Learning objectives for CNS Infections

After this series of lectures (6 hours total), the medical students will be able to:

Part 1:

1) Enumerate the different types of CNS infections and list the important pathogens involved in these infections.
2) Identify the underlying conditions and routes leading to CNS infections.
3) Classify different types of meningitis based on presentation, causal organisms and age group affected. (Pyogenic or Septic; Aseptic; Chronic; Nosocomial meningitis)
4) Recognize different etiologic agents causing acute and chronic meningitis.
5) Identify and define the signs and symptoms of meningitis in infants, children and in adults.
6) Describe the physical exam findings associated with meningitis.
7) Formulate a work-up for CNS infections. (including appropriate lab and radiographic studies)
8) Name the contraindications for performing a lumbar puncture and possible complications of a lumbar puncture.
9) Differentiate bacterial, viral, and tuberculous meningitis based on the CSF examination results.
10) For specific pathogens causing meningitis, describe the morphology, cultural characteristics, and identification tests
11) Elaborate the epidemiology, virulence factors and the pathogenesis involved.
12) Describe the laboratory diagnosis of meningitis.
13) Enumerate the antibiotics for treating these infections.
14) Formulate an appropriate treatment plan for meningitis. (bacterial and viral)
15) Select the appropriate preventive measures against the specific pathogens.
16) Describe the gross and microscopic morphologic features of bacterial meningitis.

Part 2:

1) Enumerate localized lesions of the CNS. Describe the CNS abscesses including different intracranial and spinal abscesses.
2) Associate the various underlying conditions with abscesses.
3) Describe the clinical presentations and complications.
4) Enumerate etiologic agents causing abscesses, cystic lesions, and calcified lesions.
5) Describe the underlying pathology involved in these lesions.
6) Describe the imaging modalities used in CNS infections. Describe ring enhancement and its appearance in imaging.
7) Discuss the appropriate work-up and treatment of abscesses 8) Describe the morphology, characteristics, epidemiology, and pathogenesis of parasites causing cystic and calcified lesions.
8) Describe the laboratory diagnosis and treatment of these infections.
9) Describe the gross and microscopic morphologic features of these infections

Part 3:

1) Describe prions and the pathogenesis of prion diseases.
2) Enumerate the viruses, causing meningitis and encephalitis
3) Describe the characteristics, epidemiology and pathogenesis of viral meningitis and encephalitis.
4) Describe the pathological and radiological changes seen in encephalitis
5) Describe the diagnosis, laboratory diagnosis, treatment and prevention of viral meningitis and encephalitis