Syphilis Diagnosis and Testing in Adults
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Disclosures

• Meena Ramchandani does not have relationships with a commercial interest related to the content of this educational activity.
Overview and learning objectives

• Understand the clinical manifestations of syphilis in adults
• Discuss the staging of disease
• Describe lab testing to make a diagnosis of syphilis
• *Links to online learning courses*
Syphilis Disease: Transmission

• Chronic sexually transmitted infection caused by *Treponema pallidum*

• Infection through small breaks in skin or mucous membranes

• Risk of developing syphilis after sexual contact 10-60% (average about 30%)

• Highest risk with contact to early syphilis; Lesions with many treponemes transmit most effectively.
Rapid Dissemination of Syphilis via the Lymphatics and Blood
Syphilis – A Brief Refresher

Few hours: mucosal surface -> lymph -> bloodstream

Chancre
~ 3 weeks (10-90 days)
spontaneously heals
1-6 weeks later

INFECTION WITH T. PALLIDUM

Growth of organisms at site of infection,
dissemination to various tissues
including central nervous system

PRIMARY SYPHILIS

Chancre at site of infection,
regional lymphadenopathy

SECONDARY SYPHILIS

Disseminated rash, generalized
lymphadenopathy

LATENT SYPHILIS

72%

Gumma, cardiovascular syphilis, late
neurological complications

28%

NO FURTHER COMPLICATIONS

TERTIARY SYPHILIS

Recurrence of secondary syphilis
symptoms in up to 25% of individuals
Primary Syphilis
Chancre
Typical Primary Syphilis

- Nontreponemal tests (RPR, VDRL) **negative** in 15-25% cases of primary syphilis
- Chancres can occur anywhere inoculated by direct contact
- Don’t need definitive diagnosis to treat: if you think it’s early syphilis → TREAT. Loss to follow up and spread of infection can be high.
Secondary Syphilis
Syphilis – A Brief Refresher

**Infection with T. pallidum**

- **Few hours:** lymph -> bloodstream
- **Chancre**
  - ~3 weeks (10-90 days)
  - Spontaneously heals 1-6 weeks later
  - 15% overlap
- **3-6 weeks after chancre**

**Primary Syphilis**
- Chancre at site of infection, regional lymphadenopathy

**Secondary Syphilis**
- Disseminated rash, generalized lymphadenopathy

**Latent Syphilis**
- 72%
- 28%
- Recurrence of secondary syphilis symptoms in up to 25% of individuals

**No Further Complications**
- Tertiary Syphilis
- Gumma, cardiovascular syphilis, late neurological complications
Secondary Syphilis

- Generalized rash: macular, papular, pustular
- Condyloma lata
- Mucous patches
- Fever, malaise, generalized lymphadenopathy, alopecia, liver/kidney involvement
- Lasts 2-6 weeks
Secondary/Systemic Syphilis: Condyloma lata

- High numbers of treponemes
- May occur at any moist body site
- Highly contagious
- Fleshy, flat-topped appearance may help distinguish from warts, but often mistaken for latter
- Pearl: WET warts generally aren’t warts!
Secondary Syphilis: Mucous patches
Secondary Syphilis: Less common

• Alopecia (5%)
  • Due to infection of hair follicles
  • Patchy, “moth-eaten”
  • loss of lateral eyebrows

• Liver, kidney, spleen involvement

• Really rare: lues maligna – necrotic skin lesions
Latent Syphilis
Latent Syphilis: New or Old?

• Defined by positive treponemal serology in the absence of clinical manifestations

• Early Latent: Infected less than one year
  • Negative syphilis serology in past year
  • Known contact to an early case of syphilis

• Late Latent (infected > 1 year or unknown duration)
  • No syphilis serology in past year
  • No contact to syphilis case or history of signs/symptoms in past year
Syphilis Testing
Serological Testing for Syphilis

Nontreponemal

RPR, VDRL

(Quantitative, goes down with treatment)

Treponemal

MHATP, FTA-ABS, TPPA, EIA/CIA

(Good for screening but once positive, positive for life)
Dilutions of Serum to Obtain RPR Titer
Reverse Sequence Syphilis Screening Algorithm

- **Traditional**
  - Screen with nontreponemal test (RPR or VDRL)
  - Confirm with a treponemal specific test (TPPA, MHATP)

- **Reverse**
  - Screen with treponemal specific EIA
  - Confirm with RPR
  - If conflict: resolve with older treponemal test (TPPA)
Syphilis Screening Algorithm

- Traditional: 2 serologic tests
  - Screen with nontreponemal test (RPR or VDRL)
  - Confirm with a treponemal specific test (TPPA, MHATP)
Reverse Sequence Syphilis Screening

- Screen with treponemal specific EIA
- Confirm with RPR
- If conflict: resolve with older treponemal test (TPPA)

Treponemal Test (EIA/CIA or TP-PA) +/- duplicate

Quantitative Non-trep Test (RPR)

- Do not use EIA in patients with a history of syphilis and in newborns
- False negatives occur in early disease. If high clinical suspicion, repeat tests.
References and Links to online resources

University of WA STD Prevention Training Center
• www.uwptc.org

National Network of STD/HIV Prevention Training Centers
• www.nnptc.org

CDC Treatment Guidelines
• www.cdc.gov/std/treatment

American Social Health Association (ASHA) booklets, books, handouts, the Helper
• www.ashastd.org
• (800) 230-6039

NNPTC National STD Curriculum
• www.std.uw.edu
National STD Curriculum

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https://www.std.uw.edu/