Neuropathology

I. General neuropathology and histology of CNS
    A. Stains, tissue preparation
    B. Cells, inclusion bodies, general
    C. Cellular reactions to CNS injury
    D. Edema
    E. Tissue reaction to CNS injury and herniations
II. Nervous system development, developmental pathology
    A. Fetal development
    B. Neural tube defects
    C. Cleavage disorders
    D. Migrational disorders
    E. Cranium malformations
    F. Chromosome disorders
    G. Genetic disorders
    H. Hydrocephalus
    I. Perinatal brain injury
    J. Disorders of hindbrain development
    K. Lesions of developing grey matter
III. Lesions of developing white matter infectious disease
    A. Bacterial infections
    B. Tuberculosis
    C. Fungal and parasitic infections
    D. Syphilis
    E. Viral infections including HIV
    F. Sarcoidosis
    G. Opportunistic infections
    H. Prion diseases
IV. Neuro-oncology
    A. Classification
    B. Primary neoplasms (astrocytic, oligodendroglial, ependymal, choroid plexus, neuronal)
    C. Molecular markers
    D. Pineal tumors
    E. Embryonal tumors
    F. Schwannoma
    G. Neurofibroma
    H. Meningiomas
    I. Non-meningothelial tumors
    J. Lymphomas
    K. Hematopoietic neoplasms
    L. Metastases
    M. Pituitary
        1. Normal pituitary
        2. Adenomas

3. Other sellar lesions

V. Encephalopathy due to intoxications, drugs, vitamin deficiencies, and metabolic diseases
   - A. Cerebral hypoxia
   - B. Electrolyte disturbances
     1. Hyponatremia
     2. Hypernatremia
   - C. Vitamin deficiencies
   - D. Toxic encephalopathies related to CNS toxins
   - E. Secondary CNS involvement in systemic diseases
   - F. Biochemical abnormalities
   - G. Rare disorders
     1. Lysosomal storage disorders
     2. Sphingolipidoses
     3. Leukodystrophies
     4. Mucopolysaccharidoses
     5. Aminoacidopathies
     6. Peroxisomal disorders
     7. Mitochondrial disorders
     8. Glycogen storage diseases
     9. Enzyme deficiencies without storage problems
     10. Metabolic disorder
     11. Disorders of structural proteins

VI. Degenerative/ demyelinating diseases
   - A. Multiple sclerosis
   - B. Acute disseminated encephalomyelitis
   - C. Neuromyelitis optica
   - D. Dementia:
     1. Classification of dementia
     2. Alzheimer disease
     3. Dementia with Lewy bodies
     4. Vascular dementia
     5. Hippocampal sclerosis
     6. Movement disorders
     7. Cerebellar degenerations
     8. Motor neuron diseases
     9. Involvement of autonomic nervous system in degenerative disorders
     10. Hydrocephalus

VII. Cerebrovascular disease
   - A. Aneurysmal subarachnoid and intraventricular hemorrhage
   - B. Hypertensive cerebrovascular disease
   - C. CAS
   - D. Vascular malformations
     1. Aneurysms
     2. Arteriovenous malformation
     3. Cavernous malformation

4. Dural arteriovenous fistula
E. Small vessel disease
F. CADASIL
G. Vasculitis
H. Microbleeds
I. Stroke and lacunar infarcts
J. Venous pathology

VIII. CNS Trauma – cranial/spinal
A. Classification of TBI
B. Scalp/skull lesions
C. Concussion
D. Contusions/lacerations
E. Hemorrhage
1. Epidural hematoma (EDH)
2. Subdural hematomas (SDH)
3. Traumatic SAH
4. Intraventricular hemorrhage
F. DAI
G. Penetrating injuries, blast injuries
H. Chronic traumatic encephalopathy
I. Pediatric head injury
J. Skull fractures
K. Herniation syndromes
1. Subfalcine
2. Uncal
3. Tonsillar
L. Spinal shock
M. Spinal cord syndromes
N. Spine trauma – axial and subaxial fractures

IX. Spinal developmental lesions
A. Lipoma
B. Tethered cord
C. Diastematomyelia
D. Neuroenteric cysts
E. Arachnoid cysts

X. Spinal tumors and spinal infections, infarcts, inflammatory diseases, degenerative
A. Bone tumors
B. Epidural lesions
C. Intradural – extramedullary
D. Intramedullary tumors
E. Metastases
F. Osteomyelitis
G. Abscess
H. Transverse myelitis
I. ALS
J. Polio

- K. Rheumatoid arthritis
- L. Spondylosis
- M. Stenosis
- N. OPLL
- O. Spinal infarcts
- P. Nerve root sleeve CSF cysts

XI. Peripheral nerve disorders, nm junction diseases/muscle diseases
- A. Skeletal muscle pathology
  1. Stains
  2. Fiber type
- B. Neurogenic atrophy
- C. Neuromuscular transmission defects
- D. Genetic diseases of skeletal muscle (muscular dystrophies)
- E. Congenital myopathies
- F. Metabolic myopathies
- G. Toxic myopathies
- H. Rhabdomyolysis
- I. Inflammatory myopathies
- J. Peripheral nerve histology
  1. Normal anatomy - axons, myelin, etc.
  2. Reaction of peripheral nerve to disease pathology
  3. Demyelination
  4. Axonal loss
- K. Inflammatory polyneuropathies
- L. Infectious/vasculitic paraneoplastic neuropathies
- M. Monoclonal gammopathies
- N. Nutritional/toxic neuropathies
- O. Hereditary motor-sensory neuropathies
- P. Porphyria