Syphilis

- Aka *lues*
- Contagious, sexually transmitted disease
- Spirochete *Treponema pallidum*
- Enters through skin or mucous membrane where primary manifestations are seen
TREP-STRIP

ANTI-TREPONEMAL ICS
Treponema pallidum

- Spiral spirochete that is mobile
- # of spirals varies from 4 to 14
- Length 5 to 20 microns
- Can be seen on fresh primary or secondary lesions by darkfield microscopy or fluorescent antibody techniques
Treponema pallidum

- Motility has three movements
- Projection and rotation in the direction of the long axis
- Bending or twisting from side to side
- Pathogenic in apes, humans, and rabbits
Serologic Tests

- Reveal patients immune status *not* whether they are currently infected
- Use lipoidal antigens rather than *T. pallidum* or components of it; *non-treponemal antigen tests*
- RPR; rapid plasma reagin
- VDRL; Venereal Disease Research Laboratory
Serologic Tests

- Positive within 5 to 6 weeks after infection
- Strongly positive in secondary phase
- Strength of reaction is stated in dilutions
- May become negative with treatment or over decades
Serologic Tests

- To improve sensitivity and specificity tests using a specific treponemal antigen devised
- MHA-TP: microhemagglutination assay for *T. pallidum*
- FTA-ABS: fluorescent treponemal antibody absorption test
- All positive nontreponemal test results should be confirmed with a specific treponemal test
NATURAL HISTORY OF UNTREATED SYPHILIS

Inoculation
14–21 days incubation

Primary syphilis

Hematogeneous dissemination
3–8 weeks after appearance of chancre

Secondary syphilis

After 3–8 weeks lesions disappear spontaneously
Up to 25% of patients relapse within the first 1–2 years

Latent syphilis
2–20 years

No recurrence (cure)

Tertiary syphilis

Serologic Tests

- Treponemal tests become positive early, useful in confirming primary syphilis
- Remain positive for life, useful in diagnosing late disease
- Treatment results in loss of positivity in 13-24% of patients
Biologic False-Positive Test Results

- Positive STS in persons with no history or clinical evidence of syphilis
- Acute BFP: those that revert to negative in less than 6 months
- Chronic BFP: persist > 6 months
BFP Test Results in Syphilis

- Acute BFP
- Vaccinations
- Infections
- pregnancy

- Chronic BFP
- Connective tissue disease (SLE)
- Liver disease
- Blood transfusions
- IVDA
Cutaneous Syphilis

- Chancre is usually the first cutaneous lesion
- 18 to 21 days after infection
- Round indurated papule with eroded surface that exudes a serous fluid
- Cartilage-like consistency
- Usually painless (Hunterian chancre is “classic” heals without scarring)
Chancre

- Inguinal adenopathy 1-2 weeks after chancre
- Generally occur singly, may be multiple
- Diameter mm to cm
Chancres

- Women genital chancre less often observed due to location within the vagina and cervix
- Edema of labia may occur
Chancre

- Untreated, the chancre heals spontaneously in 1 to 4 months
- Constitutional symptoms begin just as chancres disappear
- Extragenital chancre: may be larger, frequently on lips, rarely tongue, tonsil, breast, finger, anus.
Serology

- Nontreponemal tests positive 50%
- Treponemal tests positive 90%
- Positivity depends upon duration of infection, if chancre has been present for several weeks, test is usually positive
Chancre vs. Chancroid

- Incubation 3 weeks
- Painless, no ulcer, no surrounding inflammatory zone
- Oval, hard
- Lymphadenopathy may be bilateral, nontender, nonsuppurative

- Incubation 4-7 days
- Ulcer inflamed, very painful, inflammatory zone
- Soft, covered by a membrane
- Lymphadenopathy unilateral, tender, suppurative
Ddx in Syphilis

- Chancroid; multiple lesions, may coexist with chancre, must r/o syphilis
- Granuloma Inguinale; indurated nodule that erodes, soft red granulation tissue, Donovan’s bodies in macrophages with Wright’s or Giemsa’s stain
- Lymphogranuloma Venereum; small, painless, superficial non indurated ulcer, primary lesions followed in 7 to 30 days by adenopathy
- HSV; grouped vesicles, burning pain
Secondary Syphilis

- Skin manifestations in 80% called *syphilids*
- Symmetric, generalized, superficial, macular transient; later papular, pustular
- Early on face, shoulders, flanks, palms and soles, anal or genital areas
Secondary Syphilis

Macular Eruptions

- Exanthetic erythema 6-8 weeks after chancre, extends rapidly, may last hours to months
- Round indistinct, slightly scaling ham-colored macules
- Pain, burning absent, pruritus may be present
- Generalized shotty adenopathy
Secondary Syphilis

Papular Eruptions

- Arise later than macular, raw-ham, round, 2-5mm or more in diameter, slightly raised, smooth or thick scale
- Face and flexures of arms and legs, trunk
- Palmar and plantar yellowish-red spots
- Ollendorf’s sign; papule tender to touch of a blunt probe
Secondary Syphilis

Papular Eruptions

- Papulosquamous syphilids may produce a psoriasiform eruption
- Follicular or lichenoid syphilids appear as minute scale-capped papules
- Tend to be disseminated, but may be localized, asymmetrical, con figurate, hypertrophic, confluent.
Secondary Syphilis
Papular Eruptions

- Annular syphilid mimics sarcoidosis, more common in blacks
- Cheeks, angle of mouth, annular, gyrate, ridges; “nickels and dimes”
- Pustular syphilid; rare, face, trunk, extremities red small crust-covered ulceration
- Rupial syphilid; superficial ulceration is covered with a pile of terraced crusts resembling an oyster shell.
Secondary Syphilis
Papular Eruptions

- Lues Maligna; rare, severe ulcerations, pustules, or rupioid lesions, accompanied by severe constitutional symptoms.
- Condylomata lata; papular mass, weeping, gray 1-3cm, groin, anus (not vegetative like condylomata acuminata)
- Syphilitic alopecia; irregular, scalp has a moth-eaten appearance 5% of pts
Secondary Syphilis
Mucous Membrane

- Present in 1/3 of secondary syphilis
- Most common is “syphilitic sore throat”
- Diffuse pharyngitis, hoarseness
- Tongue; patches of desquamation of papillae
- Ulcerations of tongue and lips in late stages
Secondary Syphilis

Mucous membrane

- Mucous patches are the most characteristic mucous membrane lesions; macerated, flat. Grayish, rounded erosions covered by a delicate, soggy membrane.

- Highly infectious, occur on tonsils, tongue, pharynx, gums, lips, and buccal areas, or on the genitalia
Secondary Syphilis
Systemic Involvement

- Lymphadenopathy common.
- Acute Glomerulonephritis, gastritis, proctitis, hepatitis, meningitis, SNHL, iritis, uveitis, optic neuritis, Bell’s palsy, pulmonary nodular infiltrates, osteomyelitis, polyarthritis.
Secondary Syphilis Diagnosis

- Nontreponemal serologic tests for syphilis are strongly reactive (seronegativity rarely in AIDS)
- Spirochetes on darkfield exam
Secondary Syphilis

Ddx “Great Imitator”

- Pityriasis rosea
- Drug eruptions (pruitic)
- Lichen planus;
  Wickham’s striae, Koebner’s, pruitic
- Psoriasis; no adenopathy
- Sarcoidosis; need serology and silver staining of biopsy

- Infectious mononucleosis, false pos RPR
- Geographic tongue
- Aphthous stomatitis
Latent Syphilis

- After the lesions of secondary syphilis have involuted, a latent period occurs
- May last a few months or a lifetime
- 60-70% of pts untreated remain asymptomatic for life
- No clinical signs, but serologic tests positive
- Women may infect unborn child for 2 years
Late Syphilis

- Defined by CDC as infection of greater than 1 years duration
- Tertiary Cutaneous Syphilis
- Late Osseous Syphilis
- Neurosyphilis
- Late Cardiovascular Syphilis
Tertiary Cutaneous Syphilis

- Tertiary syphilids usually occur 3-5 years after infection.
- 16% of untreated pts will develop lesions of skin, mucous membrane, bone or joints.
- Skin lesions are localized, destructive, heal with scarring.
Tertiary Syphilids

- Two main types; Nodular syphilid and the Gumma
- Nodular; reddish brown firm papules or nodules 2mm or larger, scales.
- Gumma; larger
Nodular Tertiary Syphilid

- Lesions tend to form rings and undergo involution as new lesions develop just beyond
- Characteristic circular or serpiginous pattern
- “kidney-shaped” lesion occurs on the extensor surfaces of the arms and on back
- Patches have scars and fresh ulcerated lesions
- Process may last for years, slowly marching across large areas of skin
Gumma

- May occur as unilateral, isolated, single or disseminated lesions, or serpiginous
- May be restricted to the skin, or originate in deeper tissues, and break down the skin
- Lesions begin as small nodules, enlarge to several centimeters
- Central necrosis, deep ulcer with a gummy base, most frequent site is lower legs
Diagnosis of Tertiary Syphilis

- Histopathology: tuberculoid granules with multinucleate giant cells
- Nontreponemal tests (VDRL, RPR) positive in 75%
- Treponemal tests (FTA-ABS, MHA-TP, TPI) positive in nearly 100%
- Darkfield negative, PCR may be positive
Ddx Tertiary Syphilis

- R/o tumors; SCCA tongue, leukemic infiltrates, sarcoidosis
- Ulcerated syphilids resemble scrofula, atypical mycobacterium, sporotrichosis, blastomycosis
- Mycosis fungoides (CTCL) has eczema and pruritis
- Perforation of hard palate and septum