

Epilepsy, Pain, Movement Disorders, and Psychiatric Indications

- I. Basic science of epilepsy
 - A. Fundamental neuroanatomy: anatomy, physiology, pathways
 - B. Malformations of cortical development
 - C. Histopathology of mesial temporal sclerosis
 - D. Surgical approaches
- II. Focal epilepsy - clinical hallmarks and preoperative evaluation
 - A. Classification of seizures
 - B. EEG
 - C. Neuroradiology in epilepsy patients
 - D. Seizure characteristics in focal epilepsies
 - E. Current approaches to anticonvulsant management and determination of medically refractoriness
- III. Evaluation of patient for epilepsy surgery
 - A. Neuroradiology, MRI, fMRI
 - B. MEG
 - C. PET, SPECT
 - D. Wada testing
 - E. Video EEG
 - F. Neuropsychological testing
 - G. Intracranial monitoring: grids, strips, and stereo-EEG
- IV. Epilepsy surgery approaches
 - A. Temporal lobe epilepsy: temporal lobectomy and amygdalohippocampectomy
 - B. Extratemporal cortical epilepsy
 - C. Hemispheric epilepsy syndromes
 - D. Intraoperative mapping and monitoring for epilepsy in eloquent regions
 - E. Hemispherectomy and functional hemispherotomy
 - F. Stimulation for epilepsy: VNS, RNS, anterior thalamic DBS
 - G. Callosotomy, extratemporal resection
 - H. Ablation, LITT
- V. Basic science of chronic pain
 - A. Anatomy and physiology of pain
 - B. Molecular basis of nociception
- VI. Surgical approaches for chronic pain and outcomes
 - A. Neuromodulation
 - B. Neuroablation for pain
 - C. Intrathecal drug delivery
- VII. Trigeminal neuralgia
 - A. Clinical features of facial pain
 - B. Medical management of facial pain
 - C. Percutaneous procedures for trigeminal neuralgia
 - D. Radiosurgery for trigeminal neuralgia
 - E. Posterior fossa approaches: MVD and internal neurolysis

- VIII. Movement disorders: anatomy, basic science, neurophysiology, imaging, clinical presentation, medical therapy
 - A. Parkinson's disease
 - B. Essential tremor
 - C. Dystonia
 - D. Spasticity
 - E. Tourette syndrome
- IX. Surgical treatment of movement disorders and outcomes
 - A. Imaging and surgical targeting for movement disorders
 - B. Intraoperative mapping
 - C. Ablative procedures
 - D. Deep brain stimulation
- X. Psychiatric disorders: anatomy, basic science, neurophysiology, clinical presentation, therapeutics
 - A. Obsessive-compulsive disorder
 - B. Major depressive disorder
- XI. Surgical treatment of the psychiatric disorders and outcomes
 - A. Imaging and surgical targeting for psychiatric disorders
 - B. Intraoperative mapping
 - C. Ablative procedures
 - D. Deep brain stimulation