



## Neurosyphilis

» Neurosyphilis can be characterized as early/acute or late disease. Early neurosyphilis can be symptomatic or asymptomatic and can occur at any stage of syphilis, including concurrently with primary or secondary disease. Early symptomatic neurosyphilis consists of syphilitic meningitis, ocular syphilis and/or otosyphilis. Rarely, vascular complications can result from syphilitic meningitis and lead to an ischemic stroke; vascular complications are more commonly associated with late disease.

### **Early Neurosyphilis: Review of Systems** (*pertinent positive symptoms*)

**GENERAL/CONSTITUTIONAL:** headache, fever, fatigue, weakness, dizziness

**HEAD, EYES, EARS, NOSE AND THROAT:**

- Eyes- pain, redness, loss of vision, double or blurred vision, photophobia, flashing lights or spots
- Ears- ringing in the ears, loss of hearing

**GASTROINTESTINAL:** nausea, vomiting

**MUSCULOSKELETAL:** neck pain/stiffness, muscle weakness

**NEUROLOGIC:** headache, dizziness, muscle weakness, confusion, loss of consciousness, seizures, difficulty speaking

**PSYCHIATRIC:** confusion

### **Early Neurosyphilis: Focused Neurologic Exam**

- **Cranial Nerve Exam:** assess for cranial nerve palsies (key maneuvers in **bold**)
  - **II: visual acuity, visual fields**
  - **II, III: pupillary reactions to light and accommodation**
  - **III, IV, VI: extraocular movements, inspect for ptosis**
  - V: corneal reflexes and jaw strength/movements, facial sensation
  - **VII: facial movements (raise eyebrows, frown, tightly close eyes, show teeth smile, puff out both cheeks)**
  - **VIII: hearing (rub fingers together)**
  - IX: swallowing, gag reflex, rise of palate
  - V, **VII**, X, XII: voice and speech
  - XI: trapezius muscle inspection & shoulder shrug
  - XII: inspection of tongue and lateral movement of tongue while protruded
- **Motor:** assess for weakness/hemiplegia
  - Muscle strength testing upper and lower extremities
- **Nuchal Rigidity Testing:** assess for meningeal inflammation
  - Chin to chest- stiffness/pain with flexion of neck, flexion of hips and knees in response to neck flexion (Brudzinski's sign)
  - Jolt accentuation maneuver- worsening of headache when patient rotates head rapidly from side to side
- **Deep Tendon Reflexes:** assess for hyperreflexia
  - Biceps
  - Supinator
  - Knee
  - Ankle



## Late Neurosyphilis

- **General Paresis:** chronic meningoencephalitis leading to dementia, muscle weakness and paralysis
  - Usually develops 10-20 years after initial infection
  - Progressive psychiatric and neurologic signs & symptoms including personality changes, memory loss, confusion, paranoia, seizures, weakness
  - Physical exam findings may include pupillary abnormalities including the Argyll-Robertson pupil (small pupil that constricts with accommodation but not with light), muscle weakness of the face and extremities, dysarthria, tremors of the face, tongue, hands, hyperreflexivity and eventually paralysis
  
- **Tabes Dorsalis:** demyelination of the posterior columns of the spinal cord
  - Usually develops 20-25 years after initial infection
  - Initial signs & symptoms may include gait abnormalities/ataxia, severe, sudden, brief stabbing pains mostly commonly occurring in the legs ("lightning pains"), paresthesias, other sensory abnormalities, bowel/bladder dysfunction, epigastric pain, nausea and vomiting, progressive loss of vision
  - Physical exam findings may include Argyll-Robertson and other pupillary abnormalities, optic atrophy, ataxia, dysmetria, sensory abnormalities, decreased/absent lower extremity reflexes