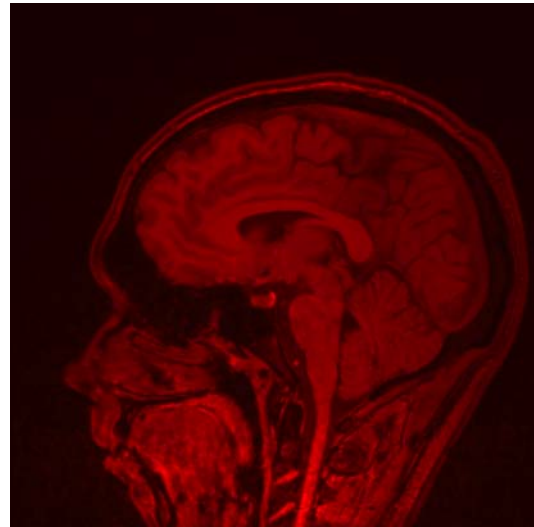
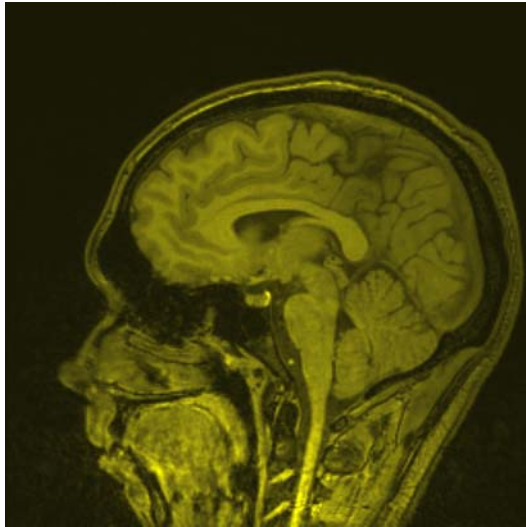
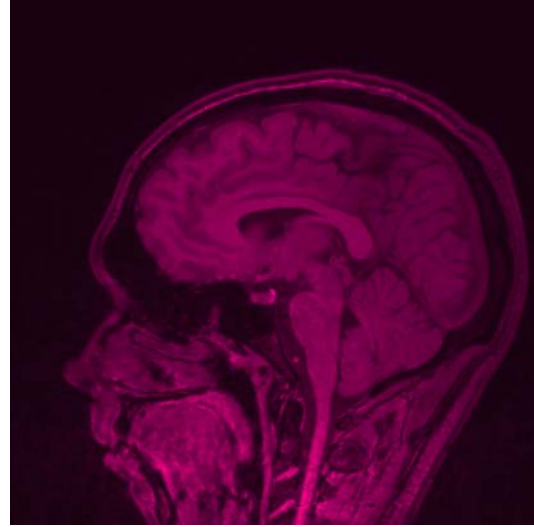
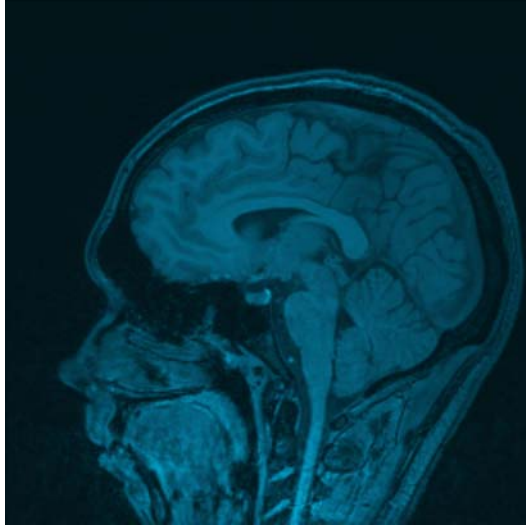


A PATIENT'S GUIDE TO STEREOTACTIC SURGERY



**DEPARTMENT OF NEUROLOGICAL SURGERY
THE OHIO STATE UNIVERSITY
MEDICAL CENTER**

You may be reading this pamphlet because you or someone you love has been scheduled for stereotactic surgery. You are not alone, and will require a dedicated medical team for help.



Stereotactic or stereotaxic comes from both the Greek “stereos” meaning “three dimension” and Latin “tactus” meaning “touch.” Stereotactic surgery is a very precise and accurate way for the neurosurgeon to perform brain surgery. Essentially, you will be having surgery in which bony landmarks are used to create a dimensional map of your brain.

Stereotactic surgery is used for many reasons including, but not limited to:

- Biopsy or removal of brain tissue or tumors to get diagnostic information to direct treatment. This is especially useful when the target area is small or located deep in the brain. It can also be used for the patient who is unable to tolerate an open surgery and/or general anesthesia.
 - Implant an indwelling catheter or radioactive seeds into deep brain tissue to treat tumors or lesions.
 - Stimulate deep brain structures for treatment of movement disorders or pain, epilepsy or certain psychiatric conditions.
- Aspirate or withdrawal of fluid from cysts or abscesses.
 - Create lesions or disconnections in deep brain structures for movement disorders or psychiatric conditions.
 - Identify and measure epileptic centers within the brain through placement of electrodes.

Frame-based stereotactic surgery uses a light-weight frame attached to the head under local numbing medication. Your brain is then imaged with MRI and CT scans to identify the target in the brain in relationship to the frame. Other specialized surgical tools can be attached to the frame to assist the surgeon or aid in treatment, such as gamma knife.

Frameless stereotactic surgery relies on **Fiducials**, or small screws, placed into the bony landmarks to identify fixed structures. Following fiducial placement, an MRI and CT scan of your brain will be obtained. Once all of this is completed, there will be a three-dimensional image of your brain created so the surgeon can map out critical structures, vessels and targeted surgical areas in relationship to the fiducials. This procedure allows for more accuracy and a less invasive surgical procedure.



Bone fiducials

Fiducial Placement: What to Expect

You will be instructed when and where to arrive for your fiducial placement by the surgeon's office. Generally, the fiducials are placed a few days before your surgery in order to give the surgeon time to obtain the needed MRI and CT scans and review the mapped images.

This is an outpatient procedure that will be billed to your insurance. The procedure takes approximately 45 minutes. You do not have to withhold medications, food or drink prior to having the fiducials placed.

Local numbing medication will be applied to your scalp before the fiducials are placed. Be sure to notify the surgeon of any medication allergies you may have. This medication may slightly sting and burn at first. After the numbing medication, you should only feel pressure, but there should not be any pain during the procedure. You may also hear some noises similar to a dentist

office drill. This is normal. You will have 5-6 fiducials placed.

Immediately following the fiducial placement, you will be sent to the Radiology Department for a scheduled MRI and CT scan of your brain.

- **Computed Tomography (CT):** A CT scan provides a two-dimensional map of tissues and organs in the body using an x-ray beam. If you are allergic to contrast dye, have kidney problems or are diabetic, you should make your surgeon aware of this.
- **Magnetic Resonance Imaging (MRI):** The MRI creates a detailed picture of the brain and surrounding structures using a powerful magnetic field. If you have a pacemaker or metal implanted in your body, you should make your surgeon aware of this.

Once you have these scans completed, you will return home until your surgery date. The fiducials will be left open to air and free of bandages. We will give you an oral antibiotic to take at home until your surgery. We will also give you a prescription for pain medications in the event you have some mild pain while you are at home. **DO NOT** take ibuprofen, naproxen, aspirin or aspirin-containing products as these may affect your blood clotting during surgery.

You may wash your hair gently with shampoo and water. You will also be asked to use Chlorhexidine Gluconate soap two times before your surgery to decrease the risk of infection after surgery. Do not pull or tug on the fiducials. Gently pat any wet areas and allow to air dry. Contact the office

immediately if any of the fiducials becomes loose or falls off.

Day of Surgery: What to Expect

On the day of surgery, you should not eat or drink after midnight. You may have a few sips of water to take any of your regular medications unless you have been instructed otherwise.

You should plan on arriving to the hospital **two hours** before your surgery is scheduled to begin. After you arrive at the hospital, you will be asked to check in to the admitting department. From there, you will be transported to the ambulatory surgery unit (ASU). The ASU will ensure that all paperwork, laboratory work and x-ray imaging has been completed prior to your surgery. Approximately 30 minutes prior to your surgery, a member of the anesthesia team will meet you in the pre-operative waiting area to talk to you about your health and to insert intravenous (IV) catheters.

Your family members will be asked to wait in the designated waiting area. A volunteer and monitor will update them throughout the waiting period.

Your fiducials will be taken out in the operating room once your surgery is completed. After surgery, you will be taken to the Post Anesthesia Care Unit (PACU) until you recover from your anesthesia. It takes about 1-2 hours to recover. Your family will be able to see

you when you are moved to the nursing unit.

FREQUENTLY ASKED QUESTIONS

Q: What should I wear to have my fiducials placed?

A: Wear clean, comfortable clothing. Although it is rare, there may be a drop or two of blood that drips during the procedure.

Q: Am I allowed to eat or drink the day my bone fiducials are placed?

A: YES. Local numbing medicine does not require you to stop eating or drinking before the procedure.

Q: Will my hair be shaved when the bone fiducials are placed?

A: Usually not, but occasionally, your neurosurgery team will need to shave small parts of your hair. You



should not shave any areas of your head within 72 hours as you may cause some small nicks that can collect bacteria and put you at risk for infection.

Q: How deep are the fiducials placed? The actual fiducials vary in size from 7-10 mm. The fiducial is screwed approximately 5 mm into the skull bone edge. This is no more than ½ the thickness of the skull surface.

Q: Can I get my head wet/wash my hair with the bone fiducials in place?

A: YES. The fiducials should be kept clean. Be sure to lightly pat the area dry afterwards.

Q: Can I wear a hat or scarf to cover the fiducials?

A: Yes.

Q: How long will the bone fiducials stay in my head?

A: The bone fiducials will be removed in the operating room once your surgery is completed.

Q: Will the fiducials hurt my head?

A: You will be given local anesthetic when the fiducials are placed. When this wears off, you may have some minor discomfort to the surface of your scalp. We will give you a prescription for pain medications in the event you have some mild pain while you are at home. DO NOT take ibuprofen, naproxen, aspirin or aspirin-containing products as these may affect your blood clotting during surgery.

GLOSSARY OF TERMS

Ambulatory Surgery Unit: Area of the hospital dedicated to preparing patients for surgical procedures

Anesthesia Team: Health care professionals who specialize in pain management and putting patients to sleep during procedures and operations

Bone Fiducial: A small screw placed in the skull to help in mapping out structures of the brain.

Gamma Knife: Surgical procedure where narrow beams of radiation are targeted to a precise area in the brain.

Neurosurgeon: A medical doctor who specializes in operating on structures of the brain and spine

Side Effects: Any unwanted result of taking a medication, such as rashes, fatigue, or headache

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