

ALL YOU WANTED TO KNOW ABOUT **DEEP BRAIN STIMULATION SURGERY**



All you wanted to know about Deep Brain Stimulation Surgery

What is Deep Brain Stimulation (DBS)?

Deep Brain Stimulation (DBS) involves implantation of an electrode deep within the brain, usually, under local anaesthesia. In recent times, Subthalamic Nucleus (STN) stimulation has emerged as the favored site for DBS for Parkinson's disease. This electrode is permanently left in place and connected to a small implantable pulse generator (IPG). This remotely programmed pacemaker emits small pulses of energy through the electrode to block the abnormal activity in the brain that cause the symptoms of Parkinson's Disease. The first procedure of the modern DBS was performed by Prof. Benabid, in France and reported in 1995 and published in 1997. **After extensive training with Prof. Benabid, Dr. Paresh Doshi performed the first DBS surgery in India in 1999.**

Pict of DBS



When is the ideal time to undergo DBS procedure?

In the initial years, Parkinson's disease (PD) is well controlled by medications, the exception being, uncontrolled tremors for which an early surgery may be needed. However, a few years down the line the disease tends to progress and the side effects of medicines can be seen. Most common side effects include motor fluctuations, in the form of sudden off periods or unpredictable off periods, hallucinations, dyskinesias or symptoms attributable to dopamine dysregulation. At this time increasing the dose of medication is not helpful as it only brings in more side effects. Patient usually start changing doctors in search of better control of the disease, however, every change that brings some improvement, becomes increasingly short-lived. Usually this period comes, 6 to 7 years after the disease's progress, however, it can occur earlier in some patients, especially if the patient gets PD at a young age of less than 40. It has been in the opinion of all international experts in the field that onset of motor fluctuations should initiate the discussions for surgery. **We believe that the surgery should be offered to the patient when disease is not adequately controlled by medical management and his quality of life is getting impaired.**

In 2013, a landmark study was performed across seven centres in Europe which concluded that offering surgery early in the course of disease, after the motor fluctuations are set in, would not only improve the quality of life but also help patients reduce the medication dosage and avoid long term side effects. One can Google this by the name of EARLY STIM study for more information. Even the USA FDA has given approval for performing studies early in the disease.



What are the benefits of surgery?

It is known that the surgery will improve the duration of your ON period, i.e. the period when you are fully functional without the side effects of medicines and not slow or frozen, as in, without the effect of medicine. Typically, the surgery will increase the ON period to last for 70 to 80% of the day and the rest of the day the patient would experience OFF periods which are not as severe OFF periods as they used to suffer before the surgery. After successful surgery, in most of the patients, we have found that we are able to reduce the medications by 40%, while for some patients who have opted for surgery earlier in the disease we have also been able to take them off medications entirely. The surgery also offers significant benefit on tremors and rigidity, alleviates dyskinesias and hallucinations, improve depression, increases weight and generates an overall positive feeling to help in improving the quality of life. **However, not all the patients benefit equally and hence it is very important that your surgeon understand what he can deliver by surgery and what he can improve by medical management so that you can understand the exact outcome of surgery. Most of the centres do not have adequate experience to give you a convincing and confident answers to all these questions which are very important to the patient.**

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My father was suffering from Parkinson's disease for 3 years. Tried many treatments from 5 countries without any benefit. Finally we found Dr. Paresh and he did a surgery for my father and since 6 years he is very well. ”

– Mohamed Ali



“

If there is a miracle in life, it has to be this.” (Seeing the post operative results of PD surgery) ”

– H.E Nawal Kishore Sharma,
Governor of Gujarat

Can you describe a typical surgical procedure?

The surgical procedure differs from centre to centre. We have perfected the art of surgery and have realised that each patient is an unique individual and we have to tailor the surgery to suit his/her needs. A typical surgical procedure involves the admission of the patient on day 0, followed by various clinical and psychological evaluations on Day 1, followed by MRI under sedation or general anaesthesia on Day 2, surgery for electrode implantation under local anaesthesia on day 3, and pacemaker implantation under general anaesthesia on Day 4. During the first two days there are extensive Parkinson's Disease related assessments, video recordings and patient counselling by our team in order to ensure that the patient can undergo surgery with confidence and with a smile. Usually the patient stays in the hospital for the six to seven days till the removal of sutures. During this time he undergoes programming of the pacemaker and simultaneous reduction in medications. We have different strategies for operating younger patients and elderly patients, and patients with comorbid diseases. We are very particular in our protocol for example, we only perform MRI using 3T MRI machine, navigation system used for the surgery is in the hospital and not procured from outside, the microelectrode recording equipment which is one of the most sensitive tools for guiding the success of therapy also belongs to the hospital and hence chances of error are minimised. During both the parts of surgery, i.e. under local anaesthesia on day 3 and general anaesthesia on day 4, the senior most anaesthetist, who has been a part of our team for the last 20 years, monitor the patient, thus ensuring the safety of the patient.



What would be the follow up schedule after surgery?

As we have a large experience of operating patients of Parkinson's Disease we are very confident that our initial programming will give the desired benefit to around 70% of the patient. However there are some patients who may need reprogramming in the first three months after surgery once the initial effect of surgery wears off. We always recommend to the patient that, they should be prepared to come back to our centre once in the first three months.. We do not charge for any reprogramming for the first time and this is covered in the cost of surgery (except if the patient gets admitted). Once the patient has reached stable programming parameters we give them two or three different programs so that they can adjust to the requirement after they go back to the routine. We usually have to see them only once a year or once in two years.



What are the different types of pacemakers and what are their merits and demerits?

Presently there are two companies in the country that have the infrastructure and direct presence to offer DBS solutions. There are other companies which work through the distributors, which we do not endorse, as we do not know when they will stop the services and the patient may be left with the pacemakers which cannot be serviced.

In the last 5 years there has been significant advancement in the technology of DBS. We now have pacemakers that can last from 5 years to 25 years. There are pacemakers that offer potential of recording neural signals from the brain which can be used to tailor the treatment for each individual patient and there are pacemakers that can deliver a wide range of stimulation in a very precise manner to help limit side effects. To further increase the complexity we now have regular and directional leads. All these devices have a particular purpose and a target patient. It is very important for your consultant to be conversant with all the devices and comfortable in using all of them equally well to offer you the best option for your treatment. All these devices are now "conditional" MRI compatible.

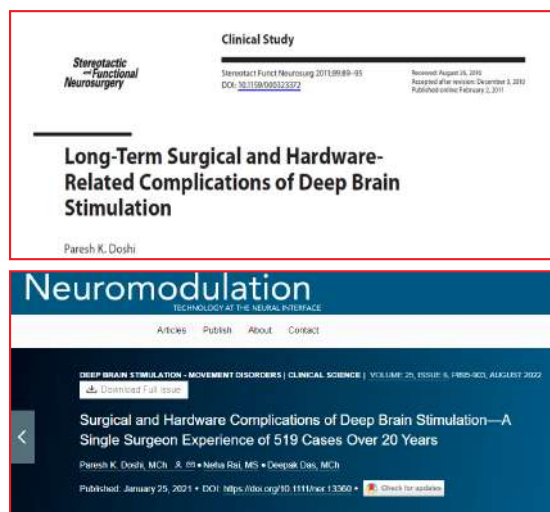


What precautions will be needed after DBS?

After surgery we will provide you with the detailed list of do's and don'ts in order to safeguard the pacemaker. Broadly speaking, you can continue to do all the normal activities that you would like to do, e.g. swimming, dancing, jogging or any kind of exercise, use of cell phone, microwave oven, driving etc.

What are the risks of surgery?

DBS surgery is pretty safe **in experienced hands**. The risk of surgery are minimal. We have analysed and published our own data for the first 150 DBS procedures and we had found that our risk of major complication was less than 1.5 %. This compared favorably with the best centres around the world. After 10 years, we further published a paper on our complications, after completing more than 500 procedures!! **This time the rate of severe complications almost came to zero.** As a patient you need to evaluate the risk v/s benefit ratio. The risk of the procedure reduces with learning, e.g. for the lady of the house to make a mistake whilst cooking is rare, whereas if someone less experienced cooks the same meal, it is going to taste differently each time.



Why is the surgery done under in two stages?

We perform surgery in two stages because we feel that this increases the safety of the procedure. The first surgery is done under the local anaesthesia, after which the patient can be returned back to the room and given levodopa and meal, so as not to keep him off medications for too long. Next day we can do the surgery under general anaesthesia which is safe for the patient. We will discuss this more in detail when we meet. We are aware that this increases the cost of the surgery **but we do not want to reduce the cost and compromise on the Patient Safety.**



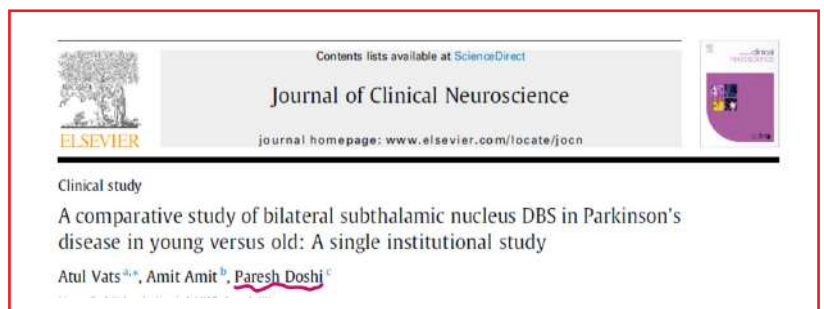
Is the surgery painful, as it is done under local anaesthesia?

There is an initial pain of a minimal pinprick when we give local anaesthesia, however, once the local anaesthesia takes effect you will not feel any pain during the surgery. However you would notice that we are working on your head and we will be keeping you informed of all the things that we would be doing during the procedure as we go along the procedure. This increases the patient comfort and confidence in the procedure and none of our patient have ever felt that he had a traumatic experience from the surgery. **We have performed more than 650 procedures and not had a problem with any patient, who may be as young as 16 years old to 85 years old.**

I am an elderly patient and I have heard that the surgery is risky or not advisable?

Usually people are reluctant to offer surgery to elderly patient for several reasons. One of them being skepticism about getting a good outcome. **However, long standing experience and the opportunity to probably operate on the largest number of elderly patients in the**

world has helped us to tailor the treatment to make the surgery safe and effective for elderly patients. For example, we use different targets if the patient has got some amount of cognitive or memory impairment. If the patient cannot tolerate surgery under local anaesthesia we can do it with conscious sedation. We also prepare ourselves, patients and relatives to ensure that the surgical experience remains as comfortable as one would wish it to be. We recently published our outcome of elderly patients versus young patient operated at our centre and found that there was no increase rate of complication and the improvement in Parkinson's disease was more or less similar.



Will I be required to follow up with my Neurologist? Who adjusts the medical treatment after surgery?

If you are in touch with the movement disorder specialist then we may be able to speak to him and explain to him the parameters that we have set and what we expect in terms of medication changes. However, if you feel that you are more comfortable with us making both the changes i.e. stimulation parameters and medications we would be happy and confident to do the same.

What is programming and how important is it in the outcome of surgery?

Programming is The Key to success of DBS. Even if the surgery goes well, if you cannot program the pacemaker correctly, it is like having the best computer at your disposal, but not having the skills to use it. If I have to give an example, Microsoft Excel is a program used by everyone, but the way an analyst/accountant can use that is far different from me using it. Hence, to extract the full benefit of surgery, correct knowledge to program the pacemaker is very critical. Our team has 1000s of hours of programming experience and hence we can immediately assess the response of each program subset and offer the best. In fact **we have been able to capture the benefit of surgery for the patients who have been operated in other centres, just by fine tuning the pacemaker, which that particular centre could not do.**

I am leaving very far and what happens if my pacemaker stops working ?

The pacemaker is in addition to your medical management, so even if it stops working, or malfunction, in the worst case scenario you just switch it off. In our experience of >25 years, and >900 pacemakers, such situation has not arisen.



What are the Recent Advancements in the field of neurostimulation?

- **Current steering using directional electrode designs:** The conventional cylindrical/'ring shaped' electrode contacts deliver current circumferentially, resulting in a sphere-shaped field of stimulation. Current steering is done by dividing the 360 degrees of the ring-shaped electrode contact into three or four sectors, each of which could be separately activated. Current steering and modification of the shape of stimulation field could be helpful in reducing the adverse effects related to stimulation. However, **current steering does not compensate for surgical inaccuracies and is also cumbersome to program. And needs a special expertise.**
- **Closed loop stimulation or "adaptive DBS":** Adaptive DBS is based on the principle of detection of a signal (for example, changes in the local field potential) from the target nuclei or from elsewhere that is indicative of a pathological neuronal activity; the signal, in turn, triggers or modifies the delivery of stimulation. Thus, the closed loop DBS delivers stimulation as and when required and does not modify or disrupt functionality when the neuronal activity is normal.

Is DBS covered under Insurance?

Due to the relentless efforts from our centre, DBS for Parkinson's disease is now covered by major insurance companies. @ Jaslok Hospital, most of our patients opt for cashless benefits too and this is also acceptable by all insurers.



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More than 650 DBS
now performed at
Jaslok hospital

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Finally, what are the differentiating points of your centre?

- 1) **DBS is not a procedure for us but it is a religion.** We practice it with great faith and passion to ensure that the patients who are putting trust in us are rewarded to the best of our abilities.
- 2) We have one of the largest experiences of performing DBS surgery by a single centre over last 25 years of having operated on more than 650 patients (2023).
- 3) **The team:** PD patients have several intercurrent problems, ranging from depression and hallucinations, to urological problems to gastrointestinal problems. We understand that it is important to address all these, along with PD, if we have to improve the quality of life. Hence we have in our team experienced Psychiatrist, Urologist, Gastroenterologist, over and above a movement disorder specialist to assist in offering a complete solution to the patient.
- 4) **The equipment:** We are the only centre in Asia to have two sets of equipments, i.e. two stereotactic frame, two planning stations, two MRI and two MER equipments. This is a very huge infrastructure expense, but Jaslok Hospital has invested in it to improve the patient safety (You never know when one of the computer stops working!!)
- 5) The engagement with the centre is not limited to the surgical procedure, as this (surgical procedure) can be done by other people also, however the post-operative management, understanding the Symptoms and Signs of advancing PD, understanding the limitations of what you can treat and not treat and having the ability to use all the skills that are needed to program these patients is the USP of our centre, which no other centre can replicate.
- 6) Apart from offering the best care and support to the patient we have worked very hard to minimise the risk and complications of surgery and we are confident today to offer this surgery to patients who are usually considered not amenable to surgical treatment e.g. patients above 80 years.
- 7) We are the only centre in the country who have extensively published our work in Peer reviewed journals to give credibility to our program.
- 8) There have been several research projects, like comparing the infection rate amongst different categories of room accommodation at our hospital, which method of targeting is fool proof, can we use a resterilise pacemaker, etc. conducted at our hospital in last 25 years to improve the patient outcome.



जसलोक हॉस्पिटल ने एशिया में पहली डीप ब्रेन स्टिम्युलेशन सर्जरी सफलतापूर्वक की

प्रयागराज। जसलोक हॉस्पिटल एंड रिसर्च सेंटर ने हाल ही में पार्किंसन रोग के लक्षणों को नियंत्रित करने के लिए एक उन्नत ऑटो-स्टिमिंग डिवाइस (पल्सेट पीसी) का उपयोग करके एशिया-पैसिफिक की पहली डीप ब्रेन स्टिम्युलेशन सर्जरी की यह सफल सर्जरी प्रसिद्ध न्यूरोसर्जन डॉ. परेश दोशी न्यूरोसर्जरी निदेशक, के द्वारा करके 42 वर्षीय ऐसे पुरुष पर की गई जिसमें युवावस्था में ही पार्किंसन रोग की शुरुआत निदान की गई थी।

मरीज श्री हरिकृष्ण बहुत कम उम्र में पार्किंसन रोग के संकेतों में आ गए थे पिछले सात वर्षों में वह लवोंओं से अपना इलाज कर रहे थे और उनकी बीमारी को उन्होंने पतला रूप से नियंत्रित कर लिया था। दुर्भाग्य से, पिछले दो वर्षों से उनकी स्थिति खराब हो गई जिसमें उनके हाथ और पैर का लड़कें की तरह अकड़ गए अंगुठे और उंगलियां मुड़ गई और उनमें गंभीर दर्द हुआ करता था वह सब ज्यादातर दवाओं के सहारे चल रहा था, लेकिन कई बार दवाएं भी काम नहीं करती थी इन दवाओं के कारण कई दुष्प्रभाव हो गए जिन्हें सामंजस्य रूप से डिफिकेन्सिया कहा जाता है। डॉ. परेश दोशी ने अपने विचार व्यक्त करते हुए कहा



जसलोक हॉस्पिटल एंड रिसर्च सेंटर 1998 से डीप ब्रेन स्टिम्युलेशन सर्जरी कर रहा है। ये सर्जरी पिछले 20 वर्षों में की गई है और जो अब उन्नत पार्किंसन रोग से पीड़ित मरीजों के लिए एक अच्छी तरह से स्थापित उपचार है। एशियाई क्षेत्र में पल्सेट पीसी का उपयोग करके सफल सर्जरी करने वाले पहले संस्थान होने पर हमें बेहद गर्व है और हमें यकीन है कि यह पार्किंसन रोग से पीड़ित भारतीय मरीजों के परिदृश्य को बदल देगा। हम वास्तव में उन्हें बेहतर जीवन जीने में मदद करने में सक्षम होने के लिए आशा करते हैं।

Remote control miraculously mutes Parkinson's afflictions

Deep Brain Stimulation Helps Doc To Get Back On His Feet

Ahmedabad: Dr. R. N. Joshi's life is powered by a remote control. Literally. One moment he is sitting relaxed, talking, his body moving extremely fluid and normal. Then a button on the remote control is switched off, and Dr. Joshi becomes stiff, like a lifeless statue. The button is pressed again and the doctor's body springs back to life.



Dr. R. N. Joshi

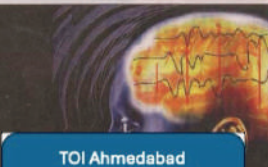
The miraculous changes in Dr. Joshi's demeanor at the click of a button on a remote control need to be seen to be believed. He is not even a patient of the disease he treats. He is a doctor. "This is my life. One moment, I am just an active man trapped in a disabled body," says the health official with the distinct pang of a doctor.

WORLD PARKINSON'S DAY

At 41, Dr. Joshi is a young patient of Parkinson's, a disease generally believed to afflict the old. Life took a shaky turn for him when his hands started becoming stiff and his fingers began losing movement seven years ago. Suddenly, his realized his body was not responding to his brain commands. His muscles would cramp and his speech started slowing. Being a doctor, he self-diagnosed his problem as Parkinson's disease (PD).

The diagnosis, however, could do little towards finding a way to battle the movement disorders which in four years reached a condition when he could not even lift a finger. The side effects of the medicines were also severe. His entire body would shake so severely that he would even fall off from the chair on which he was sitting. Having an intelligent mind trapped in a disabled body, Dr. Joshi started feeling his life was worse than hell till he heard about Mumbai-based doctor Parash Doshi, who was famous for Deep Brain Stimulation (DBS) surgery for PD patients and he got operated a year and a half ago. "I am 80 per cent right. I can live my normal life," says Joshi.

City gets centre for advance surgery for patients with PD



Dr. Parash Doshi

New program started 2012

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DBS is not cure, but control

Ahmedabad: Dr. Parash Doshi who is a pioneer of DBS, said "Deep brain stimulation is a surgical procedure in which an electrode is implanted deep in the part of the brain that controls movement of a body."

The stimulation delivered to this electrode is controlled by a device called a pulse generator.

This surgery is recommended to patients who have been suffering from the disease for a long time, partly because the medicines given to them, or the advanced shapes of the disease.

"This surgery has shown good results in controlling the involuntary movements of the body parts in patients. The surgery is not a cure but it helps restore life back for patients," says Dr. Doshi.

Dr. Parash Doshi, director, department of neurosurgery, said "Functional neurosurgery will offer variety improved quality of life to more than 1,00,000 people in Gujarat, who suffer from neurological movement disorders."

Dr. Sudhir Shah, director of neurosurgery said, "The per cent of Parkinson's patients are young people in their 40s."

The main symptoms are trembling of one hand, arm, or leg, which may progress to affect the limbs on the opposite side with muscle stiffness and slowness of movements and problems with balance.

The face may become less expressive. Sufferers also experience mood disturbances, depression, shuffling, gait, problems with speech and cognition, and also who has difficulty with sleep," says Dr. Shah.

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THE TIMES OF INDIA

Tuesday, 13 May 2014, Page - 02

Teen has brain surgery for Parkinson's while awake

TIMES NEWS NETWORK

Mumbai: A 15-year-old teenager from Vadodra has become the youngest Indian undergoing a brain surgery to control his debilitating symptoms. Hiteshu Dave, who stopped going to school after the disease was diagnosed three years ago, was operated on in a Mumbai hospital on May 5 and 6.

The surgery, called deep brain stimulation, entails placing electrodes in those parts of the brain that produce symptoms associated with Parkinson's disease. "Hiteshu was awake in a part of the surgery so that we could decide just where to place the electrodes," said neurosurgeon Dr. Parash Doshi of Jaslok Hospital, Padder Road, Dr. Doshi, who operated on Hiteshu, said there are only two other cases of DBS surgery performed on such young patients, but both were done in the US.

Neurologist Dr. Dattaraj Wadia, who mapped Hiteshu's brain during the procedure, said, "As Hiteshu is a child, we asked him to bowl during the mapping process. When he managed to bowl, we realised we had found the right area for placing the electrodes."

It will take three months for Hiteshu to improve with physiotherapy and neurological stimulation sessions. As he was diagnosed with Parkinson's at 13 years of age, his condition deteriorated to such an extent that he couldn't speak, eat or walk. "It is rather scary, but we are at all his needs," said Hiteshu's father, Chandresh.

But on Monday, Hiteshu could type out 80 words in a sentence. "It is a great moment for us. We wanted him to become independent enough to be able to perform a normal activity," said Chandresh. Juvenile onset of Parkinson's disease is a rare occurrence, but not unheard of. World literature shows that a Paris neurologist, Henri Huchard, diagnosed the condition for the first time in a three-year-old child in 1875.

DEEP BRAIN STIMULATION



HITESHU DAVE (15) From Vadodra Underwent deep brain stimulation surgery on May 5 and 6 at Jaslok Hospital, Padder Road. Possibly the youngest child to undergo the surgery while awake

- PARKINSON'S DISEASE**
 - A progressive disorder of the nervous system, affecting movement. Starts with slight tremor in one hand, causing stiffness.
 - Prevalence is 1-2% in 65-plus age group
 - When it occurs in 20-40 age group, it is called Young-Onset Parkinson's disease
- Parkinson's disease**
 - Rarely occurs among people below 20, but is not unknown. It is then called Juvenile-Onset Parkinson's disease
 - Can't be cured, but medication can help. Brain surgery may be recommended in some cases

THE SURGERY Deep brain stimulation (DBS) is a surgical procedure to control symptoms associated with Parkinson's disease (PD), such as tremor, rigidity, stiffness, slow movement and walking problems

DBS SYSTEM HAS THREE COMPONENTS

- 1. LEAD** Wire-like electrode is inserted through opening in skull and implanted in targeted brain area
 - 2. EXTENSION** Insulated wire passed under skin of head, neck, and shoulder, connecting lead to neurostimulator
 - 3. NEUROSTIMULATOR** Battery, usually implanted near collarbone. Functions like pacemaker to deliver electrical stimulation to targeted areas in brain to block abnormal nerve signals that cause PD symptoms
- Doctors have to locate area where electrical nerve signals generate PD symptoms using MRI or CT scans
 - Once system is in place, electrical impulses are sent from neurostimulator to lead, into brain. These impulses work with and block electrical signals that cause PD symptoms

"Juvenile onset is not easy to diagnose as the symptoms are similar to many other diseases. But the disease seems to become severe faster among juveniles than among adults," said Dr. Wadia. Dr. Doshi said that while the "honeymoon period" of the disease (when the patient is able to perform life or her tasks independently) is longer among adults, in some juveniles, it is extremely short. "In Hiteshu's case, too, well, the symptoms became severe within three years."

A senior neurosurgeon said that deep brain stimulation is now a proven method to control Parkinson's, adding that the youngest patient he had treated with DBS was a 19-year-old Parkinson's patient.

Brain stimulation surgery for Parkinson's patients on way

Our Mumbai Bureau

T. JANUARY

PERSONS suffering from Parkinson's disease, a neurological disease resulting in movement disorders, have fresh hope from a new form of brain stimulation surgery. Called subthalamic nucleus stimulation (STN), the surgery reduces the patient's dependence on drugs whose prolonged use is known to produce side effects, according to medical experts. STN involves implanting a gadget that continuously sends stimuli to the brain, thus normalising body movements and increasing the patient's chances of leading a normal life.

Parash K Doshi, a consultant neurosurgeon at the city-based, Jaslok Hospital, who has performed this surgery on several patients, says it has resulted in a 70 per cent reduction in the use of drugs with four patients coming off medication completely. Parkinson's is initially treated with medicines like the Levodopa compounds which work in a chunk of the cases. However, as the disease advances in some patients, the drugs work out to an eye-popping Rs 5.5 lakh (the implant which is imported from Rs 3.5 to 4 lakh). Dr. Doshi says the implant has to be imported as there is no local manufacturer.

The entire process is done under local anaesthesia with the patient fully awake. There is no pain or discomfort during the surgery. The usual time for surgery is anywhere between 4 to 8 hours. Patients have been able to return to their normal life and activity," claims Dr. Mohit Bhatt, a movement disorder neurologist with the Jaslok Hospital.

STN is the latest in a line of surgeries that have been developed to treat Parkinson's patients. The other two — cheaper alternatives — are called thalamotomy and pallidotomy, which a small area of the brain is destroyed.



Dr. Parash Doshi

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SUNDAY TIMES

City teen undergoes brain surgery for Parkinson's

Times News Network

Mumbai: While the debilitating Parkinson's disease is usually associated with older people, a 15-year-old boy from Vadodra has become the youngest child to undergo the surgery while awake.

The 15-year-old son, Hiteshu Dave, can now walk and perform normal activities after the surgery, which was performed on May 5 and 6 at Jaslok Hospital, Padder Road.

Dr. Parash Doshi, a consultant neurosurgeon at the city-based, Jaslok Hospital, who has performed this surgery on several patients, says it has resulted in a 70 per cent reduction in the use of drugs with four patients coming off medication completely.

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'Severe pain gone after the surgery, I am able to write after a long time'

8th January, 2023

Mumbai: After Chaitany Shah underwent a deep brain stimulation surgery, he has been able to write after a long time. He has also been able to walk and perform normal activities.

Chaitany, 16, underwent a deep brain stimulation surgery on May 5 and 6 at Jaslok Hospital, Padder Road. He was the youngest child to undergo the surgery while awake.

Dr. Parash Doshi, a consultant neurosurgeon at the city-based, Jaslok Hospital, who has performed this surgery on several patients, says it has resulted in a 70 per cent reduction in the use of drugs with four patients coming off medication completely.

Parkinson's is initially treated with medicines like the Levodopa compounds which work in a chunk of the cases. However, as the disease advances in some patients, the drugs work out to an eye-popping Rs 5.5 lakh (the implant which is imported from Rs 3.5 to 4 lakh).

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STN is the latest in a line of surgeries that have been developed to treat Parkinson's patients. The other two — cheaper alternatives — are called thalamotomy and pallidotomy, which a small area of the brain is destroyed.

Chaitany's first symptoms were "tremors in his hand and leg movements," his father said.

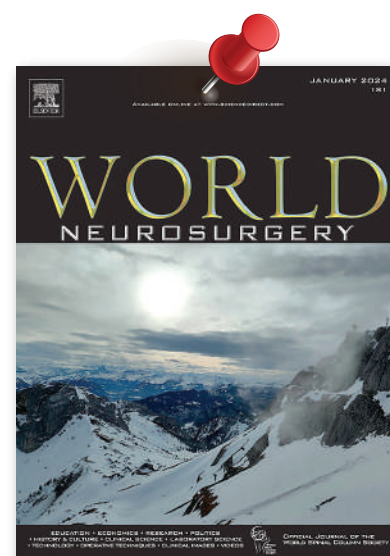
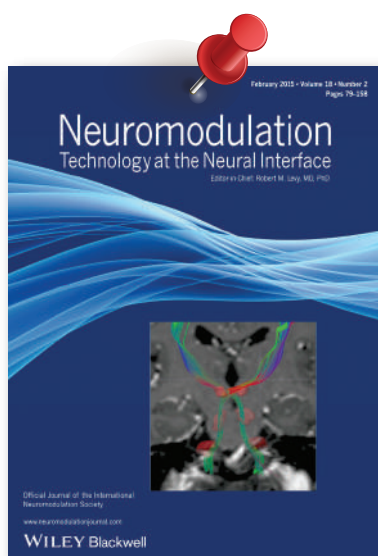
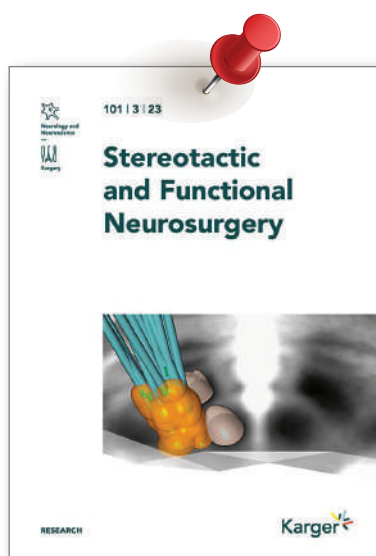
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Chaitany's first symptoms were "tremors

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What does our patients say (As the testimonials are in patient's own language, pl excuse the grammar)

Mahendra Dhingra



I am Mahendra Dhingra. I was suffering Parkinson disease since 2005. I was not aware about this disease. Earlier time, my hand used to tremor or shake badly, not able to hold a cup of coffee. My cousin sister noticed it and informed that it's a early stage of Parkinson disease. Then I consulted with family physician and Dr. Confirmed that it is Parkinson's disease. Later on I met neurosurgeon Dr. Paresh Doshi at Jaslok hospital on 2013 and was suggested for DBS surgery. I underwent DBS in 2014 by Dr. Doshi.

After surgery I felt many positive changes, before surgery I used to get acute feet pain, body stiffness, slow movement, if I got stress then my full body used to tremor, changing in hand writing. But after surgery, the entire mentioned problem has removed. Thanks a lot Dr. Paresh Doshi. I personally believe that he is the best Neurosurgeon in India for Parkinson's disease. Sister Bharati in sir's team is an amazing nurse who took complete care of me. Thanks a lot Dr. Paresh Doshi.

R.T. Thomas



Dr. Paresh Doshi provided great guidance to help my father get the best DBS surgery for his Parkinson's disease. Especially when other hospitals/doctors had closed doors, Dr Doshi gave us an unbiased option and positive reinforcement. He has an excellent supporting staff at Jaslok hospital and special thanks to sister Bharati for educating us about DBS and Parkinson's symptoms. I recommend consulting Dr. Doshi for all Parkinson's patients.

Sandesh Godbole



I am suffering from parkinsons. I undergo DBS last year, and now I am more than happy. Now I am again an independent person. I travel a lot now as if now nothing has happened.

Thanks to Dr. Paresh Doshi, Dr. Raghavendra, Ms. Bharti and Pankaj.

Thanks a million for contribution of DBS to medical field. But for this surgery which you performed on me, I would have been a living corpse.

- Mrs. Mendes, Teacher

Praveen Kumar

10 years post DBS

My father diagnosed parkinson disease in 2007. In 2013 we did the Deep brain Stimulation (DBS) surgery from some other private hospital. But my father couldn't get any benefit of DBS. Then we contacted several top neurologist in India. Most of them not given positive response to review my father. Luckily we found Dr.Paresh via internet. Contacted him via his office, he not only given positive response to review my father, he talked with me over phone and given me confidence. I brought my father in wheel chair to his clinic. He and his team reprogrammed DBS device, and my father health and life quality improved a lot. He even resumed going his office till he his retirement in 2016. Its a decade now, my father is under care of Dr.Paresh Doshi and his team. My father still walks normally, does his daily activities on his own and plays with my kid. Thanks a lot to Dr. Paresh Doshi and his team. Dr. Paresh Doshi expertise has benefitted my father and my family happiness.

Dr.Paresh doshi team member Sister Bharathi is very polite and handles the patients with care. Mr pankaj who is Dr. Paresh secretary is very prompt and replies for any queries and connects with Dr whenever required. Ms Deepali who at his office supports and coordinates the admission and other related processes with care.

Thank you Dr. Paresh Doshi for your expertise and your wonderful team.

Pranav Purvant

My Mother is suffering from Parkinson since 7 years. We had done DBS operation at Global hospital... but after operation she is facing same issue like before. From Google I could know the profile of Dr. Paresh Doshi about D.B.S and reprogramming.

Then I decided to reprogramming at Jaslok hospital (Dr. Paresh Doshi) and I did so.

Now my mother is fine and improving.

Thank you Dr. Paresh Doshi sir and Team.

In 2006, with my husband we visited South Africa to be with our daughter for our first grandchild's birth. God bless, but I would be the last person to retire for bed after the midnight feed and managing meals for five of us during the day. I know that without the ticker, the pace-maker, Would not have been possible.

- Mrs. Katy Merchant, Trustee of Parkinson's Care Trust

A story of life
For those who supported me during my sickness
Dr. P.K. Doshi,
Ms. Bahanti - Nurse
Staff of Dr. Doshi
Thank you
I know it is small and like my hand writing before operation and it means nothing towards what you have done but no other word to say.
Thank you with tears
Really I am writing this with tears in my eyes because I will be back to my life again to join my four kids play with them teach them and you and your hospital Jaslok will be a part of the story.
Thanks Omer M. Alamin
Jeddah - KSA
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Omer Alamin (From Saudi Arabia)



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