



Types and Common Procedures of Brain Surgery

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DESCRIPTION

Tumors, blood clots, aneurysms, epilepsy and Parkinson's disease are among the illnesses treated by brain surgery. It is carried out by a neurosurgeon with the assistance of an anesthesiologist who is well-versed in the forms of anesthesia, monitoring and post-operative care required for these delicate procedures. In some situations, this anesthesiologist will be a neuroanaesthesiologist with advanced clinical training in brain and spinal surgery anesthesia [1].

Types of brain surgery

These are some of the most common procedures involving the brain or areas surrounding it.

Craniotomy: A section of the skull is removed to allow doctors access towards the brain in order to surgically remove a brain tumour, abnormal tissue, blood or blood clots, alleviate pressure after an injury or stroke, repair a brain aneurysm or skull fractures or treat other brain disorders. Following surgery, the section of the skull is reattached [2].

Biopsy: Biopsies are often performed when imaging has revealed a probable problem. The surgeon creates an incision in the skull or inserts a needle to remove brain cells or tissue for analysis by a pathologist.

Deep Neural Stimulation (DNS): Deep neural stimulation is an implantable pulse generator, a battery-powered medical device, is implanted to administer electrical stimulation to particular parts of the brain. DNS is mostly used to treat brain and movement disorders like Parkinson's.

Neuroendoscopy: In this minimally invasive approach, a short tube known as an endoscope is threaded via the mouth, nose, or small incisions in the skull to access or remove brain tissue. A light and a camera are attached to the end of the endoscope and the surgery is performed with tools introduced through the endoscope. Endoscopic transsphenoidal surgery is a form of neuroendoscopy and it is also known as endoscopic pituitary surgery. It comprises putting an endoscope and the nose in order

to remove brain tumour and lesions near the pituitary gland, which is positioned right behind the bridge of the nose [3].

Decompression of the posterior fossa: This treatment involves cerebellar and brainstem areas of the brain. To cure a Chiari malformation, for example, the surgeon makes an incision at the back of the patient's head and removes a small part of the bone near the base of the skull. This removal gives the cerebellum more room and relieves pressure on the spinal cord [4].

Thrombectomy: The surgeon guides surgical equipment such as a catheter or thin metal wires into a large blood vessel in the patient's groin to reach the brain vessels, using contrast dye to detect the troubled blood vessel without having to open up the patient's skull. The treatment is most commonly performed on patients who have a blood clot in a brain artery, a cerebral aneurysm or a weakened and bulging region in an arterial wall, a burst aneurysm that causes bleeding into the cerebellum.

Some brain cancer patients are treated using stereotactic radiosurgery, which may entail the use of a Gamma Knife; however, this is not traditional surgery and the "knife" is indeed not technically a knife. External radiation therapy that does not require an incision is known as radiosurgery. Specialized equipment, such as the Gamma Knife brand, precisely delivers a high dose of radiation that targets tumour or other lesions while causing minimal damage to healthy tissue in the surrounding area [5].

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