

## Kochi surgeons devise a non-invasive, cost effective treatment for epilepsy

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Four surgeons at a Kochi hospital has devised a non-invasive and cheap treatment for epilepsy, considered to be the first time in India. The treatment, which involves eliminating epileptic focus through radiofrequency has found to be completely successful in a patient, who had severe epileptic seizures.

"The 31-year-old patient from Kannur in Kerala came to us with daily multiple epileptic seizures for the past over 15 years and was drug resistant and the only option was a surgery," said Dr. Siby Gopinath, Neurologist and Professor at Amrita Institute of Medical Sciences and Research Centre at Kochi.

"As his MRI Brain did not show any definite lesion as the cause for epilepsy, we had to implant electrodes into the brain to record seizures and confirm the epileptic focus. Conventional implantation surgery entails opening the scalp and implanting electrodes in the brain," Dr. Gopinath told Indian Science Journal.

"Since the epileptic focus - the point on the brain from where the epilepsy waves are originating, was on the left side, near the insular region, very near the speech area, there was a risk of losing the speech faculty, we decided to go for ablating the affected tissues using radiofrequency."

Dr. Gopinath said, a team of neurosurgeons headed by Dr. Ashok Pillai at the Amrita Advanced Centre for Epilepsy, used the latest brain mapping technology - Stereo Electroencephalography (Stereo EEG) to record and capture the origin of fits and confirm the epileptic focus. Unlike conventional procedure, Stereo EEG involves inserting electrodes stereotactically through multiple pinholes on the scalp and can avoid an open brain surgery.

"This doesn't involve a major surgery or opening of the brain," said Dr. Gopinath. "The high frequency radio waves were then targeted to the epileptic focus and this high frequency heat precisely ablated the focus."

The whole procedure took only two hours and the patient was fully conscious and speaking throughout the procedure. He was discharged in two days and the cost of the procedure was just around Rs. 7,000 compared to approximately one lakh for an open brain surgery, Dr. Gopinath added.

The patient, who had to discontinue his studies and later work as an electrician due to frequent seizures is now fully cured and would be able to resume normal life after a few follow-ups.

India has one-sixth of the global burden of epilepsy, with 12 out of every 1000 people affected and an annual increase of six per every ten thousand Indians. Of the 70 million persons with epilepsy worldwide, nearly 6 million are estimated to be in India.

Ironically, a sizeable number of epileptic patients in India do not receive any treatment. Lack of knowledge of anti-epileptic drugs, poverty, cultural beliefs, stigma, poor health infrastructure and shortage of trained professionals contribute to the treatment gap. There are just 18 centres currently in India that altogether perform 500 epilepsy surgeries, but the number of patients, who may require surgery is estimated to be around 3,00,000.

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