Gamma Knife Stereotactic Radiosurgery
Information for Patients and Their Families

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This brochure will tell you about your admission to the UCSF Moffitt/Long Hospital, your hospital stay, the gamma knife stereotactic radiosurgery procedure, and in general what you need to know about your hospital stay. If you have any questions or comments while reading this brochure, write them down on the back of these pages so they aren’t forgotten. We look forward to meeting you and answering your questions.

Introduction:

The Gamma Knife is a new tool used by neurosurgeons and radiation oncologists to treat brain lesions (tumors and arteriovenous malformations) with radiation. Stereotactic radiosurgery is a technique for treating these lesions without surgery. The exact location of a brain lesion is determined with the use of a stereotactic frame and imaging studies. It is an accurate, safe and effective treatment.

The treatment team is made up of experts in neurosurgery, radiation therapy, and medical physics, as well as a nurse and radiation technician. Neuroradiology, neuro-oncology, and interventional neuroradiology doctors are part of the extended team.

After reviewing your medical history, current medical condition, and imaging studies, the doctors will decide if the gamma knife procedure is right for you. If you agree to have the procedure, a date will be scheduled. You can review the background on the gamma knife procedure on our webpage, http://itssrv1.ucsf.edu/~gammakf/

Admissions:

You will come to the hospital 1 or 2 days before to have certain tests done. These include blood tests and, if you’re over 45 years-old, a chest x-ray and an EKG (electrocardiogram). These appointments will be made for you and we’ll send you the schedule. Let our secretary know if you’ve had any of these tests in the last year and bring copies of the test results with you.

You’ll meet with a neurosurgeon or neurosurgery resident who’ll take your medical history, do a physical examination, and obtain your consent to have the gamma knife procedure. You’ll have an opportunity to ask questions at that time. It’s a good idea to write down questions before your appointment so they aren’t forgotten. You’ll also meet with the radiation oncologist who’ll have you sign a consent form for radiation treatment and give you a tour of the Gamma Knife unit. You will return to the hospital the morning of the gamma knife procedure.
Before the Gamma Knife Procedure:

The night before the procedure you can stay at a hotel or guest house near the hospital or with family or friends in the area. In the evening, shower and shampoo your hair.

You should not eat anything after 2am. Take your regular medications the day before and the morning of the procedure with a small amount of water. Bring your medications to the hospital so you can take them during the day as needed.

What to Bring to the Hospital:

Your hospital stay will probably be for the day of the procedure. You'll only need to bring your regular medications. Slipper socks and robes are available in the hospital. You might like to bring reading material. Don't bring valuables, jewelry or large sums of money to the hospital.

The Morning of the Procedure:

You should arrive at the hospital between 6:00 and 6:30 in the morning. Go to the Surgical Waiting Room, room M-104J (telephone 353-1626), to the right of the Moffitt Hospital Lobby. An escort will meet you there.

The escort will take you to the 4th floor preoperative area. Your family can come with you. You’ll change into a hospital gown. The nurse will start an IV (intravenous line) through which you’ll be given fluids during the procedure. The same IV is used to give you the contrast agent needed for the imaging studies. You may wear your dentures, but you should leave your eye glasses and other personal belongings with your family. You’ll be given medication to help you relax.

The stereotactic frame will be applied in the preop area. You’ll be taken to MRI for a scan. At this time we’ll ask your family to return to the Surgical Waiting Room. We can stay in touch with them through the secretary there to let them know your progress. They should let the secretary know if they’ll be leaving the area. They can visit with you in your room after the imaging studies have been done.

Application of the Stereotactic Frame:

The stereotactic frame acts as a guide to find the exact location of the brain lesion. This frame will be attached to your head while you’re in a sitting position. Your head will not be shaved. Your neurosurgeon will inject local anesthesia into your scalp in four places (pin sites) where the frame will be attached. You may feel some brief discomfort during these injections, and can ask for more medication to help you relax. You may feel some pressure after the head frame is attached, but this will lessen. After patients are back on their gurney or bed, they often fall asleep while wearing the frame.

Children will be given general anesthesia and will be asleep while the stereotactic frame is attached and during gamma knife procedure. A neuroanesthesiologist will give the anesthesia and will stay with your child throughout.

Imaging Studies:

After the stereotactic frame is attached, imaging studies (magnetic resonance imaging, computerized tomography, and/or cerebral angiograms) will be done. These studies help the doctors locate the brain lesion as it relates to the stereotactic frame.
**Treatment Planning:**

After the imaging studies are done, you'll be taken to a room where you can wait with your family while your treatment is planned. If your pin sites start to hurt, let your unit nurse know. She’ll call the gamma knife nurse, who will come to inject them with more local anesthesia.

Your doctors will locate the brain lesion in three dimensions using computer software and data from your imaging studies. The position of your head in the helmet, the radiation dose, and the length of treatment will be decided. Treatment planning will take 1 to several hours depending on the size, number and shape of the lesion(s).

**Gamma Knife Treatment:**

After the doctors have planned your treatment, you’ll be brought down to the gamma knife area and moved onto the bed. Your blood pressure and pulse will be checked during the entire treatment. The stereotactic frame will be fitted into the steel helmet and held in position. The doctors will leave the room when treatment is ready to begin. They will watch you on video camera and you can talk with them by intercom.

As treatment starts, you'll feel the bed move into the large shielded sphere. The steel helmet will interlock with another helmet inside the sphere that holds the radiation sources. Only your head will be in the sphere. During treatment you won’t feel, see or hear anything. Each “shot” of radiation will last 1 to several minutes. At the end of each shot, the steel helmet unlocks from the inner helmet and the bed moves out of the sphere. The doctors will reposition the side-bars of the stereotactic frame and the treatment will be repeated. The entire treatment may consist of 1 to 12 shots, or more, of radiation.

**After Gamma Knife Treatment**

After treatment, the stereotactic frame will be removed and you’ll be taken back to your room. You may have a headache after the frame is removed. Not having anything to eat all day may add to your discomfort. Medication for headache will be available if you should need it. You’ll be watched and your blood pressure and pulse will be checked. You’ll be discharged from the hospital the day of the gamma knife procedure if your condition is stable and you feel well enough to go home. You may resume normal activities and eat and drink as you feel able.

**Follow-up:**

You’ll be given follow-up instructions before you leave the hospital. If you need more medication, we’ll give you a prescription.

If you have any concerns or questions after your gamma knife procedure, please call us at (415) 353-7500 or (415) 353-2355. We’ll call you back as soon as possible.

Visit our website: http://itssrv1.ucsf.edu/~gammakf/index.html