Treatment Guidelines for the Dental Oncology Team
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General Objectives
1. Conduct/schedule oral evaluation if possible, before cancer treatment begins.
2. Considerations for scheduling dental treatment:
   Oncology/Dental appointments are to be given “priority scheduling”. When calling for the appointment, clearly identify the immediate need to be seen.
3. Identify the treatment timeline among the team using the following recommendations:
   • Complete invasive oral procedures at least 14 days before head/neck radiation therapy starts.
   • Complete invasive oral procedures at least 7 to 10 days before myelosuppressive chemotherapy.
   • Postpone elective oral surgical procedures until cancer treatment is completed.
   • All oncology patients are considered “at risk” in dental assessment (CAMBRA) & should have a “pre-treatment” dental exam/assessment and clearance.

   The dental oncology ‘work up’ typically includes:
   • Complete hard & soft tissue exam with charting, including a Panoramic and Bite-wing films, and salivary screening
   • Complete impressions for custom (fluoride/re mineralizing treatment) trays
   • Complete oral prophylaxis, needed sealants & fluoride varnish for all oncology patients
2. Identify and aggressively treat sites of low-grade and acute oral infections:
   • Decay
   • Periodontal gum disease
   • Endodontic disease (root canal)
   • Mucosal lesions
3. Identify, correct, and eliminate sources of oral trauma and irritation such as:
   • Ill-fitting dentures
   • Partials
   • Orthodontic bands
   • Other appliances, sharp cusp tips
4. Identify and aggressively treat potential oral problems within the proposed radiation field (before radiation treatment begins).
5. Instruct patients that oral hygiene must be a top priority and the frequency must be increased beyond their typical routine. (Patients must be instructed that oral care is essential during tube feedings because plaque / biofilm grows constantly in the oral cavity.
6. Instruct patients to begin the prescribed the new oral care regimen before oncology treatment begins (to help condition the oral cavity & adjust to the additional steps in the regimen).
7. Instruct patients to practice jaw stretching and tongue strengthening exercises prior to, during and after treatment to help reduce trismus / tissue fibrosis issues.
8. Instruct patients to immediately report any oral issues to the oncology team, early intervention can reduce pain, infection and suffering.
9. Following assessment, educate and give written instructions to patients regarding rationale and steps to reduce side effects of treatment.
   Instructions should address demineralization, dental caries, and acidic pH of saliva, and potential of damage to soft tissues. The daily care of dental appliances (dentures, retainers, partial dentures) must also be reviewed.
**Note:** Continue to assist patients (throughout treatment) in selection of: small headed, soft bristle toothbrush, a gentle, sodium laurel sulfate free toothpaste, an appropriate tongue cleaner, moisturizing gels, rinses (both OTC & prescriptive), sprays (moisturizing and protective), sugar-free gum and sugar free lozenges.

### Head and Neck Radiation Therapy
Patients receiving radiation therapy to the head and neck are at greater risk for developing oral complications. Because of the risk of osteonecrosis in irradiated fields, oral surgery should be performed before radiation treatment begins.

#### Before Head and Neck Radiation Therapy
- Conduct a pretreatment oral health examination and prophylaxis.
- Schedule dental treatment in consultation with the radiation oncologist.
- Extract teeth in the proposed radiation field that may be a problem in the future.
- Reduce or prevent tooth demineralization and radiation caries:
  - Fabricate custom gel-applicator trays for the patient. Understanding that they do not assist with the prevention of mucositis & many patients are unable to tolerate them during treatment due to nausea, highly sensitive tissues & distorted taste issues.
  - If available prescribe a 1.1% neutral pH sodium fluoride gel or a 0.4% stannous, unflavored fluoride gel (fluoride rinses can be used for the non compliant). The key is to determine an easily compliant product per assessment.
  - Use neutral fluoride products for patients with porcelain crowns or resin or glass ionomer restorations.
  - Be sure that the trays cover all tooth structures without irritating the gingival or mucosal tissues.
  - Instruct the patient in home application of re-mineralizing pastes/gels. Several days before radiation therapy begins, the patient should start a daily 10-minute application.
  - Have patients gently brush with a re mineralizing paste/gel if using trays is difficult.
  - Consider the fluoride varnish & rinses in place of trays per assessment.
- Allow at least 14 days of healing for any oral surgical procedures prior to radiation.
- Conduct prosthetic surgery before treatment, since elective surgical procedures are contraindicated on irradiated bone.

#### During Radiation Therapy
- Monitor the patient’s oral hygiene, schedule oral tissue assessments to be done per treatment schedule
- Anticipate & watch for mucositis, HSV and yeast infections, react and treat aggressively
- Advise caution wearing removable appliances during treatment (per assessment)
- Advise opening and closing the mouth exercises, include tongue, cheek strengthening

#### After Radiation Therapy
- Recall the patient for prophylaxis and home care evaluation every 4 to 8 weeks or as needed for the first 12 months after cancer treatment.
- Reinforce the importance of optimal oral hygiene.
• Monitor the patient for truisms: check for pain or weakness in masticating muscles in the radiation field. Instruct the patient to exercise three times a day, opening and closing the mouth as far as possible without pain; repeat 20 times. Schedule with speech/swallowing specialists for preventive/rehabilitation instructions.
• Consult with the oncology team regarding the use of dentures and other appliances after mucositis subsides. Patients with friable tissues and xerostomia may not be able to wear the original appliances without adjustments.
• Watch for demineralization and caries. Lifelong, daily applications of remineralizing products are needed for patients with xerostomia.
• Advise against elective oral surgery on irradiated bone because of the risk of osteonecrosis. Tooth extraction, if unavoidable, should be conservative, using antibiotic coverage and possibly hyperbaric oxygen therapy.

Chemotherapy
The oral complications of chemotherapy depend upon the drugs used, the dosage, the degree of dental disease, and the use of radiation. Chemoradiation therapy carries a significant higher risk for mucositis.

Before Chemotherapy
• Conduct a pretreatment oral health examination and prophylaxis.
• Schedule dental treatment in consultation with the oncologist.
• Schedule oral surgery at least 7 to 10 days before myelosuppressive therapy begins.
• Consult the oncologist before conducting any oral procedures in patients with hematologic cancers; do not conduct procedures in patients who are immunosuppressed or have thrombocytopenia.

During Chemotherapy
• Consult the oncologist before any dental procedure, including prophylaxis.
• Ask the oncologist to order blood work 24 hours before oral surgery or other invasive procedures. Postpone when:
  - the platelet count is less than 75,000/mm³ or abnormal clotting factors are present
  - absolute neutrophil count is less than 1,000/mm³, or consider prophylactic antibiotics (www.americanheart.org).
• Check for oral source of viral, bacterial, or fungal infection in patients with fever of unknown origin.
• Encourage consistent oral hygiene measures & moisturizing of soft tissues
• Consult the oncologist about the need for antibiotic prophylaxis before any dental procedures in patients with central venous catheters.

After Chemotherapy
• Place the patient on a dental recall schedule when chemotherapy is completed and all side effects, including immunosuppression, have resolved.
• Confirm normal hematologic status prior to dental treatment.
• Ask and chart if the patient has received intravenous bisphosphonate therapy.

Questions To Ask the Medical Oncologist
• What is the patient’s complete blood count, including absolute neutrophil and platelet counts?
• If an invasive dental procedure needs to be done, are there adequate clotting factors?
• Does the patient have a central venous catheter?
• What is the scheduled sequence of treatments so that safe dental treatment can be planned?
• Is radiation therapy also planned?

Questions To Ask the Radiation Oncologist
• What parts of the mandible/maxilla and salivary glands are in the field of radiation?
• What is the total dose of radiation the patient will receive, and what will be the impact on these areas?
• Has the vascularity of the mandible been previously compromised by surgery?
• How quickly does the patient need to start radiation treatment?
• Will there be an induction chemotherapy with the radiation treatment?

Hematopoietic Stem Cell Transplantation

Most stem cell transplant patients develop acute oral complications, especially patients with graft-versus-host disease.

Before Transplantation
• Conduct a pretreatment oral health examination and prophylaxis.
• Consult the oncologist about scheduling dental treatment.
• Schedule oral surgery at least 7 to 10 days before myelosuppressive therapy begins.
• Prevent tooth demineralization and radiation caries:
  - Instruct the patient in home application of fluoride gel / re mineralization (not fluoride rinses).
• Instruct the patient about an aggressive oral hygiene regimen.

After Transplantation
• Consult the oncologist before any dental procedure, including prophylaxis.
• Monitor the patient’s oral health for plaque control, tooth demineralization, dental caries, and infection.
• Watch for infections on the tongue and oral mucosa. Herpes simplex and Candida albicans are common oral infections.
• Delay elective oral procedures for 1 year.
• Follow patients for long-term oral complications. Such problems are strong indicators of chronic graft-versus-host disease.
• Carefully monitor transplant patients carefully for second malignancies in the oral region.

Advice for Your Patients
• Brush teeth, gums, and tongue gently with an extra-soft toothbrush and fluoride toothpaste after every meal and at bedtime. If brushing hurts, soften the bristles in warm water.
• Floss teeth gently every day. If your gums bleed and hurt, avoid the areas that are bleeding or sore but keep flossing your other teeth & report
• Follow instructions for fluoride gel / remineralizing applications.
• Avoid mouthwashes containing alcohol and peroxide
• Rinse the mouth several times a day with a baking soda and salt solution, followed by a plain water rinse.
• Try the following if dry mouth is a problem:
  - Sip water frequently.
  - Suck ice chips or use sugar-free gum or sugar free lozenges.
  - Use saliva substitute spray or gel or a prescribed saliva stimulant if appropriate.
  - Avoid glycerin swabs.
• Exercise the jaw muscles three times a day to prevent and treat jaw stiffness from radiation treatment.
• Avoid candy, gum, and soda unless they are sugar-free.
• Avoid spicy or acidic foods, toothpicks, tobacco products, and alcohol.

Special Care for Children

Children receiving chemotherapy and/or radiation therapy are at risk for the same oral complications as adults. Other actions to consider in managing pediatric patients include the following:
• Extract loose primary teeth and teeth expected to exfoliate during cancer treatment.
• Remove orthodontic bands and brackets if highly stomatotoxic chemotherapy is planned or if the appliances will be in the radiation field.
• Monitor craniofacial and dental structures for abnormal growth and development.

Frequently Asked Questions:
Dental Care & Oral Complications of Cancer Treatment

*My patient complains that eating is becoming a big problem:


*Dry mouth is preventing me from eating:

Xerostomia/salivary gland dysfunction: Advise the patient to soften thin foods with liquid, chew sugarless gum, or suck ice chips or sugar-free hard candies. Suggest using OTC moisturizing products throughout the day & especially prior to eating & sleeping.

*Nothing tastes good …and I don’t feel like eating anymore:

Taste changes: Refer to an oncology focus dietitian. Instruct patient to clean the tongue several times a day with a soft bristle toothbrush, softened with warm water, using a sodium bicarbonate based rinse. Consider prescriptive supersaturated calcium phosphate rinses. Apply oral moisturizers on freshly cleaned tongue. Many taste issues are transient.

*My teeth are very sensitive to hot, cold and citrus:

It’s not unusual to have increased sensitivity ..it may be temporary. Fluoride varnish applications are recommended and desensitizing products (without sodium lauryl sulfate). Consider pastes that alleviate sensitivity and re mineralize.

“How can I protect my enamel with frequent vomiting: Advise the patient to rinse the mouth with water and baking soda solution after vomiting to protect enamel. Seek dental consult for re mineralization product recommendations.

FAQ - continued

*My gums bleed when I brush:

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

Complications Specific to Radiation

*My teeth are decaying rapidly:
Demineralization and radiation caries: Prescribe daily fluoride / remineralization and fluoride varnish applications before, during & after treatment starts. Continue for the patient’s lifetime if changes in quality or quantity of saliva persist.

*My jaw seems tight and it is difficult to open my mouth:
Trismus/tissue fibrosis: Instruct the patient on stretching exercises for the jaw to prevent or reduce the severity of fibrosis. Advise speech, swallowing consult as soon as possible.

I have had radiation to my lower jaw (mandible), are there any concerns regarding tooth extractions?
Osteonecrosis: Avoid invasive procedures involving irradiated bone, particularly the mandible. The radiation oncologist must be consulted prior to treatment in the radiation sites (including implant placement).

“The ulcers/sores in my mouth are preventing me from eating & drinking”
Advise an aggressive rinsing routine with a sodium bicarb, calcium phosphate rinse (NeutraSal is one example of a prescriptive rinse with excellent results) and follow with a mucosal protective barrier spray (Episil is one example). Avoid ‘magic swizzle’ concoctions as they are not an updated technology and are a last resort, these formulations merely numb for short periods of time and do not have mucosal healing or barrier properties & they also lack clinical evidence.

“I’m so exhausted & overwhelmed that oral care seems incidental …I’m not eating, so why do I have to bother?”
The oral cavity is easily compromised during cancer treatments & also from many prescription drugs given during treatment (ex: pain meds, anti nausea meds, sleeping meds, anti anxiety meds…blood pressure meds and many more).
Biofilm/plaque forms constantly and the pH of the oral environment changes rapidly throughout the day putting the patient at risk for infections that can interrupt the life saving oncology treatments.
Consider placing additional oral care products in the kitchen area, or living area in a basket that can be easily accessed. (It’s very important to increase oral care during treatment, even in edentulous mouths.)