Oral Cancer: Radiation Therapy

What is radiation therapy?

Radiation therapy is a cancer treatment that uses high-energy X-rays or beams of other particles to kill cancer cells or stop them from growing. In most cases, a large machine directs the rays of energy to the cancer. This is called external radiation.

Radiation therapy is also called radiotherapy. Its goal is to kill or shrink cancer cells.

When might radiation therapy be used?

Radiation is often part of the treatment for oral cancer. Your healthcare provider may suggest this treatment for several reasons:

- **As the main treatment for oral cancer.** External radiation might be the only treatment used if the cancer hasn't spread and the tumor is small. It might also be the only treatment if you cannot undergo surgery. It might be used along with chemotherapy (chemo), targeted therapy, or surgery to treat larger tumors.
- **To try to shrink cancer before surgery.** If you have a medium to large tumor, radiation can be used to shrink the tumor so it's easier to remove with surgery. In this case, it may be used along with chemo. This is called neoadjuvant treatment.
- **To try to kill any cancer cells left after surgery.** Most often, radiation can be used after surgery to kill cancer cells if there is a high chance that some cancer cells may remain. It might be given along with chemo. This is called adjuvant treatment.
- **If cancer comes back.** Radiation might be used if you've already had surgery or another treatment and the cancer has come back.
- **To ease symptoms.** Radiation can help shrink the tumor and ease the problems it's causing, such as pain or swallowing problems.

To plan your treatment, you'll meet with a team of cancer specialists. This might include a surgeon, radiation oncologist, and medical oncologist.

How radiation therapy is done

There are two main types of radiation therapy:

- **External beam radiation therapy (EBRT).** The radiation comes from a machine and is aimed at the tumor through the skin. EBRT is the most common type of radiation used for oral cancer. The treatment is a lot like getting an X-ray. The machine doesn't touch you during the treatment. The treatments don't hurt and they are quick.
- **Internal radiation (brachytherapy).** This type of radiation is seldom used for oral cancers. Radioactive material is put right into or near the tumor. The radioactive material may be put in flexible tubes called catheters or metal rods that were put in during surgery. The radiation only travels a very short distance to kill the nearby cancer cells. When this type of treatment is used, it's often done along with external beam radiation.

Deciding on a radiation treatment plan

You will talk with a radiation oncologist. This is a healthcare provider who specializes in both cancer and radiation. You'll work with your healthcare provider to decide what your treatment will be and how long it will

last. During your visit, ask what you can expect to feel during and after the treatment.

Before radiation treatment

Before you start radiation, you'll need a complete dental exam. This is often done by a dentist who treats patients with cancer (called an oncologic dentist). If your teeth are in poor condition or are likely to be in the radiation field, the dentist will likely remove them. If all of your teeth need to be removed, your dentist can help you get dentures to wear after treatment is over and the swelling has gone down. Treating dental problems and removing teeth in bad condition helps prevent radiation damage to your jawbone (called osteoradionecrosis).

Before external radiation therapy

Before your first radiation treatment, you'll have an appointment called simulation. This is needed to find exactly where on your body the radiation beam needs to be directed. It may take up to 2 hours. Here's what you can expect to happen during the simulation:

- You'll lie still on a table while a radiation therapist uses a machine to identify your treatment field, which may also be called your treatment port. The field is the exact area on your body where the radiation will be aimed. You may have more than one treatment field if you have cancer in more than one place. The therapist will mark your skin with tiny dots of semipermanent ink or tiny tattoos. This is so the radiation will be aimed at the exact same place each time.
- Imaging scans, like MRI or CT scans, may be done. These help your healthcare providers know the exact location of your tumor to better outline the treatment area.
- A face mask or other body mold may be made. These are used to hold you in the best position at each treatment. They also help keep you from moving during the treatments.

The radiation oncologist and the radiation therapist will carefully watch the intensity and length of each radiation treatment. They will also check the area that's being treated. Regular physical exams and blood tests will be done during the course of your treatments.

What to expect during external radiation therapy

You can get external radiation as an outpatient at a hospital or clinic. This means you don't need to stay overnight. You'll get a treatment schedule. The schedule usually is 5 days a week, Monday through Friday, for 6 to 7 weeks. Spreading out the radiation dose helps protect your healthy tissues. Depending on how aggressive the cancer is, some people are treated with a different method. For example, they are given twice daily treatment on some of the treatment days. Depending on which type of EBRT is being given, you may have a different type of schedule.

On the days you get treatment, you'll lie on a table while the machine is placed over you. A face mask will be used to hold you in the right position while the radiation is being given. You may have to wear a hospital gown. A radiation therapist may use blocks or special shields to protect parts of your body from exposure to radiation. The therapist may use lights on the machine that line up with the marks on your skin. This helps make sure the radiation is directed to the right spot. It takes about 15 to 30 minutes for the whole process. About 1 to 5 minutes of that time is spent getting the radiation.

When you’re ready, the therapist will leave the room to turn on the machine. You may hear whirring or clicking noises as the machine moves during radiation. This may sound like a vacuum cleaner. The machine won't touch you. During the session, you'll be able to talk to and hear the therapist over an intercom. You can't feel radiation, so it will be painless. You won't be radioactive afterward.

What to expect during internal radiation (brachytherapy)

If you have brachytherapy, you may need to stay in the hospital for a few days while the treatment is done. You may need to limit the amount of time that people visit you because of the radiation inside your body during this time. When the implant is taken out, your body will no longer be radioactive.

What to expect after radiation therapy

Radiation affects normal cells as well as cancer cells, so you may have some side effects. The side effects from radiation are normally limited to the area being treated. Some people have few or no side effects. If you do have very severe side effects, your healthcare provider may change the dose of your radiation or how often you get treatment. Or treatment may be stopped until your side effects clear up. Tell your provider about any side effects you have right away. It's important to address them before they get worse.

Possible side effects

Common side effects can include:

- Dry mouth caused by damage to your salivary glands
- Mouth may become red and painful (called mucositis)
- Mouth and throat sores
- Thick mucus secretion that need to be spit out regularly
- Trouble opening your mouth and trouble swallowing
- Trouble talking
- Damaged taste buds and loss of sense of taste
- Tiredness
- Hoarse voice
- Hearing problems
- Nausea
- Skin irritation in the area that was treated
- Teeth erosion or cavities from having a dry mouth
- Infection
- Thyroid problems
- Swelling in your mouth, throat, neck, or face

Side effects are often worse when chemo is given along with radiation.

Many side effects tend to go away over time after treatment ends. But some may be long-lasting (permanent). Talk with your healthcare provider about what to expect and what can be done to help manage side effects. Most side effects can be treated, and there may be things you can do to help prevent some. For instance, you may be given fluoride treatments to help prevent teeth erosion and cavities. Or told to use baking soda and salt water rinses to help with mucositis.

You may get a temporary feeding tube placed into the stomach to help with nutrition during radiation. Eating can be hard for some patients during the treatment because the radiation is being aimed at the mouth. A temporary tube will help to prevent significant weight loss as the treatment progresses. It can be removed once you are able to comfortably eat through your mouth once the treatment is over.

A rare side effect is damage to the jaw bone (called osteoradionecrosis of the jaw). Your risk for this damage is higher if you have bad teeth in place when getting radiation. That’s why it’s very important to see a dentist before starting radiation and to engage in good dental hygiene.

It may be helpful to keep a diary of your side effects. A written list will make it easier to remember your questions when you go to appointments. It will also make it easier for you to work with your healthcare team to make a plan to manage side effects.

Some long-term side effects of radiation may not show up for many years after you finish treatment. These depend on the dose of the radiation and the area that's treated. They also depend on how many times you

have treatment. Ask your healthcare providers what you may expect.

When to call your healthcare provider

Ask your healthcare team what you should watch for and when you need to call them. Or when to get immediate medical care. For instance, you may be told to call if you have signs of infection, such as fever, or side effects that are keeping you from eating or are causing a lot of pain.

Be sure you know how to get in touch with your healthcare team if you need help after office hours and on weekends and holidays.