

SYPHILIS

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(09/21/04)

What is it? How do people get it?

- a chronic infection caused by the bacterium *Treponema pallidum*
- characterized by episodes of active disease (*primary, secondary, tertiary*) interrupted by periods of latency
- transmission occurs by :
 - ✓ intimate contact with infectious lesions (*most common route*)
 - ✓ from blood for transfusions collected from an infected person (*during early syphilis*)
 - ✓ transplacentally from infected mother to fetus
- in acquired syphilis, the organism rapidly penetrates intact mucous membranes or microscopic dermal abrasions. Within a few hours, it enters lymphatics and blood to produce systemic infection

Epidemiology

- nationwide incidence rate of primary and secondary syphilis infection was 2.4 per 100,000 persons in 2002 (*an increase of 12.4% compared to previous year*)
- prevalence differs by region (*3.1 and 1.7 per 100,000 persons for the South and Northeastern U.S., respectively*), and by ethnicity (*9.8, 2.7, 1.2 per 100,000 persons for African Americans, Hispanics, and whites, respectively*)
- recent outbreaks of primary and secondary syphilis have been reported in California, primarily among HIV + men (*who have sex with men*)

History / Exam

1. Primary syphilis - usually presents 3-6 weeks following contact with an infected individual
 - chancre = solitary red papule, forms at site of transmission (*usually genitalia*), with subsequent necrosis into a painless, non-bleeding ulcer

*chancre generally heals in 4-8 wks (*with or without treatment*)
2. Secondary syphilis - usually presents 6 weeks - 3months (following chancre)
 - rash = *most characteristic finding on clinical exam*
 - red-brown macules and papules, bilaterally symmetric in distribution, involving the trunk and extremities
 - ***involvement of the palms and soles is an important diagnostic clue!!!***
 - condyloma lata = highly infectious, large (*hypertrophic*) dull gray or pink papules found at mucocutaneous junctions, and in moist intertriginous skin
 - mucous patches = superficial, circular, silver-gray mucosal erosions in the oropharynx, vulva, or anal canal/rectum
 - "moth-eaten" alopecia = patches of hair loss on head, eyebrows
 - neurologic manifestations, constitutional sx, generalized nontender LAD

* the acute manifestations of secondary syphilis typically resolve spontaneously (*within 6weeks*), **even without treatment**
3. Latent syphilis – asymptomatic with negative exam findings, serologic tests positive
 - 2 distinctions (*important for treatment considerations*):
 - early (*infection onset ≤ 1 yr*)
 - late (*infection onset ≥ 1yr or unknown duration*)

*approx. 1/4 will relapse and develop the infectious lesions of 2° syphilis; 1/3 slowly progress to 3° syphilis; the rest remain asymptomatic
4. Tertiary syphilis – may present 6 - 40 years (following initial infection)
 - 3 general categories: Gummatous, Cardiovascular, Neurosyphilis
 - Gummatous syphilis (*approx. 15% of untreated patients*)
 - ⇒ gummas = localized, granulomatous lesions (*noninfectious*) mainly found in skin and bone
 - ⇒ skin gummas are painless solitary lesions, (*nodular or ulcerative*) with sharp borders, usually found distal to knees on lower extremities (*at sites of prior trauma*)
 - ⇒ bone gummas are associated with a deep boring pain, typically worse at night

- Cardiovascular syphilis (*approx. 10% of untreated patients*)
 - ⇒ typically aneurysm develops in ascending aorta or aortic arch, followed by dissection of the media layer, and eventually aortic valve insufficiency
 - ⇒ the most common finding on clinical exam = diastolic murmur with a high-pitched “tambour” S2
 - ⇒ CXR often notable for calcification of the ascending arch of aorta
- Neurosyphilis (*approx. 8% of untreated patients*)
 - ⇒ 5 most common presentations:
 1. Asymptomatic neurosyphilis – clinically asx, CSF + (*for syphilis*)
 2. Subacute meningitis – patient has fevers, stiff neck and headache
 - ⇒ CSF (\uparrow protein, \downarrow glucose, \uparrow lymphocytes, + *for syphilis*)
 - ⇒ differs from other bacterial meningitis (*except TB*) by lymphocyte predominance
 3. Meningovascular syphilis - most common presentation is an indolent stroke syndrome involving the MCA
 - ⇒ **always include in ddx of young person with unexplained stroke syndrome**
 5. Tabes dorsalis – involvement of posterior column and dorsal root of the spinal cord
 - ⇒ ataxic, wide-based gait, footslap, areflexia, loss of position/deep pain/temperature sensations
 6. General paresis – involvement of cerebral cortex/brain parenchyma
 - ⇒ some patients may present up to 20 yrs following initial infection with behavioral changes and signs of dementia
 - ⇒ Argyll-Robertson pupil – midbrain lesion, results in small irregular pupil that accommodates (*near vision*) but not react (*aka. Prostitute’s pupil*)

Diagnosis

- Complicated by fact that organism cannot be cultured in laboratory
- Identification occurs by 3 means: direct visualization, PCR and serology
 1. direct visualization – Darkfield microscopy and direct fluorescent antibody testing (*DFA-TP*)
 - ⇒ quickest and most direct method for diagnosis of 1° and 2° syphilis
 - ⇒ *BUT* is only effective during *ACTIVE* stages of infection
 2. PCR (*rare and expensive*)
 3. serology – used to diagnose virtually all cases of syphilis (*cost effective*)
 - ⇒ nonspecific treponemal tests (*VDRL / RPR*)
 - based upon the reactivity of serum from patients with syphilis to a cardiolipin-cholesterol-lectin antigen
 - *quantitatively* measure IgM and IgG titers
 - used as the screening test for syphilis
 - can be used to follow the response to treatment
 - ⇒ treponemal tests (*FTA-ABS, MHA-TP*)
 - based upon the detection of antibodies directed against specific treponemal cellular components
 - *qualitative* tests - reported as either reactive or nonreactive
 - ⇒ the use of a single serologic test to diagnose syphilis is inadequate due to potential “biologic” false-positive results (*acute and chronic*). Therefore, the usual testing algorithm is to screen with a nonspecific treponemal test, first. A reactive specimen is then confirmed as a true positive with a treponemal test.
 - ⇒ False negative syphilis serology tests may also occur, most commonly if performed prior to the development of diagnostic antibodies
 - 20-30% of patients presenting with a chancre will not yet have developed diagnostic antibodies required to produce a reactive test
- people with reactive syphilis serologic tests must be carefully assessed for signs and symptoms of neurosyphilis. If evidence of neurosyphilis exists, CSF examination should be performed.

Treatment

- Benzathine Penicillin G
 - 1°, 2° and early latent syphilis = 2.4 million units IM X1
 - Late latent, gummatous and cardiovascular syphilis = 2.4 million units IM weekly X3
 - Neurosyphilis = 12 million units IV daily X 10-14 days