

Oral Cancer

Special Topic
No. 5

ORAL CANCER: PRE, PERI & POST OPERATIVE CARE FOR PATIENTS

Cancer of the mouth accounts for approximately 3% of all cancers and 1% of all cancer deaths in Australia^{1,2}. Squamous Cell Carcinoma is the predominate type (95%)¹. Middle-aged men are the predominate group with the key risk factors being alcohol and tobacco use²⁻⁵. The role of human papilloma virus is a current area of research interest and excess sun exposure is an issue with lip cancers².

Oral health professionals have a key role in the diagnosis and management of oral cancer and need to be aware of the oral health implications of cancer therapy(s). The purpose of this brochure is to describe the treatment of oral cancer and how oral health professionals can be involved in the multidisciplinary team managing patients with oral cancers.

Treatment for oral cancer

There are three main methods for treating oral cancer; surgery, radiotherapy and chemotherapy either used alone or in combination, depending on the type of cancer, location, extent of spread, patient's age and general state of health⁶⁻⁹.

Surgery is the usual treatment of choice for head and neck cancers⁶. This involves the local excision of the malignant tumor with a clear oncologic margin, usually at least 2cm, plus the selective dissection of cervical lymph nodes in the neck⁶. Immediate reconstruction to replace excised tissue is commonly performed at the time of primary surgery⁶. A side effect of surgery includes aesthetic and functional tissue loss requiring post surgical rehabilitation^{3,6}.

Radiotherapy treatment includes high-energy radiation which is used to destroy cancer cells and to stop them from multiplying. The treatment is delivered by an external beam or occasionally by implanting radio isotopes directly in the cancer area^{3,6}. Radiation therapy may result in both acute and long-term consequences to the oral mucosa, salivary glands, teeth and bone⁷. Short and long term side effects of radiotherapy are listed in Table 1.

Table 1: Effects of radiation therapy

Short-term effects	Long-term effects
Mucositis	Epithelial atrophy
Altered saliva	Mucosa Telangiectasis
Increased risk for fungi	Xerostomia
Altered taste	Increased risk for fungi
Trismus	Delayed healing
	Decreased bone remodeling
	Increased risk for *ORN
	Decreased pulpal response
	Inability to wear dental prosthesis ⁸

[*ORN= Osteoradionecrosis]

Chemotherapy is the use of cytotoxic drugs that are administered orally or intravenously to selectively destroy cancer cells. Chemotherapy is usually not used alone to treat oral cancers but as an adjunct to surgery or radiotherapy or both⁶. Side effects of Chemotherapy vary from patient to patient but can include tiredness, nausea, vomiting, diarrhea and constipation, hair loss, gastro-intestinal mucositis as well as increase susceptibility to infections¹⁰. Existing dental problems can result in serious complications that may be prevented by dental intervention prior to cancer therapy^{7,11}. It is important that every patient who is having treatment for oral cancer undergo a pre-cancer therapy dental examination before initiation of cancer treatment¹¹.

Pre-cancer therapy dental examination

Prior to assessing a patient the dentist needs to know:

- What is the type of cancer?
- What is the proposed treatment and area to be treated?
- Is a specialist dentist part of the multidisciplinary head and neck team?

Following referral from the patients' oncologist, a thorough medical history, extra and intra-oral soft tissue exam, periodontal probing, caries evaluation, and full mouth radiographic assessment should be done^{7,12}. Outlined in Table 2 is a list of strategies that are recommended for pre-cancer therapy dental evaluation.

Table 2: Strategies for pre-cancer therapy dental evaluation

Psychosocial issues
OPG radiograph
Extra and intraoral soft tissue exam
Periodontal evaluation
Carious lesions and faulty restorations to be restored
Oral hygiene and dental compliance
Custom-fitted fluoride trays
Cariogenic diet and medication analysis
Tobacco and alcohol cessation ¹⁻³

It is critically important that particular attention is paid to patients who display poor oral hygiene and poor compliance with prior dental recommendations. Generally if the patient's interest in oral health care is low then it will become even less of a priority for them as they cope with the challenges of their cancer treatment. Full mouth scale as well as a prophylaxis to reduce the bacterial load is recommended¹¹. It is essential that patients continue their oral hygiene regime prior to commencing cancer therapy. Self care procedures should include frequent toothbrushing with a soft toothbrush and fluoride toothpaste to help prevent plaque accumulation and demineralization of tooth enamel¹¹. Oral health education and instruction is necessary and may include toothbrushing instruction, interproximal cleaning aids, diet counseling, motivation, smoking and alcohol cessation.

The dentist needs to identify which teeth may need to be extracted before radiation therapy to minimise possible complications of osteoradionecrosis^{7,8,11}. Teeth that exhibit advanced caries, partial impaction, have periapical pathology, or advanced periodontal disease, including molar teeth with furcation involvement, should be extracted if in the field of radiation^{7,11}. (Table 3). Dental treatment for cancer patients must be prioritised as oncologic treatment must not be delayed.

Table 3: Criteria for pre-radiotherapy extractions

Caries (non-restorable)
Periodontal disease
Lack of opposing teeth
Partial impaction
Extensive periapical lesions ²

Priority to extract mandibular teeth is higher than maxillary teeth as osteoradionecrosis of the maxilla is rare compared to the mandible⁸.

Peri-cancer therapy dental management

Generally this phase is best performed by oral health practitioners working as part of the Head and Neck Cancer team. If performed by the private practitioner then they should seek advice from experienced dentists working in the field before embarking on therapy. In particular the main risk is that there may be undue emphasis on the dental aspects which is not associated with the overall patients' head and neck cancer management.

During cancer therapy the patient will require regular monitoring and support in an effort to decrease the severity of their side effects. Oral complications

become more severe as the patient progresses through the phase of therapy. During this period most patients' dental treatment consists of symptomatic management^{7,12}.

The most common symptoms that occur during this stage of radiation treatment are oral discomfort and pain secondary to oral mucositis^{8,11}. Consistent oral cleansing to reduce microbial burden, replacing moisture and the use of topical antiseptics, antimicrobial and anti-inflammatory agents is usually recommended^{7,12} (Table 4).

Table 4: Peri-operative management during cancer therapy

Palliative treatment
Xerostomia
Mucositis
Mouthrinses (alcohol free) for hygiene, lubrication or pain management
Prescribe anti-fungal medication, antibiotics, and/or oral analgesics
Maintenance of good oral hygiene and diet counseling
Emphasis on meticulous oral hygiene
Lip moisturiser
Passive jaw-opening exercises to reduce trismus

Mucositis

Mucositis is a side effect of radiotherapy and/or chemotherapy. It appears as ulceration of the mucosal surfaces of the oral cavity and can lead to significant problems with eating, drinking and compliance with medication¹³. In addition, patients who go through cancer treatment and who develop mucositis have an increased risk of developing systemic infection, as a consequence cancer therapy modification or cessation may be necessary and may compromise the outcome of their cancer management. Supportive oral health care to alleviate the discomfort of mucositis can include the use of mouthwashes and topical anesthetic agents. Non-alcohol mouthrinse containing chlorhexidine gluconate, which has antibacterial and antifungal properties in addition to anti-plaque effect, can be used to help reduce the oral flora populations which may in turn decrease severity of oral mucositis⁸. If chlorhexidine is used it is important to note that it should be used at least 30 minutes before or after the use of any other topical agents with which it may bind, rendering chlorhexidine and any other agent ineffective¹¹. In addition the use of topical anesthetics such as 2% lidocaine can help alleviate pain and discomfort.

Xerostomia

Xerostomia is apparent during this period of the cancer treatment, especially in radiotherapy/chemotherapy⁸.

Patients who experience a dry mouth during treatment commonly suffer from this symptom long term¹⁴. Thus, preventive measures may have to be intensified and continued throughout life. Simple fluids such as water and non-cariogenic liquids can be used to keep the oral cavity moist and lubricated. In addition, several products are commercially available such as saliva substitutes, which help replicate saliva's natural enzymes and lubricate the mouth¹⁵.

As a result of the oral side effects, loss of appetite, dehydration and subsequent weight loss can occur¹⁵. Offering supportive dietary counseling and alternatives such as enriched dietary supplements are useful.

Post cancer therapy management

Following cancer therapy, oral complications may improve but they often linger for months or years. Once the acute side effects have resolved, a strict dental hygiene care plan and preventive program including fluoride treatments must be instituted. Frequent dental maintenance appointments, approximately every three months may be recommended⁸.

At each recall appointment all areas of the oral cavity should be inspected. In the presence of abnormal pain signs or symptoms then the possibility of recurrence must be considered and excluded by investigation before routine dental treatment continues.

Oral hygiene assessment and care plan

- Manage side effects of cancer therapy
- Full mouth periodontal examination
- Review plaque control and motivation
- Scaling and root debridement
- Review home fluoride use
- Administer topical application
- Review xerostomia
- Assess dietary practices
- Additional hygiene appointments

There is considerable evidence to support that in caries active patients it is crucial to increase the use of fluoride^{8,15,16}. This can be achieved by recommending high concentration toothpaste i.e. 5000ppm, fluoride mouthwashes, professionally applied topical fluoride applications or a combination of these methods⁸. It is important to take into consideration that the vehicle of fluoride is not crucial, it is the fact that the patient accepts the mode of treatment and complies with the advice given.

Dental treatment follow-up

- Examine and chart dental caries
- Review dentinal, cervical exposure and any furcation-involved teeth
- Restore any carious teeth
- New or routine adjustment of prostheses
- Endodontic therapy if required
- Care regarding extractions in radiotherapy field as risk of ORN persists.

Patients presenting with unrestorable teeth, particularly in the mandible, following head and neck radiotherapy, need to be carefully evaluated prior to extractions. The radiotherapy fields need to be determined. The risk of developing osteoradionecrosis of the jaw may not decrease with time and it can occur years after radiotherapy^{7,8,16}. Osteoradionecrosis of the mandible is debilitating and its treatment difficult.

Extractions in patients who have had full dose radiotherapy to the jaws are best performed by an oral and maxillofacial surgeon who is used to working with a head and neck team. Hyperbaric oxygen, extraction with primary closure and adjunctive antibiotics may be indicated^{8,16}.

Conclusion

Patients that experience cancer treatment are faced with difficult oral health issues before, during and post cancer therapy. The dental team is required to actively participate in the delivery and maintenance of oral health care. Not only will the dental team help reduce the acute and long term side effects that the patients are exposed to, but they may help to improve the patients' quality of life.

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