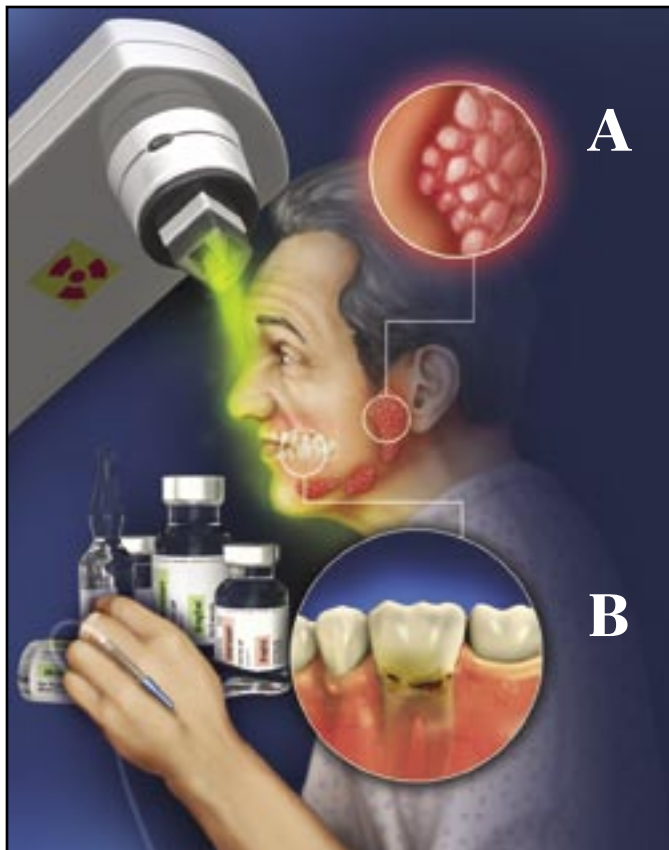


Oral Complications of Treatment for Head and Neck Cancer: What You Need To Know

The mouth is often the primary site of complications associated with treatment for head and neck cancer. About one-third of Americans diagnosed with head and neck cancer will develop oral complications from their treatments. Patients who undergo chemotherapy and/or radiation may experience a variety of challenges including inflammation of oral tissues (mucositis), continual dry mouth (xerostomia), infection, limited jaw opening (trismus), and erosion of the jaw bones (drug-induced osteonecrosis and/or osteoradionecrosis). It is important for cancer patients to recognize and manage these complications so that they are able to maintain their quality of life. The dental health team can assist patients prior to, during, and after radiation and chemotherapy to ensure that their mouths remain in a stable state. This will limit the risk for complications of cancer treatment.

What kind of oral complications of treatment should head and neck cancer patients anticipate?

A condition called mucositis of the oral tissues affects most patients undergoing treatment for cancer of the head and neck. The onset of mucositis usually occurs within 5 to 7 days from the time treatment begins, and the condition may last for days to weeks. Mucositis is characterized by inflammation, reddening, and ulceration of the soft tissues lining the inside of the mouth and is usually very painful. Oral candidiasis is a fungal infection of the oral cavity that is a frequent complication of mucositis. Patients undergoing treatment for head and neck cancer often have impaired immune systems which also increase the risk for infection, bleeding gums, and delayed healing of oral tissues.



Patients undergoing treatment for head and neck cancer are at risk for significant oral complications. This includes an impaired ability of the salivary glands (A) to produce saliva, which causes dry mouth. When there is no saliva to perform the natural cleansing of the teeth, patients are also at much greater risk for decay throughout the mouth. This type of decay usually occurs around the neck of the tooth where the crown and root meet (B).

When the tongue is affected, patients may experience changes in and/or loss of taste. Taste normally returns within several weeks after treatment is completed. Another challenge for those going through treatment for head and neck cancer is decreased ability of the salivary glands to produce saliva, which results in dry mouth (xerostomia) that can last a few weeks or throughout a lifetime. This puts patients at risk for ulcerations, inflammation, and tooth decay throughout the mouth which often occurs around the neck of the tooth where the crown and root meet.

Gum tissue is especially sensitive to irradiation, and gum recession often occurs when radiation therapy is completed. Periodontal infections pose a significant risk for patients after irradiation. Over time, patients may also experience difficulty in opening their jaws (trismus) which may cause difficulty in chewing food. More recently, researchers have discovered that certain medications in the class of drugs called bisphosphonates, which are delivered intravenously to patients undergoing chemotherapy, may place patients at risk for aggressive erosion of bone in the jaws. This condition, known as drug-induced osteonecrosis, typically affects the lower jaw more often than the upper jaw, and occurs within three years after radiotherapy. Because these patients are at continued risk for bone loss in the jaws for the remainder of their lives, osteonecrosis requires careful examination and long-term monitoring by patients' dental and medical care providers.

How can patients minimize the risk of developing oral complications from treatment for head and neck cancer?

The key to minimizing the risk of developing oral complications from treatment for head and neck cancer is pre-treatment dental evaluation. Ideally, all sources of irritation or oral infection such as decayed teeth and gum disease are eliminated before chemotherapy or radiation therapy is initiated. It is recommended that patients undergoing radiation therapy avoid use of irritating substances such as alcohol, tobacco products, or spicy foods. Often it is necessary to obtain a culture of an oral lesion to determine whether an infection is of viral, bacterial, or fungal origin. Once the causative organism is identified the lesion can be treated appropriately. This will allow for an individualized plan of care that must be carefully coordinated between the patient's dentist and oncologist. The key to prevention of jaw erosion (drug-induced osteonecrosis or osteoradionecrosis) is pre-treatment dental examination to determine whether the patient is at risk for the condition. To minimize the risk for trismus, patients are strongly encouraged to perform prophylactic muscle stretching exercises by opening and closing their mouths 3 or more times a day before, during, and after radiation therapy. In more severe cases, patients may need to see a physical or speech therapist to help manage the condition.

In general, a basic plan for the oral care of patients undergoing treatment for head and neck cancer, which should be followed at least 3 times a day, incorporates:

- 1) Use of a soft toothbrush and avoiding extra hard brushing
- 2) Flossing and rinsing with a warm baking soda and salt water mouth rinse
- 3) Protection with non-petroleum based lip products
- 4) Soaking dentures overnight in denture cleanser, making sure the container is washed each morning with soap and water
- 5) Keeping the mouth moist to minimize the risk of developing dry mouth by using over-the-counter products that can be used regularly to moisten oral tissues. For those patients who are severely affected by dry mouth, it is possible that a prescription may be given to increase moisture in the mouth.

Essential to minimizing the risk for developing oral complications of treatment for head and neck cancer is maintaining proper nutrition, which is key to restoring healing ability. It should be emphasized that patients who see their dentists before cancer treatment begins and throughout treatment continue to have the greatest chance of minimizing the risk of oral complications of chemotherapy and radiation therapy.

What kind of care should patients undergoing treatment for head and neck cancer expect to receive from their dental provider?

The majority of head and neck cancer patients have not seen a dentist for some time. Starting treatment for cancer with a diseased oral cavity increases the risk for oral complications that often occur following chemotherapy and radiation therapy. **Before radiation therapy and chemotherapy begins**, patients should have a comprehensive oral examination, full mouth series of x-rays, dental prophylaxis, elimination of decay and restoration of teeth, oral hygiene instruction, antimicrobial mouth rinses as appropriate, and non-surgical periodontal treatment if indicated. **During radiation therapy**, patients should have regular preventive maintenance that includes dental prophylaxis, fluoride treatments, topical anesthetics to control for discomfort from mucositis as necessary, antifungal medications as necessary, and dietary counseling. **During chemotherapy**, the patient should only have minimal dental treatment; dental intervention should be provided to control acute dental problems occurring during active phases of chemotherapy. **After radiation and chemotherapy**, patients should have regular dental evaluations and the following as necessary: oral surgery, antibiotics, hyperbaric oxygen treatment, daily application of fluoride gel, salivary substitutes, assessment of oral hygiene and review of oral self care, and definitive dental care provided between chemotherapy cycles.

Additional Resources:

- Multinational Association of Supportive Care/International Society of Oral Oncology. Oral Mucositis Guidelines 2005 Update. Available at <http://www.mascc.org>. Accessed Nov 14, 2006.
- Oral complications of cancer treatment: what the oral health team can do. Available at: <http://www.nidcr.nih.gov/HealthInformation/DiseasesAndConditions/Cancer>. Accessed Sept 11, 2006.
- Campaign targets oral complications of cancer treatment. January 1999. U.S. Department of Health and Human Services, National Institutes of Health, National Institute of Dental and Craniofacial Research Website. Available at: <http://www.nidcr.nih.gov/NewsAndReports/NewsReleases/NewsRelease01271999.htm>. Accessed Oct 1, 2006.
- Oral complications of chemotherapy and head/neck radiation. Revised May 2005. U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute Website. Available at: <http://www.nci.nih.gov/cancertopics/pdq/supportivecare/oralcomplications/HealthProfessional>. Accessed Nov 4, 2006.