

Pediatrics

- I. Hydrocephalus/CSF
 - A. Hydrocephalus associated with myelomeningocele
 - B. Intraventricular hemorrhage
 - C. Aqueductal stenosis
 - D. Dandy Walker syndrome
 - E. Acquired (tumor, infection, hemorrhage)
 - F. Shunt – complication management
 - G. Endoscopic third ventriculostomy
 - H. Post Infectious cysts (subependymal)
- II. Anatomy
 - A. Embryology
 - 1. Neuropore closure (timing)
 - B. ETV anatomy
- III. Tumor
 - A. Astrocytoma
 - 1. Optic pathway glioma
 - 2. DIPG v exophytic brainstem glioma
 - 3. Juvenile pilocystic astrocytoma (JPA)
 - 4. Tectal glioma
 - 5. Others (subependymal giant cell astrocytoma, pleomorphic xanthoastrocytoma, gangliocytoma)
 - B. Medulloblastoma
 - 1. Radiology
 - 2. Histology/molecular
 - 3. Variability adjuvant treatments as a function of subtype of tumor and the extent of resection
 - C. Ependymoma
 - 1. Radiology
 - 2. Histology
 - 3. Surgical management
 - D. Intraventricular tumor differential
 - 1. Management (CPP, central neurocytoma, ependymoma)
 - E. Craniopharyngioma
 - 1. Radiology
 - 2. Histology
 - 3. Surgical management
 - 4. Complications
 - F. Pituitary tumors / cysts
 - 1. Cushing disease
 - 2. Acromegaly/gigantism
 - 3. Diagnosis/work-up
 - 4. Surgical management
 - G. Pineal region
 - 1. Embryonal tumors (differential, diagnosis, management)

- 2. PNET/neuroblastoma
 - 3. AT/RT
- H. Developmental tumor:
 - 1. DNET
 - 2. Ganglioglioma
 - 3. Lhermitte duclos
- I. Neurocutaneous syndromes (phakomatoses)
 - 1. Types
 - a. VHL and hemangioblastoma
 - b. NF1
 - c. NF2
 - d. Tuberous sclerosis
 - 2. Diagnosis/treatment
- J. Eosinophilic granulomatosis, Wegener's vasculitis, and other inflammatory conditions
- K. Meningioma: diagnosis, histopathology, treatment
- L. Oligodendroglioma: diagnosis, histopathology, treatment
- IV. Congenital
 - A. Craniosynostosis
 - 1. Syndromic
 - 2. Non-syndromic
 - 3. Surgery (endoscopic vs open)
 - B. Plagiocephaly: diagnosis, management
 - C. Chiari syndromes: presentation, imaging, management
 - D. Encephaloceles/dermoid/epidermoid
 - E. Schizencephaly vs porencephaly
 - F. Midline disorders (agenesis of corpus callosum, etc....)
 - G. Genetic syndromes
 - 1. Tay Sachs (leukodystrophies)
 - 2. Muscular dystrophy
 - 3. Mitochondrial syndromes
 - H. Fetal surgery
- V. Trauma
 - A. Skull fracture
 - B. Epidural hematoma
 - C. Subdural hematoma
 - D. Diffuse axonal injury (DAI)
 - E. ICP management
 - 1. Parameters/CPP
 - 2. Medications
 - 3. Hemicraniectomy
 - F. Critical care management
 - G. Spinal injury
 - H. NAT (non-accidental trauma); work-up/management
 - I. Concussion
- VI. Functional/epilepsy

- A. Epilepsy surgery
 - 1. Etiologies (lesional vs non-lesional)
 - 2. Diagnosis
 - 3. Resective
 - a. Medical temporal sclerosis and anterior temporal lobectomy
 - b. Hemispherectomy and Rasmussen
 - 4. Non-resection epilepsy
 - a. VNS
 - b. DBS
 - c. CC
 - d. LITT
 - e. Medical management
 - B. Spasticity
 - 1. Selective dorsal rhizotomy and selective neurectomies
 - a. Technique
 - b. Monitoring
 - c. Complications
 - 2. Intrathecal pump
 - a. Indications
 - b. Technique
 - c. Complications
 - 3. Congenital dystonia
 - a. DBS
- VII. Cerebrovascular
- A. Stroke
 - 1. Moyamoya
 - B. Cavernous malformation
 - C. Aneurysms
 - 1. Surgery
 - 2. Endovascular
 - D. Vein of Galen aneurysm
 - 1. Presentation
 - 2. Endovascular treatment
 - E. Arteriovenous malformation (AVM)
 - 1. Diagnosis
 - 2. Treatment
- VIII. Spine
- A. Syndromes
 - 1. Scheuermann syndrome
 - 2. Klippel Feil
 - 3. Tethered cord
 - 4. Down syndrome
 - B. Craniocervical junction
 - 1. Basilar invagination
 - 2. Os odontoideum
 - C. Congenital vertebral anomalies

1.Diastematomyelia

- D. Scoliosis/degenerative
 - E. Lipomyelomeningocele
 - F. Myelomeningocele
 - G. Eosinophilic granuloma
 - H. Tumors
- IX. Infectious disease
- A. Abscess
 - B. Dermal sinus tract
 - C. TORCH infections
 - D. Subdural empyema
 - E. Neurocysticercosis
 - F. Tuberculosis
- X. Ethics
- A. Decision-making
 - B. Informing children