

Surgery for Epilepsy

Frequently Asked Questions (FAQs)



INDIAN ACADEMY OF
NEUROLOGY

A Public Information Initiative

Q. 1. What is epilepsy surgery?

Ans. Epilepsy surgery is a highly specialized procedure and performed by highly experienced surgeons only in few centres. Epilepsy surgery involves the surgical removal of the small region of the brain responsible for the abnormal electrical signals that cause seizures. Epilepsy surgery can provide a "cure" for epilepsy by eliminating the source of epilepsy.

Q. 2. My seizures are well-controlled with medication. I want to stop the medication. Will epilepsy surgery help me in this?

Ans. No. Epilepsy surgery is an option only for those who are on medication but still the seizures are not controlled. Even after epilepsy surgery, ~50% will need to continue the medication. The aim of epilepsy surgery is to convert medically uncontrolled epilepsy into well-controlled epilepsy on medication.

Q. 3. What are the advantages of epilepsy surgery?

Ans. Surgery for epilepsy is advancing continuously with newer techniques, newer equipment and an increasing number of neurosurgeons interested in delivering this service. The number of people undergoing this surgery is steadily growing and many of them go on to enjoy a far better quality of life. The success of modern surgery for epilepsy has caused a widespread interest in this type of treatment, with people accepting and preferring this to a lifetime on medication.

Q. 4. Who is suitable for epilepsy surgery?

Ans. The following criteria make the patient a suitable candidate for surgery:

- The seizures must consistently come from the same location in the brain.
- The seizure focus must be in a location of the brain that can be safely removed while preserving important functions like language, memory, movement and vision etc.

Q. 5. Who should undergo epilepsy surgery?

Ans. To find out whether someone is suitable for this type of surgery, a number of things will need to be taken into account by the consultant neurologist or epileptologist.

- Surgery will be considered if the person has no other medical problem which could make him/her unfit for surgery.
- For patients where anti-epileptic drug treatment has been tried but still the seizures are uncontrolled.
- The seizures should be arising from one localized area of the brain and the person's ability to function normally should not be affected by removing this part of the brain.
- The affected part of the brain can be removed without causing further damage to any other part of the brain and important areas of the brain responsible for speech, vision, movement or hearing are not close to the part of the brain to be removed.

Q. 6. Is there any specific rule regarding the number of seizures, or duration of epilepsy, before considering for epilepsy surgery?

Ans. The usual rule is the rule of two. If a patient is having epilepsy for more than two years with a

frequency of 2/month (now-a-days even one seizure in two months) despite being on two anti-epileptic medications, such patients should definitely be evaluated for surgery.

Q. 7. Is the duration of two years of epilepsy must before epilepsy surgery?

Ans. In adults, the duration of two years is required to establish that the epilepsy is not responding to medicines. But in children we can consider epilepsy surgery even with duration of less than one year, especially, if the seizures are happening very frequently and affecting the development of the child.

Q. 8. If I have epilepsy which happens only once or twice a year, shall I undergo surgery?

Ans. If the seizures are infrequent and non-disabling, then it is better to try various combinations of medications for optimal control of epilepsy. However, it may happen that the patient or the family may not be able to notice minor seizures and the exact frequency may be far more than presumed.

Q. 9. What tests are needed before surgery?

Ans. Epilepsy surgery is a highly individualized procedure. The details of the seizure type and seizure focus must be defined as precisely as possible before surgery. Patients will undergo extensive testing as part of the presurgical workup. This includes:

- Evaluation by an epileptologist for complete review of all records, past diagnostic studies and past responses to medical treatment.
- Video-EEG monitoring, also known as video telemetry, involves hospitalization of the patients for 5-7 days during which they are continuously monitored and recorded with a video camera and electroencephalograph (EEG) simultaneously. This helps to study the brain-wave activity during the seizures and identify the seizure-focus (abnormal area of the brain) where the seizures begin. This helps in evaluating a person who is a candidate for surgery to treat epilepsy.
- High-resolution MRI based on specialized epilepsy protocols to identify any abnormal regions that could be causing the seizures.
- PET and ictal SPECT test for selected cases for identifying the abnormal area of brain causing the seizures.
- Some patients may require noninvasive tests such as magnetoencephalography (MEG). MEG identifies the possible location of the seizure, and can be used to identify speech and motor control areas to make surgery safer.
- Neuropsychological assessment of memory and other cognitive functions is done before and after surgery.
- A functional MRI (fMRI) is sometimes performed in selective cases to test language and memory on each side of the brain.
- Presurgical consultation with the anesthesiologist and neurosurgeon.

Q.10. What is a Wada test?

Ans. The Wada test is named after the Canadian neurologist and epileptologist, Dr. Juhn Wada who

developed it. The purpose is to test each side of the brain for language and memory. The neurologist will identify the side of the brain responsible for language and confirm that the side opposite the seizure focus can support memory.

The interventional radiologist will explain the Wada test in detail before the procedure. Informed consent is required, as with all invasive procedures. Most patients remain in the recovery area under observation for six hours after the procedure.

Q.11. What are the types of surgeries performed?

Ans. Surgery can be of various types depending upon the brain area involved.

Temporal Lobectomy: This is the commonest surgery performed and nearly 80% will be seizure-free after surgery. A larger part of the temporal lobe is removed;

Hemispherectomy: This is sometimes used to treat very severe epilepsy in children with disease or damage to one whole side of the brain. The damaged side of the brain is disconnected from the normal brain.

Lesionectomy: Removal of a lesion such as a tumour or a cyst.

Corpus Callosotomy: Used to treat children with very severe seizures. This operation involves cutting the fibres that connect the two halves of the brain to prevent the spread of seizures from one side to the other.

Q.12. What is palliative surgery?

Ans. In palliative epilepsy surgeries, the brain structures are disconnected to control seizures. These surgeries are done in few selected cases only where there is no scope of good control of seizures by any medical or surgical treatment. These include corpus callosotomy, vagus nerve stimulation (VNS) and deep brain stimulation (DBS).

Q.13. What is curative epilepsy surgery?

Ans. Epilepsy surgery, in which a very small region of the brain cortex responsible for seizures is removed with an aim to have good control of seizures, is called curative epilepsy surgery. The most common curative epilepsy surgery is for temporal lobe epilepsy, i.e., mesial temporal sclerosis.

Q.14. How successful is epilepsy surgery?

Ans. Epilepsy surgery is a time tested surgery with an excellent outcome in the range of 80-90% in selected patients. The success of epilepsy surgery depends upon the type of epilepsy and how accurate are we able to pinpoint the area responsible for epilepsy before surgery by various investigations.

Q.15. What are my chances of becoming seizure-free after surgery?

Ans. Many people are completely free of seizures after surgery. For some, the frequency of seizures is significantly reduced. In few cases, surgery may not be successful and a second surgery (re-operation) may be recommended.

Q.16. How long will I be in the hospital? How much time will I need to recuperate?

Ans. Most patients leave the hospital within one week, many within 3 - 5 days of surgery. You may need more or less time depending on your general health. Despite the lengthy and very difficult nature of brain surgery, most patients make a rapid recovery and are usually up and about within a couple of days.

Q.17. What are the risks of epilepsy surgery?

Ans. The risks of epilepsy surgery include:

Risks associated with surgery: Surgery may lead to infection and bleeding, as well as the risk of an allergic reaction to the anaesthesia.

Risk of neurological deficits: Sometimes, surgery may worsen existing problems or create new problems with the way the brain functions. Neurological deficits include loss of functions such as vision, speech, memory, or movement.

Risk of surgery failure: Even with careful pre-surgical evaluation, surgery may not eliminate or reduce seizures. Before undergoing surgery, your doctor will discuss the potential risks and benefits of the procedure.

Re-operations: Occasionally, a second operation (re-operation) is needed to remove brain tissue that is later found to be a source of seizure activity.

Q.18. How frequent are epilepsy surgery complications?

Ans. The complications of epilepsy surgery vary from 0.5% to 2% based on the experience and expertise of the surgeon. The risk of epilepsy surgery is markedly less when compared to complications and accidents associated with uncontrolled seizures.

Q.19. Will I need to take anti-epileptic medications after surgery?

Ans. Most patients will need to continue taking anti-epileptic medication for at least 1-2 years after surgery. Once seizure control is established, medications may be reduced or eliminated. Some people may have to continue with medication indefinitely to retain seizure control.

Q.20. What are the chances of stopping medication after my epilepsy surgery?

Ans. Some people may experience seizures just after the operation due to temporary swelling. This does not mean that the operation has failed.

It is a highly individualized decision. Depending on the patient's status and the treating physician, it may be some time before the doctor can start reducing their medication.

Up to 75-80% of patients notice a dramatic reduction in the number of seizures after surgery, especially temporal lobectomy, and many find that their seizures appear to have stopped. They can then look at reducing or stopping their medication in consultation with their doctor

Q.21. Is there an age limit for epilepsy surgery?

Ans. The average age at the time of surgery is 20 to 40 years. However, age itself is not a reason for

exclusion from surgery. Patients less than one year of age, as well as patients 60 and older have been operated on successfully.

Disclaimer:

This brochure is for the general information of the public and the patients. People should not self-medicate themselves with the medicines and treatments mentioned here. Before taking any of the medications mentioned in the information brochure, please consult your neurologist.

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