those at increased risk for chlamydia

(sex partner- new, with STI, multiple, a sex partner with concurrent partners)

➔ *should be rescreened during the 3rd trimester*

Gonococcal Infection



Gonococcal Infection

- The second most commonly reported communicable disease

- Men- symptomatic urethritis
  Women - commonly asymptomatic until complication (PID, tubal scarring → infertility, ectopic pregnancy)

- Optimal urogenital specimen types for *gonococcal screening*
  using culture or NAAT include *urethral (men) and endocervical swabs (women)*

Gonococcal Infection

- Treatment
- *Dual therapy !!* – should be administered *together on the same* day, preferably simultaneously under direct observation
  (even if NAAT for C. trachomatis was negative at the time of treatment)

Recommended Regimen
Ceftriaxone 250 mg IM in a single dose
PLUS
Azithromycin 1g orally in a single dose

- *New !!*
  Cefixime should only be considered as an alternative treatment.

Alternative Regimens
If ceftriaxone is not available:
Cefixime 400 mg orally in a single dose
PLUS
Azithromycin 1 g orally in a single dose

- Cure rate - 99.2% (urogenital, anorectal), 98.9% (pharyngeal)
- Not superior to ceftriaxone, uncertain in pharyngeal infection

Gonococcal Infection

- A test-of-cure (culture or NAAT)
  - not needed FOR urogenital, anorectal gonorrhea
  - should return 14 days after Tx. – *FOR pharyngeal gonorrhea & treated with an alternative regimen*

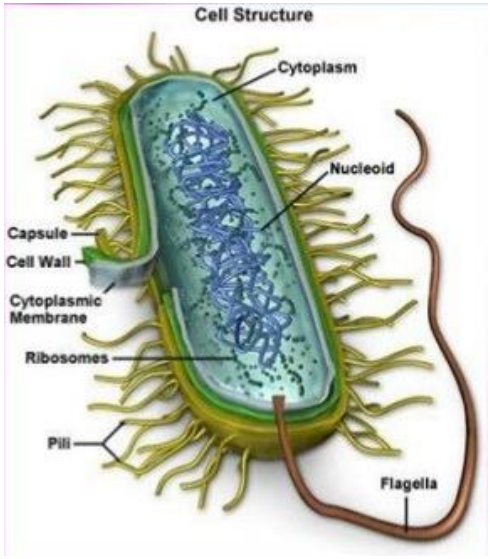
- *abstain from unprotected coitus for 7days after Tx completion or Sx resolution*

- N. gonorrhoeae (+) → later, high rate of re (+) for gonorrhea
  : mostly from reinfection than Tx failure

- Men or women who have been treated for gonorrhea *should be retested 3 months after treatment*

Emerging Issues

Mycoplasma genitalium



Mycoplasma genitalium (M. genitalium)

- Male urethritis

  15%–20% of nongonococcal urethritis (NGU) cases, 20%–25% of nonchlamydial NGU, 30% of persistent or recurrent urethritis

- Female ….less definitive

  found in vagina, cervix, and endometrium

  → *like Chlamydia, usually asymptomatic,* however

  more common in women with cervicitis, PID, endosalpingitis

  → suggesting that this organism *can cause PID*

- Reports) associated with Post-abortal PID, tubal factor infertility, adverse pregnancy outcomes (preterm delivery), ectopic pregnancy

Mycoplasma genitalium (M. genitalium)

- Diagnosis
  - ✓ Culture - take up to 6 months (slow-growing organism)
  - ✓ NAAT tests (PCR or transcription mediated amplification) – Preferred test

- Treatment
  - ✓ 7-day doxycycline regimen – ineffective (cure rate 31%)
  - ✓ *1-g single dose of azithromycin -* significantly more effective
    but, resistance to azithromycin : median cure rate 85% → only 40%
  - ✓ *Moxifloxacin (400 mg daily x 7, 10 or 14 days)* – success

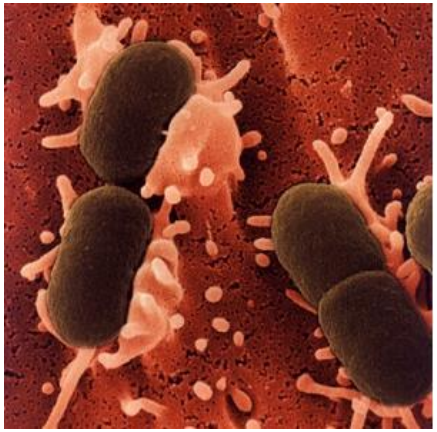
- Sex Partner – should be treated

- Test-of-cure F/U : persistent Sx or treated patients
  routine F/U for asymptomatic patients are not recommended

What about ??

Mycoplasma hominis,

Ureaplasma urealyticum



Mycoplasma species

- Mycoplasma species
- ✓ smallest free-living organisms
- ✓ lack a cell wall → lack of a Gram stain reaction
  nonsusceptibility to commonly prescribed antibiotics
- ✓ usually reside extracellularly in the respiratory and urogenital tracts
- ✓ rarely penetrate the submucosa

- In human ⋯ 17 species
  Mycoplasma pneumoniae, hominis, genitalium, fermentans, pirum,
  penetrans, amphoriforme ..
  Ureaplasma urealyticum, parvum
  → suggesting that this organism are pathologic,
  and *can cause urogenital diseases*
  (urethritis, cervicitis, PID)

Mycoplasma species

- Mycoplasma hominis, Ureaplasma

✓ frequently detected in the lower urogenital tracts of
healthy, asymptomatic, sexually active adults.
→ Mycoplasma hominis : 21-53%
Ureaplasma : 40-80%
(M. genitalium : less likely)

✓ Less than 5% of children and 10% of adults who are not sexually active
are colonized with genital mycoplasmal microorganisms.

- Mycoplasma hominis, Ureaplasma

✓ often opportunists that cause invasive infection in susceptible populations,
✓ may be present simultaneously with other pathogens,
✓ also produce localized urogenital diseases
by direct contact, vertical transmission, tranplanted tissues.

Mycoplasma species

- Diagnosis
  - ✓ Culture - take up to 6 months (slow-growing organism)
  - ✓ NAAT tests (PCR or transcription mediated amplification) – Preferred test

- Consider … if signs and symptoms of infection are present,
  if the neonate does not respond to beta-lactam drugs,
  if cultures do not reveal a more common microbiological etiology.

- Consider susceptibility testing … if immunocompromised,
  if treatment failure

- Prevention … maybe an opportunistic normal flora
  - ✓ abstinence, barrier protection methods (eg, condoms)
  - ✓ cesarean delivery : not prevented
    (ascending infection, even intact fetal membranes)

- routine F/U for asymptomatic patients are not recommended

Mycoplasma species

- Treatment

		M. hominis	Ureaplasma
Macrolide	Erythromycin	resistant	
	Clarithromycin	resistant	
	Azithromycin	resistant	
Lincosamide	Clindamycin		resistant
Tetracycline	Doxycycline	some (20–40% resistant)	some (45% resistant)
	Minocycline		
Quinolone	Ofloxacin		
	Levofloxacin		
	Moxifloxacin		
	Chloramphenicol	(S/E : anaplastic anemia)	

Summary

Diagnostic test

NAAT tests
(PCR / transcription mediated amplification)

- BV – ***Gram stain***
- VVC – ***wet preparation or Gram stain*** (fail → culture)
  - gold standard - ***culture***
  - complicated VVC - ***culture !***
- Trichomonas – ***NAAT*** (no wet preparation)
  - Retest 2 weeks after Tx.
  - Should retest (< 3 months)
- Chlamydia – ***NAAT*** (Thin prep pap - acceptable)
  - no test < 3 weeks after Tx.
  - Test of cure ***(only for pregnant women.)***
  - Should retest (< 3 months)
- Gonorrhea – ***Culture or NAAT***
  - Test of cure ***(for pharyngeal or alternative Cefixime Tx.)***
  - Should retest (< 3 months)
- Mycoplasma genitalium – ***NAAT***
  - Test of cure

sex partner Tx

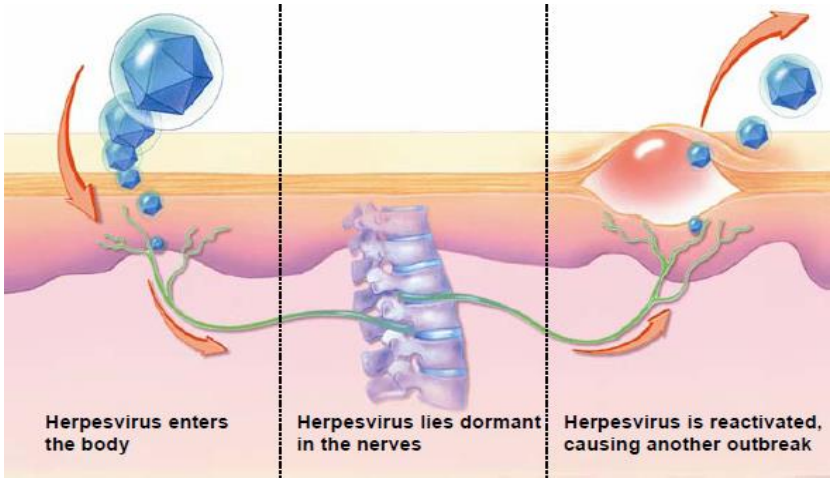
- Chlamydia
- *Gonorrhea*
- *Mycoplasma genitalicum*
- Trichomoniasis
- Pediculosis Pubis
- Scabies

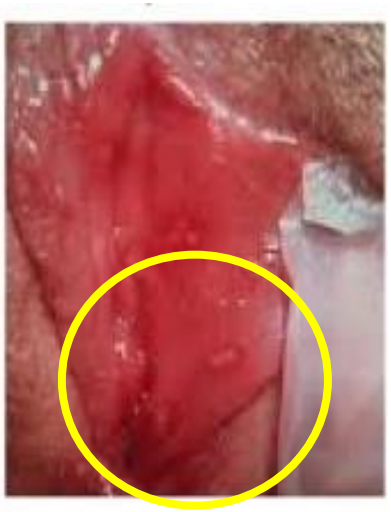
- *Syphilis* – 진단 90일이전 coitus (even if, negative serology)
  진단 90일 이후 coitus & serology (+)
  late latent 환자의 partner & hign nontreonemal serology titer

- *test* –*HSV*
  HIV

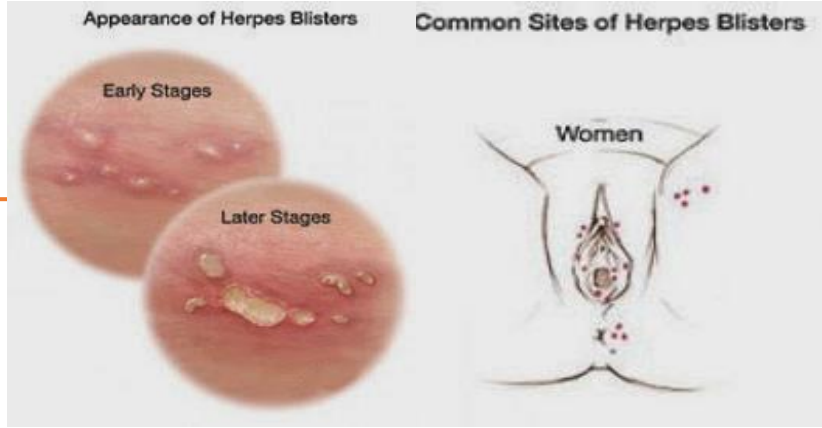
Thank you for your attention!

Genital Herpes Simplex





Genital Herpes Simplex



- HSV-1 (increasing pattern)
  HSV-2 (most recurrent cases)

- Painful multiple vesicular or ulcerative lesion

- virologic test : sensitive
  - Nuclear acid amplification method incl. PCR assay for HSV DNA
  - HSV (failure to detect) + especially active lesion (-)
    : because viral shedding is intermittent
    : not indicate an absence of HSV infection

- Persons with genital herpes should be tested for HIV infection.

Genital Herpes Simplex

- First Clinical Episode of Genital Herpes

Recommended Regimens*
Acyclovir 400 mg orally three times a day for 7–10 days OR **Acyclovir** 200 mg orally five times a day for 7–10 days OR **Valacyclovir** 1 g orally twice a day for 7–10 days OR **Famciclovir** 250 mg orally three times a day for 7–10 days
* Treatment can be extended if healing is incomplete after 10 days of therapy.

- Suppressive Therapy for Recurrent Genital Herpes

Recommended Regimens
Acyclovir 400 mg orally twice a day OR **Valacyclovir** 500 mg orally once a day* OR **Valacyclovir** 1 g orally once a day OR **Famciclovir** 250 mg orally twice a day
* Valacyclovir 500 mg once a day might be less effective than other valacyclovir or acyclovir dosing regimens in persons who have very frequent recurrences (i.e., ≥10 episodes per year).

→ 70-80% reduction
→ Consider discontinuation
after one year
to ascess freq of recurrence.

Genital Herpes Simplex

- Episodic Therapy for Recurrent Genital Herpes

  : initiation of Tx

  - within 1d of lesion onset
    or prodromal sx
    before outbreak

Recommended Regimens
Acyclovir 400 mg orally three times a day for 5 days
OR
Acyclovir 800 mg orally twice a day for 5 days
OR
Acyclovir 800 mg orally three times a day for 2 days
OR
Valacyclovir 500 mg orally twice a day for 3 days
OR
Valacyclovir 1 g orally once a day for 5 days
OR
Famciclovir 125 mg orally twice daily for 5 days
OR
Famciclovir 1 gram orally twice daily for 1 day
OR
Famciclovir 500 mg once, followed by 250 mg twice daily for 2 days

- Severe disease

✓ Intravenous (IV) acyclovir therapy should be provided

✓ hospitalization (disseminated infection, pneumonitis, or hepatitis
or CNS complications (meningoencephalitis))

✓ Acyclovir 5–10 mg/kg IV every 8 hours for 2–7 days or until clinical improvement
➔ oral antiviral therapy to complete at least 10 days of total therapy

Genital Herpes Simplex

- counseling Partners

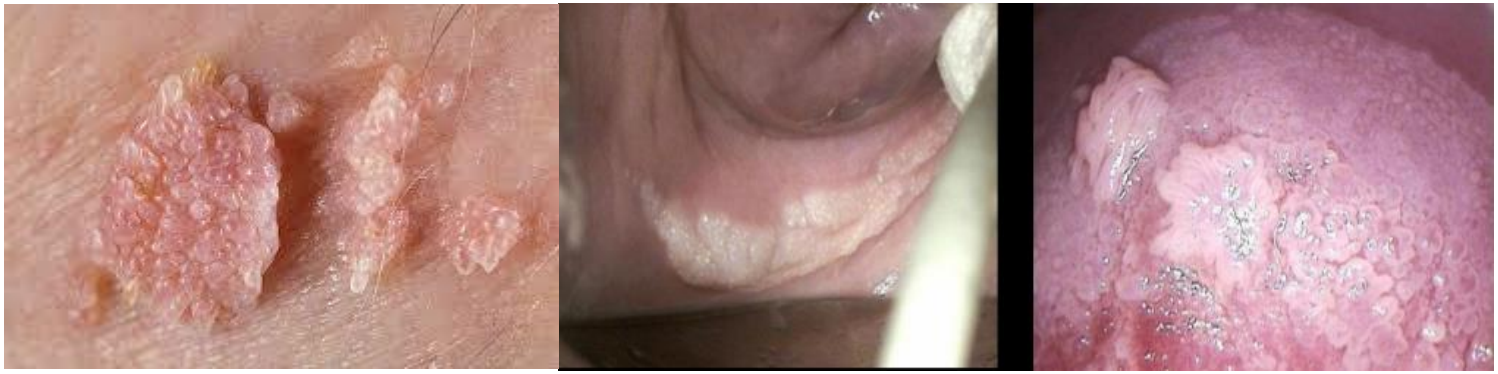
✓ reduce risk for transmission → valacyclovir
latex male condom

✓ pt lesion or prodromal sx → <u>abstain</u>

✓ symptomatic sex partner → <u>evaluated and treated</u> in the same manner

✓ asymptomatic sex partner → type specific serologic test

Genital Warts



Genital Warts

Recommended Regimens for External Anogenital Warts (i.e., penis, groin, scrotum, vulva, perineum, external anus, and perianus*)

Patient-Applied:
Imiquimod 3.75% or 5% cream†
OR
Podofilox 0.5% solution or gel
OR
Sinecatechins 15% ointment†

Provider–Administered:
Cryotherapy with liquid nitrogen or cryoprobe
OR
Surgical removal either by tangential scissor excision, tangential shave excision, curettage, laser, or electrosurgery
OR
Trichloroacetic acid (TCA) or **bichloroacetic acid** (BCA) 80%–90% solution

* Many persons with external anal warts also have intra-anal warts. Thus, persons with external anal warts might benefit from an inspection of the anal canal by digital examination, standard anoscopy, or high-resolution anoscopy.

† Might weaken condoms and vaginal diaphragms.

Recommended Regimens for Urethral Meatus Warts

Cryotherapy with liquid nitrogen
OR
Surgical removal

No TCA, BCA

Recommended Regimens for Vaginal Warts

Cryotherapy with liquid nitrogen. The use of a cryoprobe in the vagina is not recommended because of the risk for vaginal perforation and fistula formation.
OR
Surgical removal
OR
TCA or **BCA** 80%–90% solution

Recommended Regimens for Cervical Warts

Cryotherapy with liquid nitrogen
OR
Surgical removal
OR
TCA or **BCA** 80%–90% solution
Management of cervical warts should include consultation with a specialist.
For women who have exophytic cervical warts, a biopsy evaluation to exclude high-grade SIL must be performed before treatment is initiated.

Recommended Regimens for Intra-anal Warts

Cryotherapy with liquid nitrogen
OR
Surgical removal
OR
TCA or **BCA** 80%–90% solution
Management of intra-anal warts should include consultation with a specialist.

Genital Warts (Human Papillomavirus)[16]

	Recommended Rx	Dose/Route	Alternatives
External genital and perianal warts	**Patient Applied** ★ imiquimod 3.75% or 5%[13] cream OR podofilox 0.5%[13] solution or gel OR sinecatechins 15% ointment[2,13] **Provider Administered** Cryotherapy OR trichloroacetic acid or bichloroacetic acid 80%-90% OR surgical removal	See complete CDC guidelines. Apply small amount, dry, apply weekly if necessary	★ podophyllin resin 10%–25% in compound tincture of benzoin may be considered for provider-administered treatment if strict adherence to the recommendations for application. OR intralesional interferon OR photodynamic therapy OR topical cidofovir

1) limited to <0.5 mL of podophyllin or <10 cm^2 of warts per session
2) should not contain any open lesions, wounds, friable tissue
3) air-dry before the treated area comes into contact with clothing
4) preparation should be thoroughly washed off 1–4 hours after application.

CDC Guideline 2015