Memorial Sloan Kettering Cancer Center

PATIENT & CAREGIVER EDUCATION

About Brachytherapy for Brain Tumors

This information explains brachytherapy (BRAY-kee-THAYR-uh-pee) for brain tumors. Brachytherapy is a type of radiation therapy.

About radiation therapy

Radiation therapy uses high-energy radiation to treat cancer. It works by damaging cancer cells and making it hard for them to multiply. Your body then gets rid of the damaged cancer cells. Radiation therapy also affects normal cells, but they can repair themselves in a way that cancer cells can’t.

About brachytherapy

With brachytherapy, your healthcare provider puts a radiation source inside or near the tumor or cancer cells. Radiation gets weaker as it moves away from the source. The area right around the source gets a high dose (amount) of radiation, and surrounding tissue gets a lower dose. This can help destroy the cancer cells while limiting damage to nearby healthy tissue.

About brachytherapy for brain tumors

When brachytherapy is used to treat a brain tumor, it's done along with surgery. First, your surgeon will remove the tumor from your brain. Then they'll put tiny radioactive implants (the radiation source) in the area where they removed the tumor. The implants are also called seeds. They'll remove the tumor and place the radioactive seeds during the same surgery.

The seeds don't cause any discomfort and don't need to be removed. They'll stay in your body for the rest of your life.

The seeds only have a certain dose of radiation. They'll give off radiation more quickly when they're first placed in your body. They'll give off radiation more and more slowly over time.

- During the first 10 days you have the seeds, they'll give off 50% (half) of their total radiation dose. If any cancer cells were left after your surgery, this radiation helps keep them from multiplying.
- During the first 30 days you have the seeds, they'll give off 88% of their total radiation dose.
- During the first 42 days you have the seeds, they'll give off more than 95% of their total radiation dose.

Eventually, the seeds will not give off any radiation at all. This happens about 100 days after they're placed.

You can have any type of imaging scan while you have the seeds. This includes magnetic resonance imaging (MRI) scans, computed tomography (CT) scans, positron emission tomography (PET) scans, and x-rays. The scans will not affect the seeds.

Radiation safety precautions

The seeds give off a tiny amount of radiation. The radiation gets weaker the further it gets from the seeds.

After your surgery, a radiation safety officer will check the level of radiation outside your body. The chance that people around you could be exposed to radiation is very small. Still, the radiation safety officer may give you instructions to follow for the first few weeks after your surgery. This will help keep the people around you safe. For example, they may tell you to limit very close contact with others, especially young children and pregnant people. Examples of close contact include long hugs or sleeping next to another person. It's safe to do other daily activities, such as eating meals and driving with another person.

The radiation from the seeds will not get into your blood, urine (pee), or other body fluids. You can't make

something radioactive by touching it. You don't have to do anything special with your clothing, bedsheets, or towels. You don't have to do anything special with kitchen items or when using the toilet or shower either. The seeds will not disturb pacemakers or affect any scans you may need.

Some security equipment can detect tiny amounts of radiation. The radiation safety officer will give you a wallet card that explains the radiation. The card will have the date the radioactivity will be gone from your body. **Keep this card with you all the time for 3 months after your surgery.** It's especially important to bring it when you travel.

If you need to go to a hospital for any reason before the date on your wallet card, tell the healthcare provider you've had radioactive seeds implanted. Show them your wallet card.

Side effects of brachytherapy for brain tumors

The complications (problems) listed below can happen if you have brain surgery without brachytherapy. We don't yet know if having brachytherapy raises your risk of these complications. Most people take medicine for about 7 to 10 days after surgery to help prevent or manage these complications.

- Infection in the area of your surgery

- Poor wound healing
- Hair loss
- Another neurological (nerve) injury, which can cause symptoms such as:
  - Numbness in your hands and feet
  - Weakness
  - Vision problems
  - Problems moving around
  - Problems with your balance
- Hemorrhage (bleeding) in your brain
- Seizures

Over time, the radioactive seeds may move from the exact place your surgeon put them. This doesn't affect your treatment or cause side effects.

Talk with your neurosurgeon if you have questions about complications after brain surgery or side effects of brachytherapy for brain tumors.

Contact information

If you have questions about radiation safety precautions, call the Medical Health Physics service at 212-639-7391.

If you have questions about your brain surgery or

brachytherapy for brain tumors, call your neurosurgeon. 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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