MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Caring for Your Mouth during and after Radiation Therapy

To the Head and Neck

Your mouth will undergo changes both during and after radiation therapy. The purpose of this sheet is to explain these changes and give some suggestions on how you can protect your teeth and keep your mouth healthy.

During and after radiation therapy to the head and neck area, patients often experience changes in oral health including:

- Reduction in the amount of saliva (hyposalivation).
- A sensation of oral dryness (xerostomia or dry mouth).
- Taste changes.
- Tissue trauma (i.e. ulcerations).
- Oral discomfort.
- Increased risk of infection.
- Increased risk of healing complications and delayed healing, especially following invasive dental procedures.
- Other side-effects such as mucositis (mouth sores) and trismus (restricted range of motion of the jaws).

Some symptoms may improve with time, however, some oral changes may be permanent. Due to the increased risk for oral health complications, establishing routine care with a dentist and having your mouth examined every 3 months will be important and is highly recommended. This will allow for the identification of any problems as early as possible which may make the problems easier to treat and less severe for you.

What are radiation-induced hyposalivation (reduced salivary flow) and xerostomia (dry mouth)? What may I experience when my mouth is dry?

Radiation may lead to loss of functional salivary gland tissue, resulting in decreased saliva and changes in salivary consistency. Hyposalivation and xerostomia may contribute to problems such as:

- Alteration or reduction in taste.
- Difficulty with chewing, swallowing, and/or speaking.
- Inability to tolerate medications or oral hygiene products.
- Increased risks for infections.
- Increased acidity of the oral environment.
- Decreased resistance to dental decay.
- Damage from attrition, abrasion, or erosion.
- Increase soft tissue trauma.
- Oral discomfort.
- Difficulty with denture retention and/or comfort.

Some patients feel that they have "more" saliva when quantities are lower due to thicker consistency. Stimulating salivary flow with the methods below may help to thin out thick saliva, even if it feels contrary to intuition. Rinsing with a mild saltwater rinse may also help thin out sticky saliva.

Over-the-Counter (OTC) options for managing dry mouth:

Several over-the-counter dry mouth products are available at most grocery stores and pharmacies. Some products are only available online. Product types include lozenges, mints, rinses, sprays, and gels. Patients have also reported benefit from spraying their mouth or rinsing and spitting with edible oils (i.e. grapeseed, olive, or coconut), especially prior to eating or sleeping for assistance with eating or oral discomfort overnight. As you are choosing an OTC option, please keep in mind that over-consumption of sugar alcohols or oils may lead to an upset stomach, loose stools, and/or weight changes.

Diet modifications:

Due to oral dryness and increased risks for dental decay, it is important to:

- Use fluoridated water.
- Avoid acidic and sugar-containing beverages, including “diet/sugar-free” options.
- Avoid frequent sipping of any non-water beverage.
- Choose foods that are lower in sugar and are not sticky.
- Consume natural fruits and vegetables.

Additionally, try to stick to regular meals and avoid frequent snacking. Keep in mind that eating or drinking anything other than water increases the acidity in the mouth which may contribute to increased decay/cavity development and erosion of teeth.

Oral hygiene modifications:

Use of prescription-strength fluoride: The fluoride concentration of over-the-counter toothpastes may not be enough to prevent dental decay during or after radiation. Your dentist may recommend using prescription-strength fluoride toothpaste, gels, and/or varnish in addition to over-the-counter products.

Guidelines for choosing over the counter fluoride-containing products:

- Choose a neutral sodium fluoride gel because stannous fluoride is acidic.
- Choose a toothpaste without strong flavors. Teeth and/or gums may be sensitive to flavoring agents.
- Check ingredients for the presence of Sodium Laurel Sulfate (SLS). Teeth and/or gums may be sensitive to SLS which may cause sloughing of the tissue.

If your teeth or gums are sensitive, you may prefer toothpaste made for tooth sensitivity, “dry mouth” or non-mint flavored children’s toothpaste w/ fluoride.

What other side effects may occur after radiation therapy?

- **Osteoradionecrosis**

  Radiation can damage blood vessels in your jawbone (the mandible), which supply nutrients to the bone cells. The damage makes it hard for the jawbone to heal from invasive procedures such as extractions, implant placement, or gum surgery done after radiation. This complication is called osteoradionecrosis. **Make sure** to let **every dentist** you see know that you have had radiation therapy to the jaw. This information may impact treatment decisions and prevent complications.

- **Mucositis**

  Mucositis is the medical name for mouth sores that may occur during or right after radiation therapy. Radiation therapy disrupts the normal turnover of cells in the soft tissues in your mouth during treatment and for a period of 1-2 months afterward. Combined with dryness, this disruption may cause mouth sores that can become quite uncomfortable. To alleviate the discomfort rinse your mouth with a solution made of 1/8 teaspoon salt and 1/8 teaspoon baking soda mixed in a cup of water. Mucositis typically resolves a few months after treatment is over.

- **Trismus**

  Trismus or lockjaw is a decreased ability to open your mouth as wide as usual. It can occur when the jaw muscles are exposed to radiation. Trismus can make eating difficult and also affect your ability to properly clean your teeth and gums which can lead to dental problems. Trismus can happen anytime during, right after, or even years after your treatment. Massaging and exercising the jaw muscles regularly can help to prevent trismus. If you start to feel tightness when opening your mouth let your dentist or healthcare provider know right away.

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