Meningitis PLUS

Key Points:
- The differential diagnosis for hypoglycorrhachia (low CSF glucose) is infectious (bacteria, TB, fungal), sarcoid, carcinomatous meningitis.
- The causes of extremely elevated CSF protein (> 500 mg/dL) are bacterial meningitis, SAH, and spinal block.
- The typical CSF pattern in acute neurosyphilis is elevated OP, lymphocytic pleocytosis, elevated protein, +/- low glucose, positive CSF-VDRL.

1. What is the differential diagnosis for hypoglycorrhachia (low CSF glucose)?
   - Infections: bacterial meningitis, TB, fungal, parasitic (cysticercosis, amoeba), rare viral
   - Inflammatory: sarcoid
   - Cancer: carcinomatous meningitis

2. What are the typical CSF findings in carcinomatous meningitis?
   - Elevated opening pressure, hypoglycorrhachia, elevated protein
   - Pleocytosis, lymphocytic or polys

3. What are the causes of very elevated CSF protein (> 500 mg/dL)?
   - Bacterial Meningitis
   - Subarachnoid hemorrhage (protein increases 1 mg/dL / 1000 RBCs)
   - Spinal block (inflammatory, infectious, malignant)
     - Froin’s syndrome: spontaneous coagulation of CSF from elevated proteins secondary to spinal block

4. What is a VP shunt infection?
   - Epid: 2.5-15% of all shunts
   - Risk factors: surgeon experience, device manipulation, duration of implant
   - Micro: Coag-neg staph (30-50%), Staph aureus (30%), GNRs (including pseudomonas, Corynebacterium, B. cereus, Candida spp, Stenotrophomonas, etc.)
   - Clinical features:
     - Most infections within 1 month of surgery
     - Range from no symptoms to fever to shunt failure (H/A, nausea, vomiting)
     - Rarely frank evidence of meningitis
   - Treatment: empiric treatment with nafcillin or vanco; shunt removal is controversial

5. What is the typical CSF pattern in neurosyphilis?
   The easy answer: it depends. Unfortunately, there are 6 manifestations of neurosyphilis. The most common we will see is probably acute syphilitic meningitis. This will present with meningeal signs, fever, elevated ICP (n/v, etc.). Cranial nerve findings are common (CN II, VI, VII, and VIII). The CSF will usually show:
   - Elevated opening pressure, elevated protein, +/- low glucose
   - Pleocytosis, lymphocytic and probably positive CSF-VDRL

References:
UptoDate