Sexually Transmitted Infections

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Learning Objectives

Outline the symptoms, diagnosis, and treatment for

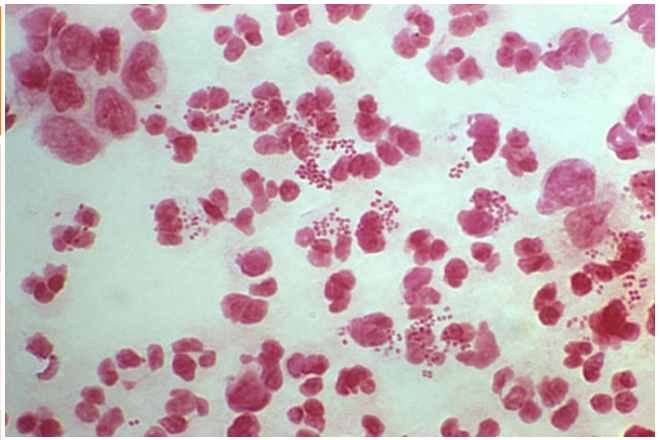
1. Chlamydia trachomatis and Neisseria gonorrhea infections:
   Cervicitis/urethritis and proctitis
2. Complications of chlamydia and gonorrhea:
   Pelvic Inflammatory Disease and Epididymitis
3. Herpes simplex virus
4. Syphilis

Where you encounter STDs

Setting	scenario	Common Microbes/syndromes
STD clinic / primary care*	Screening, monitoring Urethritis/cervicitis	Syphilis (latent) Gc/ch lower tract Hiv/hsv
Emergency room	screening complications	Gc/ch upper tract
Inpatient	complications Lab findings	Syphilis (latent, secondary) Gc/ch upper tract

Traditional approach to STDs

Urethritis/cervicitis	Genital ulcer (painful vs painless)
Gonorrhea (GU)	HSV (painful)
Chlamydia (NGU)	Primary syphilis (painless)
Mycoplasm genitalium	Lymphogranuloma venerum
Trichomonas genitalium	Chancroid
	Granuloma inguinale



Pathogen, syndrome, treatment

pathogen	proctitis	Cervicitis/urethritis	PID	epididymitis	Anogenital ulcers	Treatment
Chlamydia	++++++	+++++	+++++	+++++	-	Doxycycline
Neisseria	+++++	+++++	+++++	+++++	-	IM ceftriaxone
HSV	+	+	-	-	+++++	-acyclovir
Treponema pallidum	+	+	-	-	+++	PCN

Clinical syndromes with gc/ch

Clinical syndrome	complaints	Asymptomatic	findings
cervicitis	Dyspareunia; vulvovaginal irritation	Yes	Purulent endocervical exudate/ bleeding
urethritis	Dysuria, drainage	yes	Drainage
proctitis	Pain, tenesmus, rectal discharge	yes	Drainage, tenderness, bleeding*
PID	Fever, abdominal pain, n/v	yes	Cervical motion tenderness, fundal tenderness, adnexal tenderness
Epididymitis	Fever, Painful swelling	~no	Tenderness, swelling, erythema

Lower

Upper tract

Question 1: Walk-in Clinic

19M with asthma presents complaining of “pain when I pee” and notes stains in his underwear. On exam, some clear fluid can be squeezed from his meatus. You do not have a microscope available. Which would you do?

A. send urine for culture

B. send urine for GC/Ch NAAT

C. treat with IM ceftriaxone

D. treat with po azithromycin once

E. treat with po doxycycline x 7d

Question 2: Clinic

Same patient from question 1, what else would you send?

A. send serum for HIV screen

B. send serum for HIV viral load

C. send serum for syphilis screen reflex to RPR

D. send serum HSV serology

E. rectal and oropharyngeal GC/Ch NAAT

Lower GU tract STDs = Urethritis / Cervicitis

Diagnosis of chlamydia and gonorrhea

- nucleic acid amplification test (NAAT)
  - Women - Vaginal swab or endocervical sample, first catch urine somewhat less sensitive
  - Men - First catch urine

Treatment

- gonorrhea – IM ceftriaxone 500mg (<150kg), alternative is azithro + IM gent

- chlamydia – doxycycline 100mg bid x 7d; alternative is azithromycin 1g once or levofloxacin 500mg daily x7d

- partner treatment, rescreen ~3mo

Proctitis

- History of anal receptive intercourse

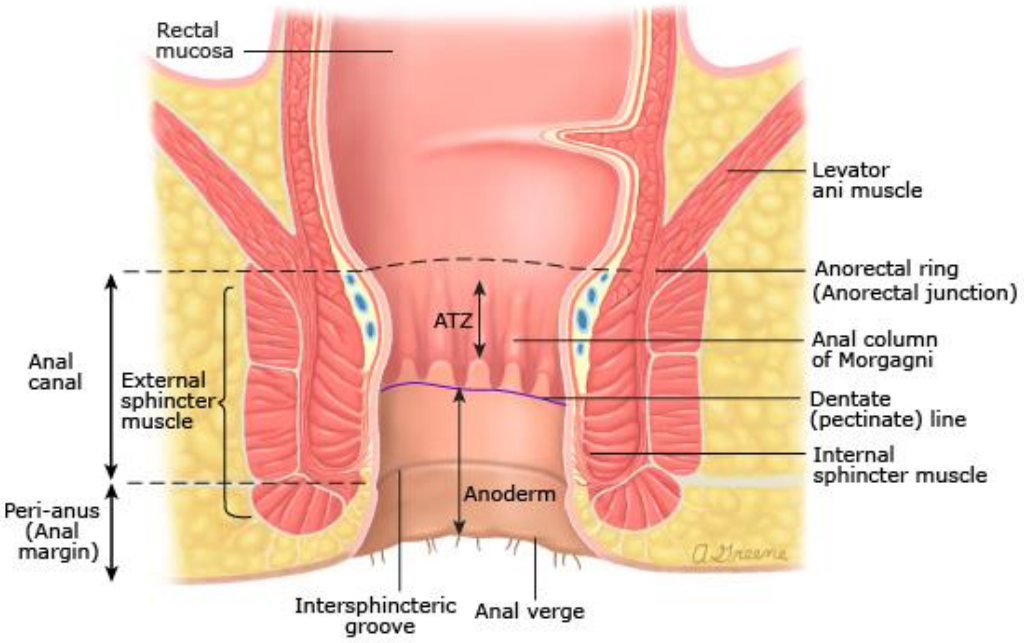
- diagnosis
  - Anal swab for NAAT GC/Ch, (LGV)
  - If lesion would swab for HSV PCR

Treatment

- IM CTX/doxycycline x7d empirically for all

- consider 21d course of doxycycline if concern for LGV

- if lesions c/w HSV treat with ~acyclovir x7-10d



Case 3: Emergency Room

21W with no past medical history presents with abdominal pain x3d, fever and vomiting x1d. She is found to be febrile, uncomfortable appearing but not toxic. Abdominal exam unremarkable and no costovertebral angle tenderness. Pelvic examination with cervical motion tenderness. You send blood cultures. What is the appropriate empiric treatment?

A. vancomycin and piperacillin-tazobactam

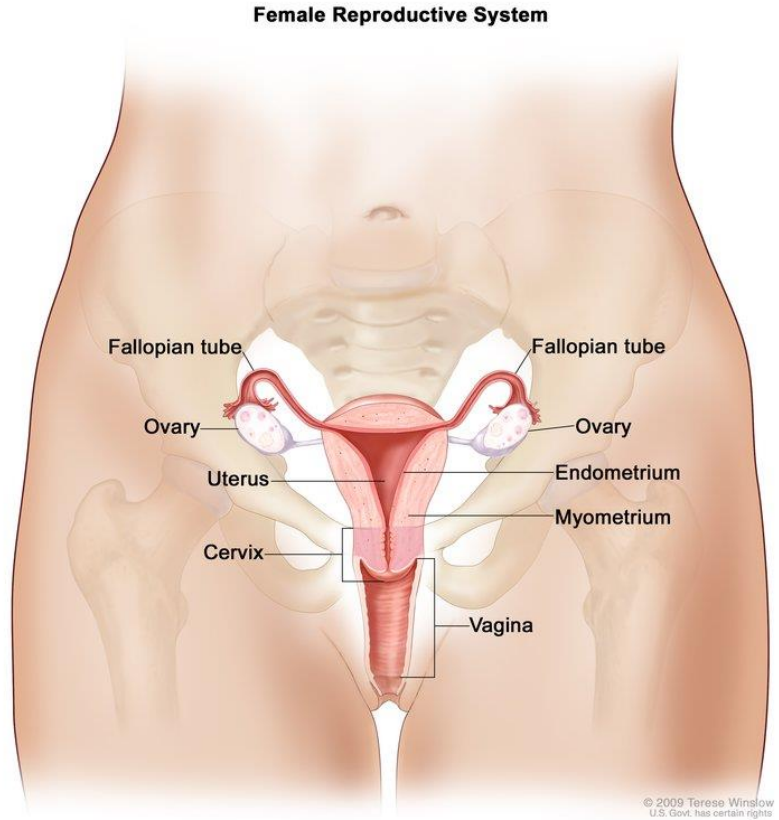
B. po doxycycline and IM ceftriaxone and po metronidazole

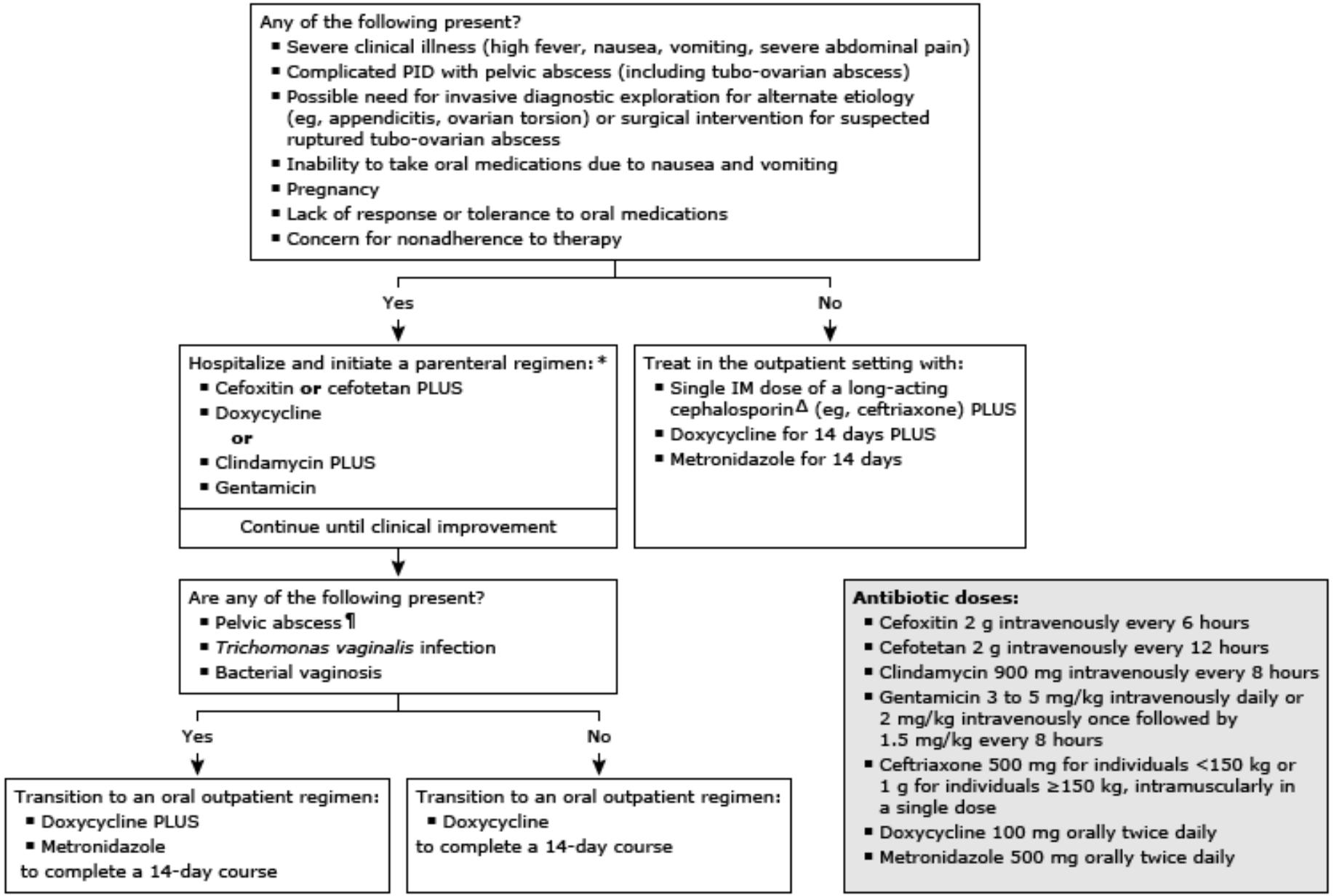
C. piperacillin-tazobactam

D. po doxycycline and IV ceftriaxone

PID = Pelvic inflammatory disease

- Upper GU tract infection, ascends from below
- Neisseria gonorrhea and Chlamydia trachomatis are common culprits, but a variety of bacteria can be found and tuboovarian abscesses are typically polymicrobial
- There is substantial subclinical PID
- PID causes infertility and ectopic pregnancy

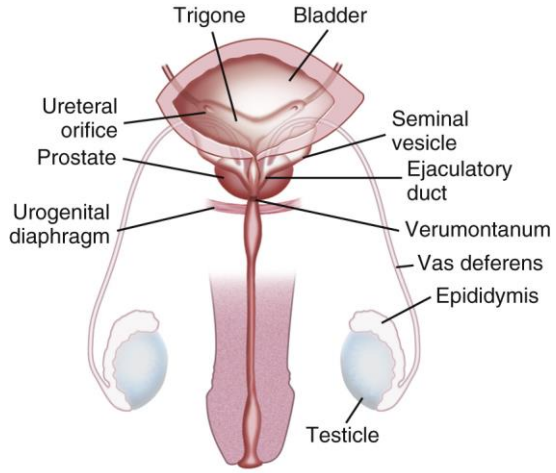




PID Treatment

Epididymitis

- Two types: (1) non-specific bacterial epididymitis and (2) sexually transmitted epididymitis
- Chlamydia and N gonorrhoeae are the major STD pathogens
- For the insertive partner during anal intercourse, enteric organisms like E. coli
- +/- urethritis, orchitis



Epididymitis diagnosis and treatment

Diagnosis

- UA, Ucx, urine NAAT gc/ch; frequently scrotal ultrasounds are done to rule out torsion

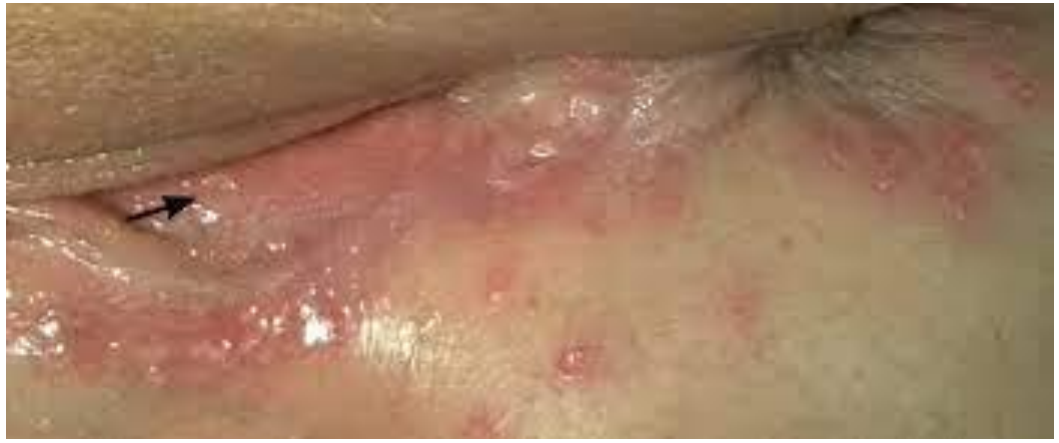
Treatment

- if insertive anal intercourse, cover enteric organisms (levofloxacin 500 mg daily x10d)

- cover for gc/ch with IM ceftriaxone x1 and doxycycline 100mg bid x10d

Case 4: Clinic

30W p/w painful lesions on her vulva x4d. She is concerned she has genital herpes, report being monogamous with her husband for 2 years. What is the best diagnostic test?



A. endocervical swab for viral culture

B. send fluid from lesion for HSV PCR

C. Send vaginal swab for clue cells

D. serum RPR

E. serum HSV IgM and IgG

Genital Herpes

- Type 1 and 2 can both cause genital herpes, recurrent genital herpes are HSV-2
  - HSV-2 is thought to only be sexually acquired

- painful group vesicles which evolve into ulcers

- high prevalence of asymptomatic disease with intermittent subclinical shedding

- 11.9% of US people 14-49 estimated infected (HSV-2 serology in NHANES)

- chronic, lifelong viral infection

HSV diagnosis and treatment

Diagnosis

- typically a clinical diagnosis, can confirm with swab of lesion, most sensitive early stages and primary infection
  - PCR, DFA, viral culture
  - Poor specificity of commercially available type-specific EIAs
  - “HSV-2 serologic screening among the general population is not recommended”

Treatment – valacyclovir, famciclovir, acyclovir

- Cannot eradicate latent infection but help (1) ameliorate symptoms of outbreak (2) decrease recurrence (3) decrease viral shedding/transmission to hsv-2 neg partner
- Topical therapy ineffective
- -C-section if lesions during labor

“check me for everything”

1. What we regularly check:

- serum HIV screen

- syphilis/RPR, gc/ch*

2. What we sometimes check:

- HIV VL, HAV ab, HBV panel, HCV ab, trichomonas

screening

USPSTF:

females <25 – gc/ch

Pregnancy – HBV, HIV, syphilis, ~gc/ch

MSM

HIV+

based on patient risk factors and local prevalence

Maricopa County Public Health STD Clinic

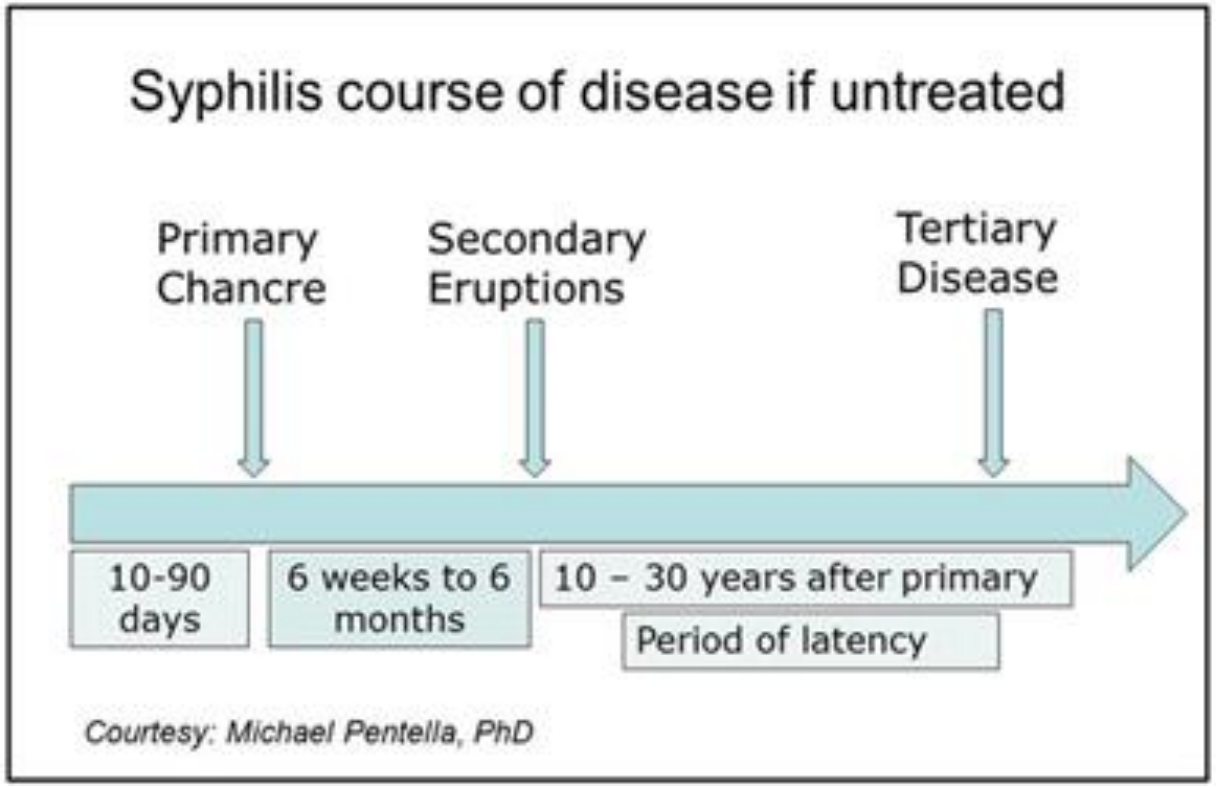
- Please put this number in your cellphone: 602-506-1678

- reportable diseases are GC/Ch, syphilis, and HIV

- two reporting systems
  - (1) from micro labs
  - (2) from providers (phone call or online AZDOH reporting system)

- due to resources, they do not routinely follow up on GC/Ch, focus on syphilis and HIV

Syphilis


Syphilis course of disease if untreated
Primary Chancre
Secondary Eruptions
Tertiary Disease
10-90 days
6 weeks to 6 months
10 – 30 years after primary
Period of latency
Courtesy: Michael Pentella, PhD

Diagnosis

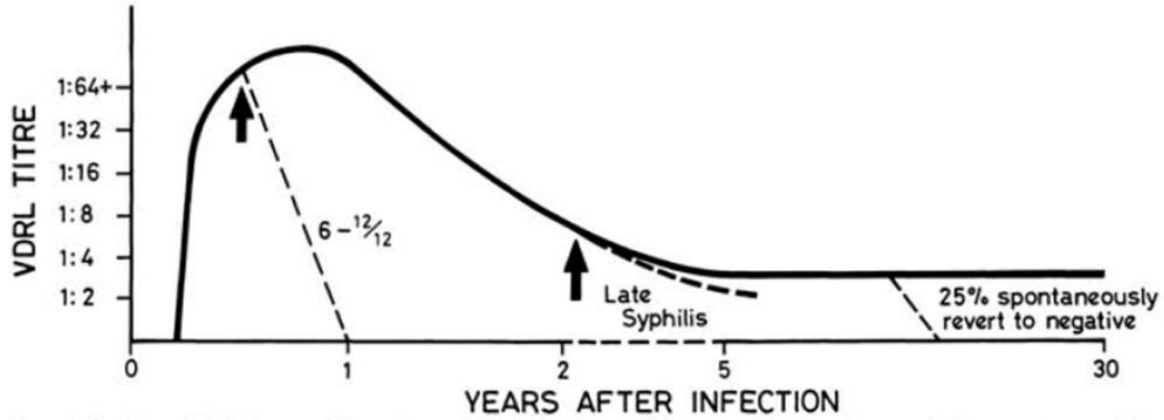
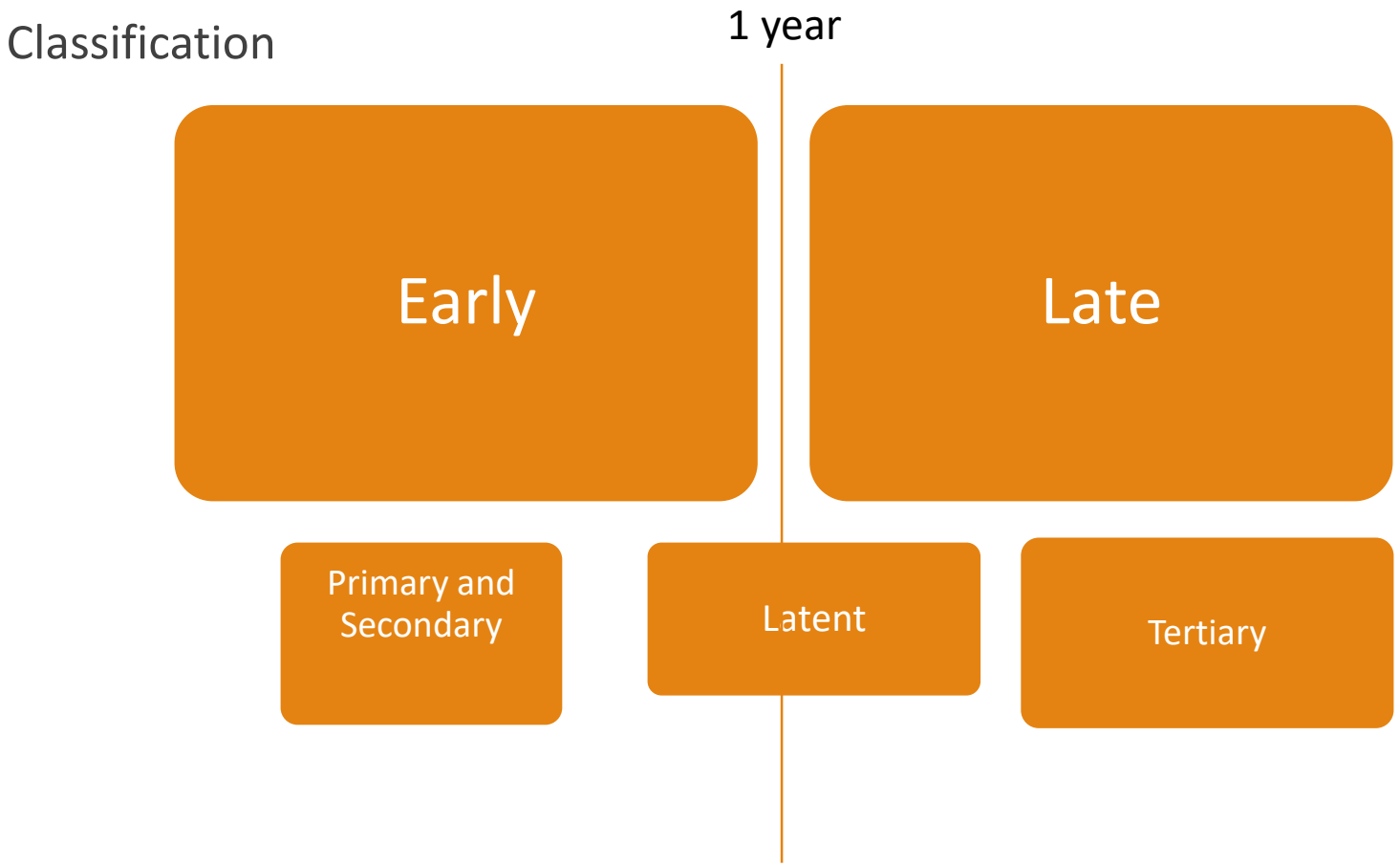


Figure 1. Variation of VDRL (Venereal Disease Research Laboratory test) titer in untreated syphilis. The arrows indicate treatment and the dashed lines show the course after treatment, following infection at time 0. Widespread variation from this simplified generalization may occur.

Laboratory Tests

- Serum
  - Nontreponemal testing = RPR
    - Prozone effect
  - Treponemal testing = “syphilis confirmatory”
    - ~always positive after initial infection
- CSF
  - protein and wbc
  - Nontreponemal testing = VDRL
  - Treponemal testing = FTA-ABS

Diagnosis


Classification
1 year
Early
Late
Primary and Secondary
Latent
Tertiary

Case 5a

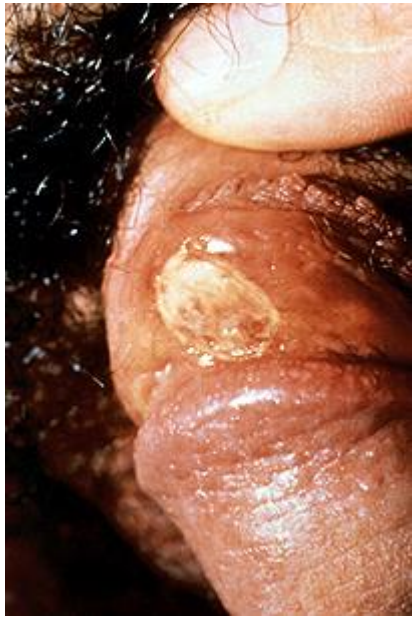
28M with no pmhx was brought to the ER altered, RPR was checked initially for AMS workup, but ultimately patient was found to be intoxicated and mental status returned to normal, no complaints

RPR 1:8
Syphilis confirmatory +

You call DOH, he has never been tested for syphilis before, he denies febrile illnesses, rashes, or chancres in the past year

Case 5b

19M with no pmhx p/w penile ulcer. He reports returning from a trip to Ibiza, Spain, 2 weeks ago.

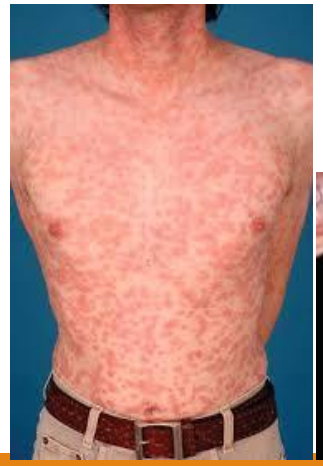


RPR 1:32
Syphilis confirmatory +

Case 5c

20M with well-controlled HIV (on HAART, VLND, CD4 520), present to ER 2mo after trip to Ibiza complaining of rash, fever, and malaise.

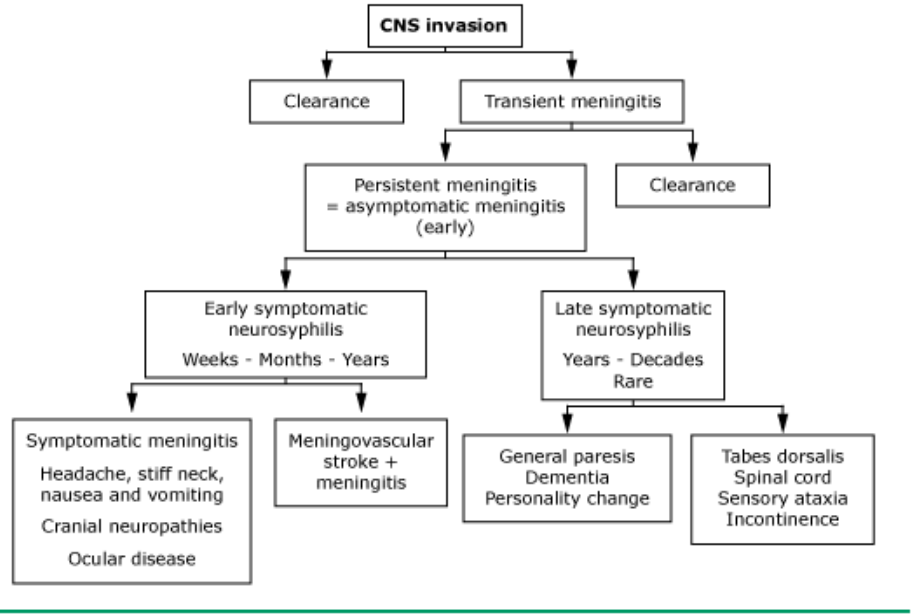
RPR 1:512
Syphilis confirmatory +



Diagnosis

Neurosyphilis = CNS infection of T. pallidum

Natural history of neurosyphilis



CNS: central nervous system.
Courtesy of Christina M. Marra, MD.

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Treatment

Penicillin

- Benzathine penicillin G 2.4M U IM
  - X1 in early syphilis
  - Qweekly x3 in late syphilis
- PCN G 3-4M U IV q4h x 10-14d
- Jarisch-Herxheimer reaction

Penicillin allergic patient

- “penicillin allergy” patient
- Desensitization for neurosyphilis and pregnancy
- Alternatives
  - Doxycycline, azithromycin
  - Ceftriaxone

Take Home Points

Low threshold to treat STDs empirically

There are a lot of asymptomatic STDs and multiple infections at once

Individuals have very wide differences in sexual practices which you should consider in screening

Do not send HSV serology to make diagnosis of genital HSV in general population

references

CDC Sexually Transmitted Infectious Treatment Guidelines 2021

Corey L, Walk A, Patel R, et al. Valacyclovir HSV Transmission Study Group. Once-daily valacyclovir to reduce the risk of transmission of genital herpes. N Engl J Med 2004;250:11-20. PMID 14702423 https://doi.org/10.1056/NEJMoa035144

Falk L, Fredlund H, Jensen JS. Signs and symptoms of urethritis and cervicitis among women with or without Mycoplasma genitalium or Chlamydia trachomatis infection. Sex Transm Infect.2005 Feb;81(1)73-8.

McQuillan G, Kruszon-Moran D, Flagg EW, Paulose-Ram R. Prevalence of herpes simplex virus type 1 and type 2 in persons aged 14-49; United States, 2015-2016. NCHS Data Brief 2018;304:1-8. PMID 29442994

US Preventive Services Task Force, Davidson KW, Barry MJ, Mangione CM, Cabana M, Caughey AB, Davis EM, Donahue KE, Doubeni CA, Krist AH, Kubik M, Li L, Ogedegbe G, Pbert L, Silverstein M, Simon MA, Stevermer J, Tseng CW, Wong JB SO Screening for Chlamydia and Gonorrhea: US Preventive Services Task Force Recommendation Statement. JAMA. 2021;326(10):949. TI