

Gamma Knife Treatment Day: Frame

Usual steps that occur

This handout is for patients having frame-based Gamma Knife treatment. It explains what usually happens on Gamma Knife treatment day.

How to Prepare

A nurse from the Gamma Knife Center will call you before your treatment day. During that call, the nurse will:

- Review your health history
- Review these instructions
- Confirm your appointment time
- Talk with you about any medicines you should stop taking before your treatment
- Talk about any special needs you have
- Answer any questions you have



A nurse from the Gamma Knife Center will call you to review your instructions and appointment time.

Our nurses may also review these instructions with you in person at your first visit with our radiation oncologist.

At Home

- Please shampoo your hair the night before or the morning of treatment. Having a clean scalp helps to prevent pin site infection.
- Do **not** use hair products like gels and mousse.
- Do **not** put any makeup on your forehead. Lotion is OK to use.
- We will ask you to remove any jewelry. It is best to leave all valuables at home.
- You may eat normally until midnight the night before your treatment.
- **Starting at midnight**, you may have only clear liquids such as plain tea or coffee (no cream or milk, sugar is OK), juices and popsicles without pulp, soda, clear broth (not soup), and drinks such as Gatorade.

- **Starting 2 hours before your appointment**, do not take anything by mouth.
- Unless you are asked to stop a certain medicine, take your usual medicines with a few sips of water on the morning of your treatment.
- Please bring your regular daytime medicines to your treatment, including long-acting pain medicines. Talk with your nurse about taking them during the treatment day.

Your Support Person

A family member or other support person **must** come with you to the Gamma Knife Center, and ideally stay with you during your treatment. This person should be able to help in any care you may need, and be able to authorize emergency medical treatment if it is needed.

You cannot drive for 48 hours after your treatment. You must have a responsible person take you to your home or hotel. This person may drive you, or can ride with you in a bus or taxi.

A support person should also stay with you the night after your treatment.

Lodging

If you live outside the Seattle area, we advise you to stay in the Seattle area the night after treatment. We can provide a list of local hotels.

Treatment Day

- You may wear your own clothing during treatment. We suggest wearing comfortable clothing with loose-fitting sleeves. Do not wear any metal (jeans zippers and bra hooks are OK).
- We will ask you to remove makeup from your forehead, hairpieces, contact lenses, eyeglasses, and other portable devices.
- We will insert an *intravenous* (IV) line into your arm vein. This line will be used to draw blood for testing, and to give you any medicines you may need.
- If you have an implanted IV port, we can access your port instead of starting an IV. If you use anesthetic cream on your port site, please apply it before you leave home.
- Most patients receive a *sedative* (medicine to help you relax) before and during the procedure. If you become anxious or uncomfortable at any time, talk with your nurse. We have medicines to help you relax throughout the treatment day.
- If you are being treated for an *arteriovenous malformation* (AVM) or similar issue, you may have an *angiogram* the day of your treatment.

If you are having an angiogram:

- We will ask you to change into a hospital gown before we place your head frame.
- We may shave your groin area right before we do the angiogram.
- You may also have your angiogram through an artery in your wrist.

The Head Frame

The head frame is a device that makes sure the Gamma Knife beams are focused exactly where the treatment is needed. It is a vital part of the treatment. The frame may look heavy, but it is made of a lightweight aluminum alloy and titanium. The frame can be seen on the images that are taken. It allows your treating staff to precisely target your lesion or tumor.

We will use pins to fasten the head frame to the outer layer of your skull. Before we do this, you will receive local *anesthetic* (numbing medicine). This will numb the areas where the frame will be fastened to your skull. You will not feel any pain.

We do not need to shave your head. The pins will slide through your hair.

Placing the Frame

Before you receive the anesthetic, you will receive a sedative through your IV line. Once you are relaxed, you will receive 4 injections of the anesthetic: 2 in your forehead and 2 in the back of your head. The injections are given just under your skin. You will feel some pinching and burning when the medicine is injected.

You will not feel any pain when the neurosurgeon tightens the pins, but you will feel firm pressure. This pressure will fade within 5 to 10 minutes. The frame will stay on your head until the Gamma Knife treatment is done. Most patients tell us they do not feel any pain once the frame has been placed.

You will not be able to wear glasses while the frame is in place. If you wear glasses and want to see better after the frame is placed and you are waiting for treatment, bring a pair of old glasses with the earpieces removed. The nurse can tape the glasses to your nose and forehead. During the actual treatment and during scanning, you will need to remove the glasses.

Imaging

A *magnetic resonance imaging* (MRI) **scan must** be done **before** your treatment day. This **scan** will **help your doctors plan your** Gamma Knife treatment. Gamma Knife patient care coordinators will arrange this appointment with you.

After the frame is attached, we will do a *computerized tomography (CT)* scan of your head. This will be done in the Radiology Department or in the Gamma Knife suite. This scan will show where your lesion or tumor is in relation to the frame.

Please tell us if you have any problems with imaging. Some people have a fear of small places (*claustrophobia*) and need medicine to help them relax during an MRI.

Angiogram

If you are also having an angiogram, a *catheter* (tube) will be inserted into an artery in your groin or wrist, and threaded up to your brain. Contrast (X-ray dye) will be injected into the catheter and X-rays will be taken. These images will show the blood vessels in your brain in relationship to the head frame. You will receive medicine through your IV during your angiogram to help with pain and anxiety.

Planning Phase

After your imaging is done, you will return to the Gamma Knife area to relax for 1 to 2 hours. After that, you will be able to eat. We have snacks and drinks on hand and can also provide a meal from the cafeteria.

If you wish, you may listen to music while you relax. Feel free to bring your own music on your MP3 player, smart phone, or CDs. Or, we can play a Pandora station of your choosing.

While you are resting, your radiation oncologist, neurosurgeon, and physicist will work together to plan your treatment. They will decide which areas to treat, the best radiation dose for each area, and how to target the radiation for best results. This information is kept on a computer and used to guide your treatment.

Treatment

After your final treatment plan has been carefully reviewed, your radiation oncologist will talk with you. Together, you will review the plan so you know what areas will be treated and how long your session will take.

Your session may take 10 minutes to 4 hours. The length depends on the number and size of the areas to be treated, and the radiation doses needed. Plan to spend up to 4 hours in the treatment room.

Your Treatment Session

- For your treatment session, you will be moved to the bed in the treatment room. This bed is also called a couch.
- Your head frame will be attached to a holder at the head of the couch. This will hold your head still during your treatment.

- Inside the gamma knife unit, there are 192 separate sources of cobalt-60 radiation. Each source emits a beam of radiation at a constant dose. Your treatment plan is created so that all 192 beams are focused together exactly on the treatment area. The healthy brain tissue in the area will receive very little radiation.
- We will help you get into a position of comfort on the couch. You may have a warm blanket if you wish. If you feel anxious or have a hard time lying on your back, we can give you medicine to help you relax.
- The staff and doctors will then go to the other room. You will be able to talk with the staff through an intercom while your treatment is given. Cameras in the room allow the staff to see you at all times.
- Once treatment begins, the doors of the Gamma Knife unit will open. The couch will move into the machine so that your head is in exactly the right position. You will see a white dome above you.
- As your treatment continues, a computer will move the couch into specific positions based on your treatment plan.
- The Gamma Knife unit is more open than an MRI machine, and much quieter. Patients often nap during their treatments, or listen to music. If your treatment is going to go for a long time, we can pause to give you a break or two as needed.
- When your treatment is done, a bell will chime, and the couch will move out of the unit. You will hear the click of the unit closing.

After Your Treatment

- Right after your treatments are done, we will remove your head frame. There may be a little bleeding from the pin sites, which we will take care of as needed. We will put antibiotic ointment on any sites that are bleeding and Band-Aids on your forehead sites.
- You may have a headache or feel nausea after we remove the frame. Tell your nurse or doctor if you are uncomfortable.
- The IV will be removed from your arm when you are almost ready to go home.
- If you had an angiogram through an artery in your groin, you must lie flat in bed for up to 6 hours. This helps prevent bleeding from the angiogram procedure. The nurse will tell you when you may get up and move around.

Going Home

- Patients usually can go home the day of their Gamma Knife treatment.
- Most times, there are no long-term side effects from this treatment.

- There is a small risk of seizures after treatment, mostly during the first 24 to 48 hours. This is one reason we ask you stay in the Seattle area the first night after treatment.
- Some patients tell us that the pin sites are numb and tingle for a few weeks, or off and on for a longer period. This happens while the sites are healing. It has nothing to do with your tumor or lesion.
- Rarely, patients lose a small patch of hair if the treated area was near the surface of the skull. The hair usually grows back in a few months.
- Some patients also have swelling around their eyes. If you have this swelling, apply warm compresses several times a day.

We will give you and your support person instructions to follow at home. You will also receive a packet of supplies before you leave the hospital.

Medicines

- **Swelling:** Anytime we “touch” the brain, whether with a scalpel or with radiation, the brain tissue reacts. Much like any bruised area of the body, the brain swells a little.

In Gamma Knife treatment, swelling occurs because the radiation damages the cells in the tumor or lesion, and they can no longer regulate fluids. If you have any problems with swelling, your radiation oncologist may prescribe a mild steroid medicine.

- **Pain or nausea:** We will give you prescriptions to help with pain and nausea after you go home, unless you already have medicines for these symptoms.

Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

Gamma Knife Center at Harborview Medical Center

Phone: 206.744.8067
 Fax: 206.744.6008
 Center Tower, Ground Floor,
 Room 44
 325 Ninth Ave., Seattle, WA
 98104

Alvord Brain Tumor Center at UW Medical Center

Phone: 206.598.2282
 1959 N.E. Pacific St.,
 Seattle, WA 98195

Follow-up

One of the Gamma Knife Center nurses will call you within 1 to 5 days after your treatment to check on how you are doing.

If you have:

- Any concerns or questions weekdays between 7 a.m. and 3 p.m.: Call a Gamma Knife Center nurse at 206.744.8067. If needed, the nurse will contact your doctor.
- A more urgent concern after hours or on weekends or holidays: Call 206.598.6190 and ask for the Radiation Oncology resident to be paged.

To Learn More

To learn more about Gamma Knife treatments, visit the International RadioSurgery Association website, www.irs.org. Click on “Gamma Knife” in the left-hand column on the main page of the site.