



Vincent W. Meng
DDS, PC Dentistry

ORAL MANAGEMENT OF A PATIENT WITH HEAD AND NECK CARCINOMA

The importance of proper oral management of a patient undergoing treatment for oral cancer cannot be overstated. Significant advances have occurred both in the surgical and oncology arena to improve patient outcomes and decrease patient morbidity. Proper dental management is essential to preserving patient comfort and oral health during and after treatment.

Proper education helps in preparing patients to adapt and accept temporary and permanent oral changes. The success of the medical treatment now adds decades to many patients' lives; hence, in some sense dental management can be even more challenging. Communication among all the providers of care, aids in making treatment plan decisions that are in each individual person's long term health and comfort.

According to the National Institute of Dental and Craniofacial Research, evaluation by a dentist as soon as the diagnosis is confirmed is important to the development of an appropriate treatment plan. Oral complications occur in almost all patients receiving radiation for head and neck malignancies, 75 percent of blood and marrow transplant patients, and 40 percent of patients receiving chemotherapy. The dentist should assess health related risk factors such as prior and current illness, indications for treatment, health habits and behaviors, and lifestyle. Evaluation of surgical experience, hospitalizations, current medications, dietary patterns, and smoking and alcohol consumption are key in the evaluation.

Surgery and radiotherapy are still the first line of treatment for the majority of oral squamous carcinomas, although chemotherapeutic agents are now frequent adjuncts. Historically, dental management prior to oral radiotherapy has been necessary to minimize the possibility of any future oral surgery, which could expose a patient to the risk of osteoradionecrosis. Worst case scenarios could involve resected mandibles and devastating functional, esthetic and social consequences. Intensity Modulated Radiation Treatment (IMRT), preradiation chemotherapeutic agents such as amifostine have helped to reduce the compromise of boney vascularity and salivary gland function. The side effects do still occur, however,

so pretreatment extractions of compromised or at risk teeth, and a stable periodontium are still standard parameters. Caries stabilization and periodontal health along with completing extractions at least two weeks before commencing treatment for healing is preferred. Communication between the oral health care provider and the oncologist is necessary in developing the patient's most optimal treatment plan. Hyperbaric oxygen treatment can be utilized post treatment if unexpected situations arise requiring osseous surgery or extractions, but the additional surgery, cost, and availability of hyperbaric centers make prevention a prudent choice.

If a patient is going to be receiving any intravenous bisphosphonate treatment with medications such as Zometa or Aridia the pretreatment needs are even more critical. Osteonecrosis of the jaws is now a serious and debilitating side effect that occurs in a very significant percentage of patients post therapy. An incidence as high as of eight to fifteen percent of patients have experienced these complications, depending on the study group. This data is based on oral complications for all patients who received I.V. bisphosphonates; hence, the patients who have been exposed to oral surgery may have an even higher rate of occurrence. Unlike osteoradionecrosis of the jaws, that responds to treatment with hyperbaric oxygen, treatment of osteonecrosis of the jaws from I.V. bisphosphonates usually worsens the condition if any surgical intervention has been attempted. Tissue and boney breakdown has occurred from extractions, pulpal infections, denture irritation (Figure 1), and spontaneously without a known stressor (Figure 2).



Figure 1. Unmonitored denture irritation



Figure 2. *Unknown etiology*

Osteonecrosis has been limited to the jaws likely due to the increased morphogenic protein turnover in the jaws being tenfold compared to long bones. Toxicity in the jaws is therefore achieved before a therapeutic level is acquired in long bones. Total mandibulectomies have been required in worst case scenarios, but in the best circumstances the patient is frequently committed to management of bony exposure of the jaws and constant daily maintenance of this defect for a lifetime. Researchers feel it is still likely that complications in long bones will occur as time and reporting continues. Data on the incidence of problems will change as better follow up and reporting of patients is documented as the first reported cases were in 2002. Incidence of complications could decrease as recognition of the problem and preventive maintenance is employed.

Pretreatment dental management for patients receiving bisphosphonates is similar to patients having radiotherapy, but the clinician no longer has hyperbaric oxygen treatment as a backup to treat a complication. Toxicity is generally not achieved until after 5 or 6 doses, so if urgent chemotherapy is required all surgical intervention and healing must be complete before this dosage is reached. Patient compliance with oral care is even more crucial to preventing complications; hence, a personalized treatment approach is essential.

Post treatment management involves prophylactic antibiotic coverage of all procedures that involve tissue or bone as in endodontics or dental scaling. Avoidance of all surgical procedures of the jaws is recommended, if possible. Utilizing daily oral antimicrobial rinses such as Periogard on areas of exposed bone reduces the likely hood of infection. Dental prosthesis should be relieved of any contact over areas of active breakdown.

For all patients, minimizing oral side effects during

treatment is also essential to avoid nutritional compromise and aid in patients' overall comfort. Mucositis varies depending on dosage, tumor location, and individual response, but can be managed with the use of oral products. Antimicrobial rinses are effective for plaque control when physical brushing is uncomfortable or unsafe during times of decreased blood counts. Viscous xylocaine or Roth's solution is helpful to manage oral soreness from mucositis. Increased professional oral hygiene assistance is frequently necessary to accommodate compromised hygiene but must also be avoided when blood counts are low.

Xerostomia from radiotherapy is one of the more problematic short and long term side effects to manage. Loss of saliva and frequently taste in the early stages can by itself result in nutritional compromise. Physostigmine and pilocarpine administered during after radiation treatment have been shown to decrease the short and long term xerostomia in some individuals; hence, its administration should always be considered. Saliva substitutes generally have limited success but are also sometimes helpful prior to meals. The long term increased caries risk when xerostomia is present causes the greatest area of concern for the stability of a person's dentition. Long term use of topical fluorides, tray applicators, restriction of quantity and frequency of sugars in the diet, are all important to success. Patient compliance, however, is not a certainty, thus all these factors must be taken into account even when formulating the initial treatment plan. The patient must make a commitment to regular dental maintenance. Observation for rarer complications such as trismus can be monitored and treated by the dental provider.

Restoring patients to function is now more predictable with vascularized grafts, ability to use dental implants in irradiated areas, and support of hyperbaric oxygen. Complex deformities are still best managed by research centers with maxillofacial prosthetic support. Restoration to reasonable function is now frequently possible in more radical surgical situations. The one caveat is **if I.V. bisphosphonates have been utilized all the above choices are eliminated.**

As in any complex medical surgical situation, involving all members of the team in developing the most appropriate treatment plan is necessary for patients with the challenges of oral squamous cell carcinoma. Preventing and managing oral complications help support optimal cancer therapy, enhancing both patient survival and quality of life.