

Surgery in Epilepsy

SURGERY IN EPILEPSY

With the advancement in technology, surgical management of epilepsy is now possible. Surgery for epilepsy is an effective mode of intervention. This facility is now available at a few specialized centers in India.

Medically Intractable Epilepsy (MIE)

(Synonyms: Intractable epilepsy, difficult to control epilepsy, refractory epilepsy, therapy resistant epilepsy)

DEFINITION

Individuals with medically intractable epilepsy are defined as:

- Those in whom epilepsy is not controlled by 2 or more appropriate AEDs used in their optimal dosage.
- Adults (16 years or above) who continue to have seizures even after 2 year of treatment.
- Pediatric epilepsy patients can be labeled as MIE much earlier (sometime even within weeks of onset of seizures), if they present with epileptic encephalopathy, infantile spasms, catastrophic onset of epilepsy, seizure frequency of >1/ month, and disabling seizures.

Catastrophic epilepsy-induced encephalopathy: Severe developmental disabilities affecting intellect, behavior, and mood as a consequence of frequent seizures during early childhood.

Infantile spasms: A severe form of early onset seizures, usually during the first year of life, characterized by sudden spasms or jerks of the upper arms, legs and trunk in a repetitive fashion. Infantile spasms are strongly associated with severe epilepsy-induced encephalopathy and should be treated as an emergency.

MAGNITUDE OF THE PROBLEM:

- Nearly 70% of the new onset epilepsy patients can be controlled with proper medication.

- The remaining patients are considered having medically intractable epilepsy and some of them need to be evaluated for possible surgical intervention.
- Surgery when indicated should be considered as early as possible and should not be an option of last resort.

INDICATIONS FOR SURGERY IN EPILEPSY

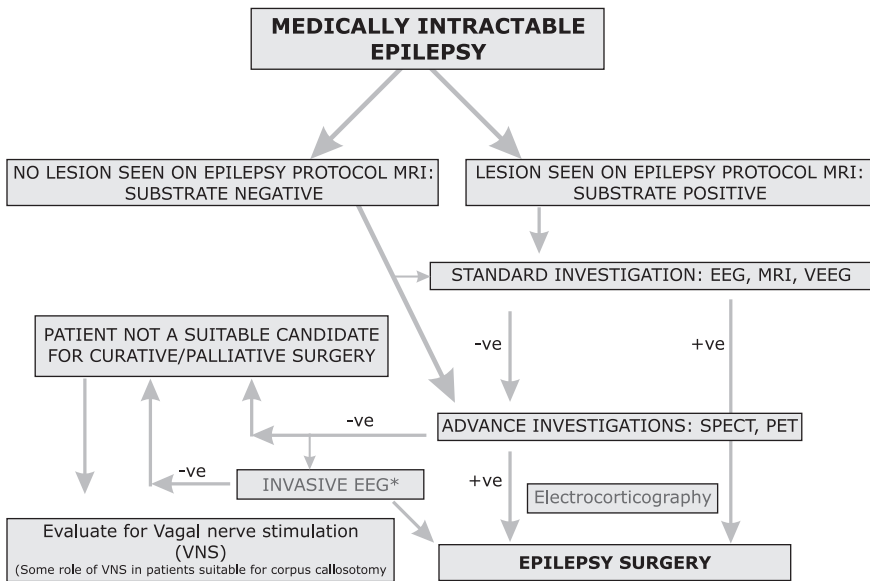
- All patients with medically intractable epilepsy should be evaluated at a centre performing epilepsy surgery.
- A patient having medically intractable epilepsy with an identifiable lesion on imaging, correlated with electrophysiology (EEG, VEEG) is a potential candidate for epilepsy surgery.
- Even if imaging is negative, patients still can be surgical candidates on further investigation.
- Epilepsy surgery should be done only in specialized centres.

Algorithm for approach to patients with medically intractable epilepsy
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BENEFITS OF SURGERY IN EPILEPSY:

- Surgery has been established to be safe (risk of surgery has been shown to be less than the risks associated with the natural course of epilepsy).
- Surgery has a high chance of achieving seizure freedom (in 60-70% of cases) and a reduction in seizure frequency in the remaining 30-40% cases.
- Epilepsy surgery may be resective or non-resective. In some cases epilepsy surgery may be curative.
- Resective surgery includes lesionectomy (resection of the lesion and the surrounding epileptogenic area), amygdalo-hippocampectomy with or without temporal lobe resection, multilobar resection and hemispherectomy.
- Nonresective surgery includes multiple subpial transections, corpus callosotomy and vagus nerve stimulation.

Algorithm for approach to patients with medically intractable epilepsy



Note: Substrate negative: Imaging negative, Substrate positive: Imaging positive. Invasive EEG: EEG performed by placing grids and/ or depth electrodes through surgery followed by long term EEG. Electrocorticography: method of recording EEG at the time of surgery by placing grids on the brain surface