Teaching topics：CNS

Teaching outline：

A. Cellular Responses to injury
B. Cerebral edema
  a. Vasogenic edema
  b. Cytotoxic edema
  c. Vasogenic edema
C. Hydrocephalus
D. Herniation
  a. Raised intracranial pressure and herniation
  b. Transtentorial(uncinate, mesial temporal) herniation
E. Malformation and developmental diseases
  a. Neural tube defects
    - Anecephaly
    - Spinal bifida and Myelomeningocele
    - Holoprosencephaly
    - Agenesis of corpus callosum
  b. Forebrain anomalies
  c. Posterior fossa anomalies
    - Arnold-Chiari malformation
    - Dandy-Walker syndrome
  d. Syringomyelia and hydromyelia
F. Perinatal brain injury
G. Trauma
  a. Skull fracture
  1. Contusion and laceration
  2. Diffuse Axonal Injury
  3. Traumatic vascular injuries
  4. Epidural hematoma
  5. Subdural hemat
  b. Spinal cord trauma
H. Cerebrovascular diseases
  a. Hypoxia, ischemia, and infarct
  b. Intracranial hemorrhage
  c. Hypertensive cerebrovascular diseases
I. Infarction from obstruction of local blood supply (focal cerebral ischemia)
  a. Thrombosis
    - Atherosclerosis
  b. Carotid bifurcation
  c. Embolism
    - Cardiac mural emboli

J. Infections
   a. Acute meningitis
   b. Acute focal suppurative infection
   c. Chronic bacteria meningoencephalitis
   d. Viral meningoencephalitis
   e. Fungal meningoencephalitis
K. Degenerative Diseases
   a. Degenerative diseases affecting the cerebral cortex
      - Alzheimer disease
      - *Dementia*
   b. Degenerative diseases of basal ganglia and brainstem
      - Parkinsonism
      - Huntington Disease
   c. Spinocerebellar degenerations
   d. Degenerative diseases affecting motor neurons
L. Genetic metabolic diseases
   a. Leukodystrophies
   b. Mitochondrial encephalomyopathies
   c. Krabbe disease
   d. Metachromatic Leukodystrophy
M. Toxic and acquired metabolic diseases
   a. Vitamin deficiencies
   b. Neurologic sequelae of metabolic disturbances
   c. Toxic disorders
N. Tumors
   a. Astrocytomas
      1. well-differentiated fibrillary astrocytomas
      - nuclear pleomorphism
      2. Anaplastic astrocytomas
      - nuclear pleomorphism
      - mitotically active
      3 Glioblastoma (*glioblastoma multiforme*)
      - similar to anaplastic astrocytoma with the additional features of *necrosis* and *vascular or endothelial cell proliferation*
      - pseudopalisading necrosis