

The Treatment of Oral Problems in the Palliative Patient

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ABSTRACT

Palliative care patients require special dental attention, ranging from operative and preventive care to support for emotional needs. The dentist's role in palliative care is to improve quality of life of the patient. This paper describes some common problems encountered in palliative care dentistry for adults with terminal cancer and the appropriate treatment of these problems.

MeSH Key Words: dental care for chronically ill; mouth diseases/therapy; palliative care; quality of life

© J Can Dent Assoc 2006; 72(5):453-8
This article has been peer reviewed.

Palliative care dentistry has been defined as the study and management of patients with active, progressive, far-advanced disease in whom the oral cavity has been compromised either by the disease directly or by its treatment; the focus of care is quality of life.¹ This approach not only involves the provision of support for the patient's physical needs but also extends to support of the patient's and family's spiritual needs. This article presents some common problems encountered in palliative care dentistry in relation to adults with terminal cancer and the appropriate treatment of these problems. The oral problems associated with palliative care are illustrated in Fig. 1.

Mucositis and Stomatitis

Mucositis and stomatitis are common in patients who receive chemotherapy and radiotherapy (Fig. 2). Chemotherapy acts on tissues that have a high rate of mitosis, and the oral cavity is frequently affected. An estimated 40% of chemotherapy patients suffer from mucositis.² Reducing mitosis causes atrophy of

tissues leading to ulceration, which may be further complicated by microbial invasion.³ Mucositis occurs within 5-7 days of chemotherapy with drugs such as 5-fluorouracil and methotrexate, which are potent mucositis agents. Radiotherapy to treat cancers of the head and neck result in xerostomia due to destruction of the salivary tissues within the treatment zone. The decrease in lubrication and the protective agents in saliva render the tissues more susceptible to trauma and invasion by pathogens. The tissues become ulcerated and erythemic.

Treatments for mucositis and stomatitis are primarily aimed at relieving pain (Box 1). Xylocaine and dyclonine topical anesthetics provide comfort but must be used with caution as they will block the gag reflex and increase the risk of aspiration. Dyclonine has been shown to have anti-inflammatory activity in addition to its anesthetic qualities.⁴ The use of diphenhydramine hydrochloride 5% (Benadryl, Pfizer Inc., New York, N.Y.) and loperamide (Kaopectate, Pfizer Inc., New York,

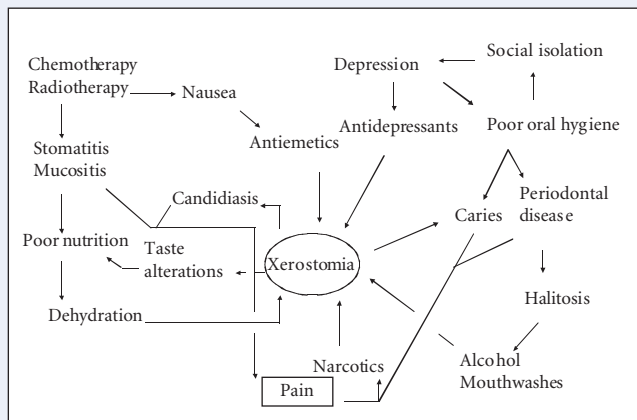


Figure 1: Oral problems in palliative care



Figure 2: Oral mucositis

N.Y.; Maalox, Novartis Consumer Health Canada Inc., Mississauga, Ont.) as a rinse to relieve pain has been used for herpetic stomatitis.⁵ Milk of Magnesia (Rougier Pharma, Mississauga, Ont.) should not be used as a substitute as it will dry the mouth.

The use of sucralfate suspension to palliate radiation-induced mucositis has had mixed results.⁶⁻⁸ Sucralfate should be used on a case-by-case basis, and the clinician must not only assess the clinical signs of mucositis but also seek the patient's evaluation of his or her status.

Many oncologists prescribe a concoction termed "magic mouthwash." It contains many ingredients, often varied; it has been known to contain antihistamines, antifungals, topical anesthetics and even antibiotics. I believe that these products should not be used as a panacea, but instead treatments should be prescribed to remedy specific symptoms.

Benzydamine (Tantum, 3M Pharmaceuticals, London, Ont.) is a nonsteroidal analgesic with anti-inflammatory

Box 1 Treatments for stomatitis and mucositis

- Viscous xylocaine 2%
- Xylocaine spray 10%
- Diphenhydramine hydrochloride 5% and loperamide in equal parts (dyclonine 0.5% may be added to increase potency)
- Dyclonine hydrochloride 0.5% or 1%
- Magic mouthwash
- Sucralfate suspension, 10 mL 4 times a day, swished and swallowed or expectorated
- Benzydamine, 15 mL 3-4 times a day, rinsed and expectorated
- Morphine 2%
- Reduction of potential localized factors

properties. It has been reported to relieve radiation-induced stomatitis⁹; however, its benefit in the treatment of burning mouth syndrome has not been demonstrated.¹⁰

After teaching patients to expectorate completely by practising with saline solution, a 0.2% morphine solution can be used topically to relieve the discomfort associated with mucositis. Patient selection is important, as they must be able to follow directions carefully to prevent overdosing.¹¹

Before any of the above measures is initiated, it is important to identify local traumatic factors such as fractured restorations or teeth, or an impinging removable prosthesis. Patients should also be advised to avoid spicy foods, smoking and alcohol.¹¹

Nausea and Vomiting

Nausea and vomiting in palliative care patients may have many causes, including chemotherapy, opioid use, bowel obstruction, pancreatitis and electrolyte imbalance, or they may be movement induced or even an emotional reaction. Vomiting has a caustic effect on the hard tissues and can also increase the morbidity of mucositis. It may also delay healing if the patient cannot consume nutrients essential for tissue repair. Many of the drugs prescribed to control nausea and vomiting have oral side effects (Table 1), the most notable being tardive dyskinesia and xerostomia. Tardive dyskinesia usually occurs with long-term dosing and its presentation may affect denture wear. Xerostomia affects nutrition, communication and oral tissues. Although the oral effects of the antiemetics are great, the inability to consume foods and medications orally has more serious implications. Emotional outbursts are treated by the palliative care team by listening to the patient's concerns and suggesting relaxation techniques.

Table 1 Oral side effects of antiemetics prescribed to control nausea and vomiting

Agent	Oral side effect
Haloperidol	Tardive dyskinesia
Metoclopramide	Tardive dyskinesia
Hyoscine butylbromide	Xerostomia
Promethazine	Xerostomia

Table 2 Treatments for candidiasis

Topical
Nystatin suspension, 200 000–500 000 IU, swished and swallowed 3–5 times a day
Nystatin suspension frozen (200 000–500 000 IU) in sugarless fruit juice
Nystatin vaginal suppository, 100 000 IU 4 times a day
Clotrimazole vaginal suppository, 100 mg/day for 7 days
Clotrimazole troche, 10 mg, 5 times a day for 14 days
Clotrimazole vaginal cream 1%, applied to denture 3–4 times a day for 7 days
Systemic
Ketoconazole, 200–400 mg orally for 7–14 days
Fluconazole, 100–200 mg on day 1, then 50–100 mg/day orally for 7–14 days
Itraconazole, 100–200 mg/day orally for 7–14 days
Amphotericin B, 0.25–1.5 mg/kg a day intravenously

Candidiasis

The incidence of candidiasis in palliative care patients has been estimated to be 70% to 85%. Predisposing factors for fungal infections include poor oral hygiene, xerostomia, immunosuppression, use of corticosteroids or broad-spectrum antibiotics, poor nutritional status, diabetes and the wearing of dentures. *Candida albicans* is the most common infectious organism encountered in candidiasis. It is a natural inhabitant of the oral cavity whose overgrowth is normally suppressed by other nonpathologic microorganisms and natural host defense mechanisms. The mere presence of a positive culture without clinical symptoms is not indicative of *Candida* infection.¹³

Candida infections are manifested as pseudomembranous, erythematous or hyperplastic candidiasis or angular cheilitis. Pseudomembranous candidiasis (thrush) is characterized by small white or yellow plaques with surrounding erythemic areas (Fig. 3). These lesions can be rubbed off, revealing raw mucosa. Erythematous (atrophic) candidiasis appears as red lesions, frequently on the hard palate and dorsal surface of the tongue. Hyperplastic candidiasis is similar to pseudomembranous; however, the



Figure 3: Pseudomembranous candidiasis



Figure 4: Angular cheilitis

plaques do not wipe off. Angular cheilitis appears as white and red fissures emanating from the corners of the mouth. It commonly has a bacterial and fungal component (Fig. 4).¹⁴ In palliative care patients, candidiasis is primarily a result of xerostomia.

Higher salivary *Candida* levels are more frequently encountered in denture wearers than in dentate patients.¹⁵ The use of commercial hydrogen peroxide releasing agents has been found to be ineffective in the disinfection of the denture.^{16,17} Soaking the denture in bleach (15 mL) and water (250 mL) for 30 minutes will help rid the denture of odours. Partial dentures should not be soaked in bleach solution, as it will lead to metal fatigue. Dentures can also be soaked in benzalkonium chloride (1:750) for 30 minutes. Benzalkonium chloride should be formulated daily as Gram-negative bacteria can proliferate within 24 h.¹⁷ Boiling the denture will cause denture base distortion¹⁸; however microwaving it in water at high power for 5 minutes can disinfect the denture base. Repeated microwaving can result in hardening of PermaSoft denture linings.¹⁹ Dentures should be stored in well-identified vessels in solutions of water, mouthwash, 0.12% chlorhexidine, Listerine antiseptic (Pfizer Canada, Toronto, Ont.) or 100 000 IU of nystatin suspension.²⁰

Candidiasis may be treated by a combination of topical and systemic applications (Table 2).

One topical agent is nystatin, which can be administered via different methods. The fungicidal activity of



Figure 5: Xerostomia

nystatin depends directly on contact time with the oral tissues, and this is generally minimal with the suspension as most patients swallow it rapidly. Nystatin suspension also has a high sugar content and must, therefore, be administered cautiously in the xerostomic dentate patient. Nystatin may occasionally cause gastrointestinal effects such as nausea, vomiting and diarrhea.²⁰

Freezing nystatin with sugarless fruit juice yields nystatin popsicles or ice chips. As some patients with fungal infections complain of a sore burning mouth, the dual effect of cryotherapy and antimycotic therapy may relieve pain and provide additional hydration for the patient. In addition, oral contact time is increased.

A nystatin vaginal tablet or clotrimazole vaginal tablet can be dissolved slowly in the mouth. Although this procedure increases contact time, it is difficult for patients with xerostomia to dissolve these tablets. These products are not sweetened and are reported to have a chalky taste.

Angular cheilitis can be treated with a cream made up of 0.5% triamcinolone and 2% ketoconazole. Due to the likelihood of a co-existing bacterial infection, washing the area with an antimicrobial soap before applying the therapeutic cream is advised.

Clotrimazole troches (Mycelex Troche, Roxane Laboratories, Columbus, Ohio) may be dissolved slowly in the mouth; however, they contain sucrose, which can increase caries. Troches are more efficacious than suspensions due to their longer oral contact time.^{21,22} Clotrimazole vaginal cream may be applied as a thin coat on the tissue side of the denture.

Systemic medications (Table 2) should be reserved for cases in which topical agents are ineffective, as they are expensive and may have renal or hepatic toxicity. The treating dentist should note the drug interactions of these antifungal agents. Absorption of ketoconazole is decreased by antacids, which increase gastric pH. Ketoconazole increases the half-life of benzodiazepines. Fluconazole, ketoconazole and itraconazole interact with anticoagulants such as coumadin, leading to an increase in the international normalized ratio. Itraconazole can increase plasma levels of midazolam and triazolam and it reduces the efficacy of oral contraceptives. Amphotericin B should be reserved as a final treatment when all other antifungals are ineffective as its therapeutic index is low and it should be prescribed in consultation with an infectious disease specialist.

Comparison of the efficacy of a topical (nystatin) and a systemic (fluconazole) agent resulted in no significant difference in fungicidal effect.²³ However, as the dose frequency for fluconazole is much lower, it was speculated that compliance would be greater with this drug.²³ A comparison of the efficacy of fluconazole (100 mg daily) with clotrimazole troches (10 mg 5 times daily) revealed a statistically equivalent clinical response; however, fluconazole was more effective than clotrimazole in eliminating *C. albicans* from the oral flora.²⁴

Fluconazole works against most oral fungal species. If fungal growth is persistent, then mycologic culturing may be necessary, as resistant species have been isolated from the mouths of terminally ill patients.²⁵ In this case, switching to itraconazole may be a good option.

Nutrition, Hydration and Taste Disorders

Palliative care patients are unable to consume food or fluids if their oral cavity is compromised. These patients do not generally expend large numbers of calories and usually eat lightly.

Vomiting, diarrhea, fever, swallowing difficulties and anorexia may cause dehydration, which in turn can lead to xerostomia. Palliative care patients should be gently encouraged to drink as much as possible. During winter months, a room humidifier can help reduce oral dryness, especially for mouth breathers.

Chemotherapy or head and neck radiotherapy causes dysgeusia in many palliative care patients.²⁶ This can be corrected by zinc supplementation.²⁷ To improve the patient's appetite, suggest that foods be served with gravy, which aids in swallowing for the xerostomic patient. Monosodium glutamate can be used to improve the taste of food.

Xerostomia

As noted above, xerostomia is common in palliative care patients, mainly as a result of medication or radiotherapy to the head and neck (Fig. 5). The simplest test for

assessing xerostomia is to ask the patient if his or her mouth feels dry. Dry mouth or xerostomia does not always correlate with salivary gland hypofunction, but the clinician should respond to the patient's chief complaint. In a recent survey of 25 palliative care patients (unpublished data by author), all complained of xerostomia. A chart review of their medications revealed that the average patient was taking 5 medications (standard deviation, 3) in the following xerogenic classes: anticholinergics, bronchodilators, narcotic analgesics, diuretics, antihypertensives, antipsychotics, antiemetics, antidepressants and anxiolytics. Water-soluble lubricants should be used to lubricate the oral tissues. These can be found under a variety of trade names. Oral Balance gel (Laclede Professional Products, Gardena, Calif.) is an excellent water-soluble agent and an alternative to the typical lubricants as it contains lactoperoxidase, lysozyme, glucose oxidase, lactoferrin and no glycerin. Nursing staff should be instructed to apply the product thinly all around the mouth using a foam brush. These products do not have an unpleasant taste. Petroleum-based products such as Vaseline (Unilever Canada, Toronto, Ont.) are anhydrous and hydroscopic, absorbing water from the tissues. They may also occlude harmful bacteria, preventing them from being eliminated from the oral cavity by saliva. For patients on oxygen, petroleum-based products are a potential combustible material.

Mouth rinses that contain alcohol should be avoided as they will further desiccate the mouth. Alcohol-free rinses are available, e.g., Oral B anticavity rinse (Gillett, South Boston, Mass.). Saliva substitutes are beneficial for the patient and should be used before eating to improve swallowing. Examples of these products are Moi-Stir (Kingswood Laboratories, Indianapolis, Ind.), MouthKote (Parnell Pharmaceuticals, San Rafael, Calif.), Oral Balance (Laclede) and Xero-Lube (Colgate Oral Pharmaceuticals, Canton, Mass.). Chlorhexidine is currently being formulated as an alcohol-free product (Sunstar-Butler, Chicago, Ill.) and will be available shortly in Canada.

The use of the cholinergic-mimetic drugs pilocarpine and cevimeline in palliative care has not been explored in depth. Topical use of malic acid, vitamin C and citric acids can stimulate saliva; however, their low pH contributes to tooth demineralization.

Depression

Depression is not uncommon in the terminally ill patient. The palliative care dentist must take time to listen to his or her patient. The dentist should not stand next to the patient's bed, but rather sit next to the patient. Demonstrate empathy by eye contact and gentle touching of the patient's hand or shoulder. It is also important to acknowledge family and significant others who may be present in the room. These people require as much emotional support as the patient.

Many patients who become depressed are prescribed antidepressants, and these drugs are also used for pain palliation.²⁸ Many of these medications cause xerostomia. The dentist should guide the physician in choosing a saliva-sparing antidepressant; for example, amitriptyline (Apo-Amitriptyline, Apotex, Weston, Ont.) is more xerogenic than citalopram (Celexa, Lundbeck, Montreal, Que.).²⁹

Patients who are depressed may forego regular oral hygiene activities, which may increase the severity of periodontal disease, caries and halitosis. Faced with these conditions, some friends and family may shorten their visits or stop visiting at all and, as a result, the patient may become further depressed. Therefore, it is imperative for the palliative care dentist to promote good oral hygiene.

Oral Hygiene

As mentioned, oral hygiene is very important in palliative care patients. Some patients with xerostomia find toothpastes containing sodium lauryl sulfate difficult to tolerate. Children's toothpastes or Oral Balance toothpaste (Laclede) may be more tolerable. A soft toothbrush should be used, as the oral mucosa is very sensitive to trauma.

Conclusion

Palliative care patients require special dental attention. This extends from operative and preventive care to the concept of total patient care covering both the physical and emotional aspects of well-being. The dentist's role in palliative care is to improve the quality of life of the patient. ♦

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The author has no declared financial interests in any company manufacturing the types of products mentioned in this article.

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