

Dental Management of Patients Who Have Undergone Oral Cancer Therapy

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KEYWORDS

- Oral mucositis • Xerostomia • Infections • Tissue fibrosis • Trismus
- Osteoradionecrosis

KEY POINTS

- Patients undergoing treatment of oral cancer may experience short-term and long-term oral cavity complications.
- The most common side effects from oral cancer therapy include mucositis, infections, and osteoradionecrosis of the jaws.
- Effective dental management of patients with oral cancer involves the coordination of care among several health care professionals.

INTRODUCTION

Oral cancers remain a major health concern worldwide. The tumor-related and patient-related factors, as well as treatment complications, negatively affect the 5-year survival rate and quality of life of survivors.¹ The common treatment modalities for oral cancer include surgery, radiotherapy, chemotherapy, or a combination of these depending on the tumor type, anatomic site, and stage of the cancer. Chemotherapeutic drugs are associated with a wide spectrum of hematologic toxicities that include anemia, leukopenia, neutropenia, and thrombocytopenia.² Although immunosuppression in patients with oral cancer is usually transient, these patients are still susceptible to a high risk of bacterial, viral, and fungal infections. The major objectives of oral cancer therapies are complete tumor control, with minimal treatment complications and improved

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quality of life. However, acute and long-term toxicities associated with treatment may decrease patients' tolerance to therapy, leading to a change in treatment schedules. Ultimately, suboptimal treatment schedules translate into poor patient outcomes, increased days of hospitalization, and increased health care costs.³⁻⁵ Early complications of oral cancer therapies can result from acute toxic effects of radiotherapy and chemotherapy affecting several orofacial structures. These complications may present as oropharyngeal and gastrointestinal mucositis, salivary gland hypofunction, odontogenic infections, pain, and neurotoxicity. Late complications often take months or years to develop, and include orofacial soft tissue fibrosis, trismus, osteoradionecrosis (ORN), and cancer recurrence.⁶ These complications are also associated with significant loss of function and facial disfigurement that lead to diminished quality of life and unwanted psychosocial outcomes.⁷ Considering the dose-limiting effects and patient outcomes that result from treatment toxicities, it is essential that management of patients with oral cancer involves a multidisciplinary team of health care professionals that includes medical and dental health care providers as well as social workers and nutrition specialists.⁵ Prompt diagnosis, treatment planning, and judicious provision of dental care before, during, and after oral cancer therapy are essential aspects of management that may enhance oral cancer survivorship and lead to improved quality of life.⁸

DENTAL MANAGEMENT CONSIDERATIONS IN ORAL CANCER MANAGEMENT

Although oral complications of chemotherapy are limited to a few weeks, the effects of radiotherapy tend to persist for months to years. The combination of surgery with chemoradiotherapy can further exacerbate these complications. It is prudent to consider the impact of treatment complications on all orofacial structures so that dental treatment can be provided effectively ([Table 1](#)).

Skin

The incidence of acute dermatitis in patients with oral cancer receiving radiotherapy can be as high as 95% because of high radiation doses to the skin and the combined effects of chemoradiotherapy.⁹ Oral cancer therapies promote an imbalance in the activities of proinflammatory and profibrotic cytokines in the skin causing vascular damage and decreased blood perfusion. These effects may result in orofacial skin ulceration and necrosis.¹⁰ The patient's medical history combined with clinical appearance make the diagnosis of radiation dermatitis straightforward. It is vital to prevent and control acute dermatitis as much as possible so that the radiochemotherapeutic regimen is uninterrupted. Avoiding unnecessary skin irradiation is the best preventive approach to minimizing the occurrence of radiation dermatitis. Chronic skin ulceration and infected wounds require special dressings that promote healing. Surgical care combined with skin grafting may be necessary when extensive necrosis has already set in. The use of low-intensity laser therapy may be beneficial to improve vascularization and promote healing in the damaged skin.¹¹ More recently, the administration of glutamine to promote protein synthesis and cell proliferation has been found to be an effective therapy for radiation dermatitis.¹²

Oral Mucosa

Oral cancer therapies can cause oral mucositis, an acute reaction characterized by erythema, mucosal ulceration, oropharyngeal pain, and speech difficulties ([Fig. 1](#)). Radiation-induced oral mucositis develops when radiation doses exceed 30 Gy. The frequency of oral mucositis secondary to chemotherapy ranges from 20% to 40%, and the incidence is 50% for those patients who receive induction

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