Memorial Sloan Kettering Cancer Center

PATIENT & CAREGIVER EDUCATION

Intraoperative Radiation Therapy (IORT)

This information describes intraoperative radiation therapy (IORT) at MSK.

IORT is a high dose of radiation that's given during surgery to remove a tumor. It's often used with tumors that might be hard to remove without damaging nearby structures. With IORT, a focused dose of radiation is given to the area where the tumor was taken out. This helps destroy any cancer cells that might be left behind while doing as little damage as possible to nearby healthy tissue.

Before your surgery

Take devices off your skin

You may wear certain devices on your skin. Before your simulation or treatment, some device makers recommend you take off your:

- Continuous glucose monitor (CGM)
- Insulin pump

If you use one of these, ask your radiation oncologist if you need to take it off. If you do, make sure to bring an extra device to put on after your simulation or treatment.

You may not be sure how to manage your glucose (blood sugar) while your device is off. If so, before your appointment, talk with the healthcare provider who manages your diabetes care.

During your surgery

Your surgeon will remove your tumor through an incision (surgical cut). Once your tumor is removed, your surgeon and radiation oncologist will look at the nearby tissue to see if IORT is needed.

If your surgeon decides that IORT is needed, they will call the IORT team into the operating room. The IORT team will evaluate whether you can have IORT. If you can't have IORT, your surgeon might recommend that you have another type of radiation therapy after your surgery.

If the IORT team decides you can have IORT, your radiation oncologist will put an applicator into the space where your tumor was taken out. There are 3 main types of applicators:

- Harrison-Anderson-Mick (H.A.M.) applicator
- Plaque
- Mesh or sheet

Your radiation oncologist will decide which type of applicator to use.

Harrison-Anderson-Mick (H.A.M.) applicator

A H.A.M. applicator is made of thin catheters (flexible tubes) running through a small, flexible piece of plastic (see Figure 1).

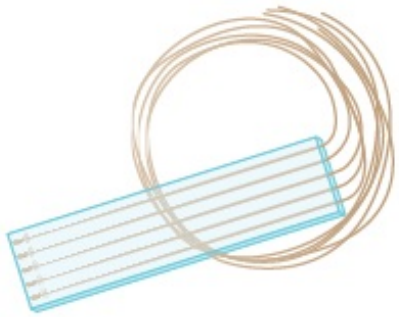


Figure 1. Harrison-Anderson-Mick (H.A.M.) applicator

If a H.A.M. applicator is used for your IORT, your radiation oncologist will put it in the area where your tumor was taken out. They will place blocking material

next to the applicator to protect nearby tissue, if needed. A member of the IORT team will connect the catheters that run through the applicator to a machine that holds the radiation.

Once the applicator is in the right position, the IORT team will leave the room, close the door, and turn on the machine to start your radiation treatment. You will be alone during your treatment, but the operating staff and IORT team will watch you with video cameras to make sure you're safe. The radiation source will travel through each catheter and deliver radiation as it travels. The amount of time the radiation stays in one position determines the strength (dose) of radiation delivered. It will take 30 to 40 minutes for you to get the full dose of radiation.

Once you've received the full dose, the IORT team will turn off the machine and come back into the room. Your radiation oncologist will remove the applicator and your surgeon will close your incision. You won't be radioactive after your treatment is done.

Plaque

A plaque is a thin film made of a radioactive material (see Figure 2).

If a plaque is used for your IORT, your radiation oncologist will put it directly onto the tissue where your tumor was taken out. The operating staff will stay in the room while you're getting your radiation treatment.

It will take about 10 to 20 minutes for you to get the full dose of radiation. Once you've received the full dose, your radiation oncologist will remove the plaque and your surgeon will close your incision.

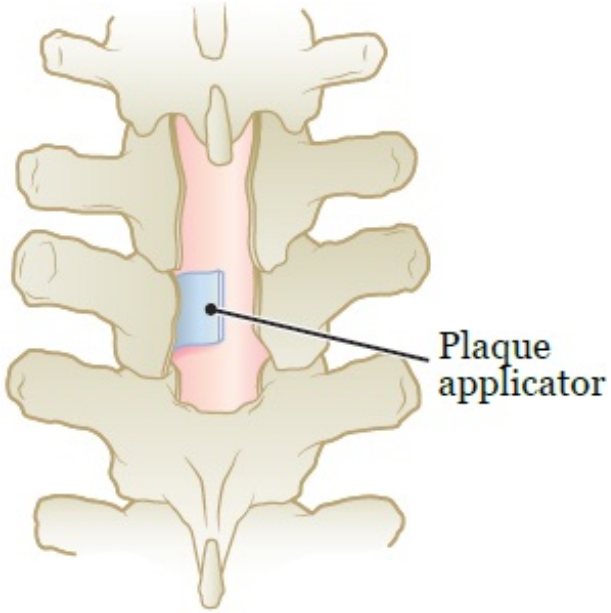


Figure 2. Plaque applicator on spine

The plaque isn't left in your body after your IORT is finished. You won't be

radioactive after your treatment is done.

Mesh or sheet

Mesh or sheet is a thin piece of material that has radioactive seeds made of iodine or palladium (see Figure 3). One type of sheet, called the CivaSheet®, has gold on the back side so the radiation is only given in one direction.

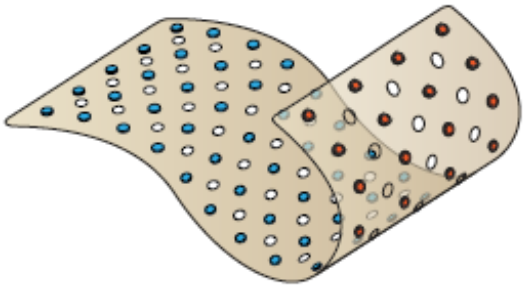


Figure 3. Mesh or sheet

If mesh or sheet is used for your IORT, it will be put over the area where your tumor was taken out. Your surgeon will cut it so it's the right size and sew it into place using sutures (stitches).

The mesh or sheet will stay in your body permanently. This means that there will be a small amount of radioactive material in your body after your surgery. After several months, the radiation will run out and the seeds won't be radioactive anymore. But, you might need to follow special precautions after your surgery. A member of your radiation team will give you more information.

After your surgery

- If a H.A.M. applicator or plaque is used for your IORT, you won't be radioactive after your treatment. You don't need to limit contact with other people or follow any precautions.
- If a mesh or sheet is used for your IORT, there will be a small amount of radioactive material left in your body after your treatment. A member of the IORT team will tell you if you need to take any special precautions. Because the amount of radiation coming from your body is low, many people don't need to take any special precautions.
- You will have follow-up appointment with your surgeon. If you need to see your radiation oncologist for a follow-up visit, your clinical team will tell you.

Side effects

The side effects of IORT depend on the area that was treated. Your radiation oncologist will discuss this with you during an appointment before your surgery.

Use the area below to write any notes.

If you have questions or concerns, contact your healthcare provider. A member of your care team will answer Monday through Friday from 9 a.m. to 5 p.m. Outside those hours, you can leave a message or talk with another MSK provider. There is always a doctor or nurse on call. If you're not sure how to reach your healthcare provider, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

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