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Oncology Pocket Guide to Oral Health

*Prevention and management
of oral complications*

**Head and Neck
Radiation Therapy**

Chemotherapy

**Hematopoietic Stem
Cell Transplantation**



Oral Health, Cancer Care, and You
Fitting the Pieces Together

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
National Institute of Dental and Craniofacial Research

Head and Neck Radiation Therapy

Patients receiving radiation therapy to the head and neck are at risk for developing oral complications. Because of the risk of osteonecrosis in irradiated fields, the best time to perform oral surgery is before radiation treatment begins. Prior to treatment, the dentist will consider extracting all teeth that may pose a problem in the future.

Before Head and Neck Radiation Therapy

- Refer the patient to a dentist for a pretreatment oral health examination, ideally 1 month before cancer treatment begins.
- Tell the dentist the treatment plan and timetable. Be sure the dentist is knowledgeable about cancer care issues.
- Help prevent tooth demineralization and radiation cavities by making sure the patient has a good oral hygiene program and has received instruction on fluoride gel application.
- Allow at least 14 days of healing for any oral surgical procedures before radiation treatment.

- Make sure pre-prosthetic surgery is done before treatment begins—surgical procedures may be contraindicated on irradiated bone.
- Consider radioprotectant use, like amifostine, to reduce risk of xerostomia.

During Radiation Therapy

- Make sure the patient follows the recommended oral hygiene regimen, whether at home or in the hospital.
- Monitor mucosa and oral structures for bleeding and infection.
- Advise patients not to wear removable appliances during treatment.

After Radiation Therapy

- Consult with the dental team about dentures and other appliances after mucositis subsides. Patients with friable tissues and xerostomia may not be able to wear them again.
- Make sure that the patient follows up with a dentist for fluoride gel/home care compliance. Lifelong, daily applications of fluoride gel are needed for patients who are severely xerostomic.

- Monitor the patient for trismus. Check for pain or weakness in masticating muscles in the radiation field. Instruct the patient to exercise jaw muscles three times a day, opening and closing the mouth as far as possible without pain; repeat 20 times.
- Advise against oral surgery on irradiated bone because of the risk of osteonecrosis. Tooth extraction, if unavoidable, should be conservative; use antibiotic coverage and possibly hyperbaric oxygen therapy.
- Consult the dentist to monitor irradiated craniofacial and dental structures for abnormal growth and development in pediatric patients.

Chemotherapy

The oral complications of chemotherapy depend on the drugs selected, dosages, the degree of dental disease, and use of radiation. Chemoradiation therapy carries a significant risk for mucositis.

Before Chemotherapy

- Refer patients to a dentist for a pretreatment oral health examination 1 month, if possible, before cancer treatment begins.
- Tell the dentist the treatment plan and timetable.
- Advise the dentist if radiation therapy is also planned.
- Allow at least 7 to 10 days of healing from oral surgical procedures before the patient begins myelosuppressive therapy.
- Check for immunosuppression or thrombocytopenia before any oral procedures in patients with hematologic cancers.

During Chemotherapy

- Consult with the oral health team to schedule dental treatment.
- Conduct blood work 24 hours before any dental procedure. Postpone if
 - platelet count is less than $75,000/\text{mm}^3$, or abnormal clotting factors are present.
 - neutrophil count is less than $1,000/\text{mm}^3$.
- Determine if there is a need for antibiotic prophylaxis before any dental procedures in patients with central venous catheters.
- Consult the dentist to explore a possible oral source of infection when fever is of unknown origin.
- Ask patients frequently about their oral health.

After Chemotherapy

- Resume a regular dental recall schedule when chemotherapy is completed and all side effects, including immunosuppression, have resolved.

Hematopoietic Stem Cell Transplantation

Most patients undergoing hematopoietic stem cell transplantation develop acute oral complications, especially patients with graft-versus-host disease. Consider use of palifermin for patients with hematologic malignancies receiving chemotherapy/ radiation and autologous stem cell transplantation.

Before Transplantation

- Refer all patients to a dentist for a pretreatment oral health examination.
- Schedule oral surgery at least 7 to 10 days before myelosuppressive therapy begins.
- Make sure the patient follows the prescribed oral hygiene regimen and fluoride gel application schedule.
- Watch for infections on the tongue and oral mucosa. Herpes simplex and *Candida albicans* are common oral infections.

After Transplantation

- Make sure that the patient follows up with a dentist for control of plaque,

- tooth demineralization, dental cavities, and infection.
- Delay elective oral procedures for 1 year.
- Follow patients for long-term oral complications indicating chronic graft-versus-host disease.
- Follow transplant patients carefully for second malignancies in the oral region.

Pre-Cancer Treatment Oral Health Examination

Objectives

1. Establish a schedule for dental treatment.
 - Complete invasive treatment at least 14 days before head/neck radiation therapy starts; 7 to 10 days before myelosuppressive chemotherapy.
 - Postpone elective oral surgical procedures until cancer treatment is completed.
2. Identify and treat sites of low-grade and acute oral infections:
 - Dental decay
 - Periodontal disease
 - Endodontic disease
 - Mucosal lesions
3. Identify and eliminate sources of oral trauma and irritation, such as ill-fitting dentures, orthodontic bands, and other appliances.

4. Educate patients about importance of preventive oral hygiene:
 - Brush gently after every meal and at bedtime; floss daily.
 - Use special brushing techniques if the mouth is sore.
 - Drink liquids and suck ice chips or sugarless candy to alleviate dry mouth.
 - Rinse with $\frac{1}{4}$ teaspoon each of baking soda and salt in 1 qt. warm water; omit salt during mucositis.
 - Keep dentures clean by soaking them daily in antimicrobial solutions and clean water.
 - Remove prostheses if any irritation, mucositis, or ulceration occurs.
5. Evaluate dentition and loss of primary teeth in children. Remove loose primary teeth as well as those expected to exfoliate during treatment.

Oral Complications of Cancer Treatment

Oral mucositis/stomatitis: Culture infections to identify fungal, bacterial, or viral origin. Work with the dentist on the best control measures.

Xerostomia/salivary gland dysfunction:

Advise the patient to soften or thin foods with liquid, chew sugarless gum, or suck ice chips and sugar-free hard candies. Suggest using commercial saliva substitutes or prescribe a saliva stimulant.

Mouth pain: Prescribe topical anesthetics and systemic analgesics. Prescribe antimicrobial agents for known infections. Tell the patient to report oral problems early and to avoid irritating and rough-textured foods.

Damaged tooth enamel: Instruct the patient to rinse teeth with baking soda and water solution to protect enamel after vomiting.

Taste changes: Refer to a dietitian.

Specific to Chemotherapy

Neurotoxicity: Persistent, deep pain mimics a toothache, but with no dental or mucosal source. Provide analgesics or systemic pain relief.

Bleeding from neutropenia: Advise the patient to clean teeth thoroughly with a toothbrush softened in warm water; avoid flossing the areas that are bleeding, but keep flossing the other teeth.

Specific to Radiation Therapy

Radiation cavities: Rapid tooth structure breakdown can follow radiation therapy unless preventive measures are instituted. Consult a dentist to prescribe daily fluoride gel applications before treatment begins.

Trismus/tissue fibrosis: Instruct the patient on stretching exercises for the jaw to prevent “or reduce the severity of fibrosis.

Osteonecrosis: Recommend consultation with a dental oncology specialist if surgery involving irradiated bone is considered.

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This guide is part of a series on managing and preventing oral complications of cancer treatment developed by the National Institute of Dental and Craniofacial Research in partnership with the National Cancer Institute, the National Institute of Nursing Research, and the Centers for Disease Control and Prevention.

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