

ZOO332H1S – Jan. 2003 (AJE)

Comments on Syphilis in relation to the knee-jerk (and other) reflexes

Background:

- *Treponema pallidum*, human pathogens responsible for significant worldwide morbidity.
- Fine, spiral organisms *ca.* 0.15 μ m wide and 6-15 μ m long.
- Sensitive to drying and extremes of temperature, transmitted by direct contact (thus a venereal disease)
- Manifests as a chronic disease with subacute symptomatic periods separated by asymptomatic intervals (during which diagnosis can be made serologically).
- 30-50% chance of contracting disease if come in **contact**
- can be acquired by kissing a person with active oral lesions

Pathophysiology

- infection generally characterized by an obliterative endarteritis resulting in impaired blood flow
- typical late manifestations of syphilis of the CNS and cardiovascular systems largely result from vascular involvement in these areas
- immune mechanisms contribute; immune inflammatory reaction; particularly of note when dorsal root ganglia (DRG) are involved.

Clinical Manifestations

- after acquiring the organism, incubation *ca.* 3 weeks but can be 10 to 90 days – diagnosis not possible on serologic or clinical grounds
- Primary: lesion at end of incubation, chancre at point of initial inoculation and multiplication of the spirochete
- Secondary: generalized illness that usually begins with symptoms suggesting a viral infection (headache, sore throat, low-grade fever)
 - o Lesions of the skin in 80% persons; other lesions over thighs; rash on genitalia and palms;
 - o CNS asymptotically involved in *ca.* 1/3 of patients with 2^{ndary}; CSF high in white blood cells (symptoms of basilar meningitis) with nerve signs (meningeal and cranial)
- latent syphilis (3rd stage) – diagnosis serologically; mucocutaneous relapses (2^{ndary} syphilis symptoms reappear)
- Late syphilis (4th stage) – destructive granulomas typically involve skin and bones.
 - o Bones – local increases in bone density or destructive lesions
 - o Tibia, clavicle, skull, and fibula
 - o Hyperimmune etiology
 - o Aortic endothelium; aortic valve cusps >> aortic insufficiency
 - o Aneurysms
 - o 8% involves CNS, identifiable by CSF; seizures, cerebrovascular accident

- personality changes, dementia and delusional states are common
- disorder of higher brain function (cortex)
- Tabes dorsalis – involvement of posterior columns and DRGs
 - Loss of vibration sense and proprioception that results in a characteristic broad-base gait.
 - Recall that sensory neuron cell bodies in DRGs;
 - Damage to cells in/around DRG; CNS lesions once made irreversible