Understanding oral mucositis: causes and treatments

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Oral mucositis is a painful and often under-reported condition, which affects the oral mucosa of individuals undergoing cancer treatment. This article examines the condition, its causes, and how to prevent, manage and treat it. It also explores the condition from the view of a family member, who watched her father undergo cancer therapy and subsequently develop oral mucositis. Looking at oral mucositis from the position of a carer will hopefully highlight the condition from a different angle. The oral cavity is an important part of the human body — sometimes described as the ‘gateway to the body’; a clean and infection-clear mouth is a basic need. The mouth enables us to eat, speak, smile, laugh and sometimes cry, so a painful mouth can impact greatly on an individual’s general health and quality of life. Therefore, understanding and managing oral mucositis can affect a patient’s cancer therapy and subsequent treatment outcomes.

KEYWORDS:
- Oral mucositis
- Cancer patients
- Oral health care

It is often said to patients who are due to undergo cancer therapy that, ‘your mouth may get a little sore’, or, ‘you may experience some discomfort in your mouth during your treatment’. There is an old wives’ tale that if you tell lies you will suffer from sore white spots on your tongue — completely untrue, but if you have ever suffered from these white spots you will know how painful and inconvenient they can be. However, imagine if these white spots are all over your mouth and sometimes further down your throat, and that you still need to eat, speak, function and deal with a cancer diagnosis and treatment. This is the world of patients with oral mucositis.

Oral mucositis is a painful, debilitating condition that can affect the oral cavity of some patients undergoing cancer therapy. Most patients who have experienced oral mucositis report that it is the most bothersome side-effect of their cancer treatment (Bruce and Quinn, 2007).

The condition presents as erythema and/or ulceration of the oral mucosa (Lalla et al, 2014), and this can leave the mucosal tissue open to ulceration and infection. This mucosal injury provides an opportunity for infection to flourish, placing the immunocompromised patient at risk of sepsis and septicaemia (Rubenstein et al, 2004).

GROUPS AT RISK

Patients receiving chemotherapy typically develop oral mucositis 5–10 days after starting treatment, while patients receiving head and neck radiotherapy develop it around 14 days after the first dose (Figure 1). The mucositis should start to ease 3–4 weeks after the chemotherapy/radiotherapy has finished (Riley, 2017).

Oral mucositis is a debilitating condition causing:
- Pain
- Impaired nutritional and fluid intake
- Hospitalisation, as patient requires enteral feeding and pain relief
- A break in treatment
- Decreased outcomes
- Sepsis.

It should be remembered that cancer patients have a weakened immune system due to their treatment, which means that their bodies are less able to fight infections. This is a problem if bacteria enter the body via an ulcer in the mouth, which, to all intents and purposes, is an open wound. As said, this can lead to sepsis and hospital admission with antibiotics and even in some cases death (Riley et al, 2015).

QUALITY OF LIFE

Although it is accepted that oral mucositis impacts on patient quality of life, in the past the condition has been largely overlooked and underestimated (D’Hondt et al, 2006).

The consequences include:
- Difficulty eating, drinking and swallowing
- Fatigue
- Sleep disturbance
- Depression
- Loss of taste
- Dry mouth.

Together with the pain and discomfort that the patient may experience, it is important to remember that they are dealing with a cancer diagnosis too.

PREVENTING ORAL MUCOSITIS

The healthier and cleaner the oral cavity, the better it seems to cope with cancer therapy (Leukaemia Care booklet, 2014). It is therefore essential that patients are educated about oral
hygiene before treatment starts. The author often describes to patients that it can be likened to preparing the body for a marathon, i.e. spending time ensuring that the body is fit and prepared for the long stretch ahead. However, in this case, it is the oral cavity, so it is important that it is fit and ready for the onslaught it may encounter (Riley, 2017).

Central to how the oral cavity may cope with treatment is an evaluation of the patient’s current oral condition. Ideally, dental assessment and treatment should be performed at least one month before starting therapy to allow adequate time for recovery (National Institute of Dental and Craniofacial Research [NIDCR], 2015). Unfortunately, this is often not possible, so a baseline assessment is vital to identify any deterioration in oral health. In the author’s clinical experience, this can sometimes be a problem, as some staff have little or no training on assessing the oral cavity, and therefore assessment must be carried out by trained healthcare professionals.

Each patient is different. Some may brush their teeth twice a day, others every other day, some not at all. It should also be remembered that some patients do not have their own teeth and wear dentures and, if so, they should still be encouraged and advised on how to maintain a healthy oral cavity and denture care. The following interventions are recommended for those with a low risk of oral damage and oral mucositis (UK Oral Mucositis in Cancer Group [UKOMiC] guidelines, 2015):

- Good oral hygiene. Use a soft or medium toothbrush with a fluoride toothpaste. If the mouth is sore, consider a toothpaste without a foaming agent or taste, e.g. oraNurse® or Pronamel®
- Dentures to be removed at night and cleaned with an unperfumed soap and left in water
- Dental assessment. Any fillings, extractions, sharp teeth and ill-fitting dentures should be addressed before treatment
- Salt water mouthwash — one teaspoon of salt added to 900ml of cold or warm water, used at least four times in 24 hours
- Smoking cessation.

Figure 1.
Percentage of patients where oral mucositis will occur (UKOMiC guidelines, 2015).

Good oral care decreases the risk of oral mucositis and systemic infection (Farrington et al, 2010).

MANAGEMENT

Effective oral evaluation of the patient will also highlight those who are at a moderate or high risk of oral mucositis. Preventive interventions include:

- Increasing saline rinses
- Ice chips — particularly in patients receiving 5-Flurouracil bolus treatment
- Benzydamine 0.15% — oral solution (Difflam Oral Rinse) 10ml rinsed around mouth and spat out four times daily
- Caphosol® mouth rinse — 4–10 times a day. Recommended to start on the first day of chemotherapy and the first day of head and neck radiotherapy treatment
- MuGard® oral mucoadhesive — from day one of cancer treatment
- Mucosal protectants — including Mugard, Gelclair® and OraLife® gel
- Low level laser therapy
- Diet — patients may experience diet changes. As taste can be altered, patients may increase their sugary intake. A high fluoride toothpaste, gel or foam may be recommended by the dental team
- Spicy or acidic food and alcohol should be avoided, together with smoking
- Palifermin (a human growth factor

PAIN CONTROL

For mild-to-moderate oral mucositis, consider simple analgesia, e.g. soluble paracetamol 1g four times a day (dissolved in water and used as a mouthwash before swallowing).

For severe mucositis, seek advice from a palliative care or pain team who may advise OxyNorm®, Sevredol®, Oramorph® or Fentanyl® patches. Some liquid-based analgesia may have an alcohol base which may cause irritation to the oral mucosa (UKOMiC, 2015).

Some immunocompromised patients are prone to oral infections while undergoing cancer therapy. Antifungal and antiviral treatments can be prescribed after mouth swabs have been taken to establish the infection (UKOMiC, 2015), together with an effective oral hygiene regimen. If a patient has a fungal infection, changing the toothbrush more often than three months is recommended (American Dental Association [ADA]). For a denture wearer, soak the denture in chlorhexidine (if a metal denture), or a Milton solution for 15 minutes, twice a day.
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REFERENCES
Effective documenting in the patient’s notes is essential together with continuity in documentation. Consider a diagram of the oral cavity to highlight and note affected areas. A good light source is needed together with gloves, spatula, gauze and, importantly, patient ease, i.e. sitting/lying in a position that’s comfortable to them. Together with this assessment, it is important to ask the patient questions about:

- Pain
- Oral intake
- Swallowing difficulties
- Dry mouth
- Taste changes.

An oral cavity with oral mucositis requires grading as any wound elsewhere on the body would. The grading tool should be straightforward and easy to use.

The World Health Organization’s (WHO’s) oral toxicity scale is often used (UKOMIC, 2015). This grades symptoms according to severity, i.e.:

- Grade 1 — soreness and erythema
- Grade 2 — erythema, ulcers, patient can swallow solid food
- Grade 3 — ulcers with extensive erythema, patient cannot swallow food
- Grade 4 — mucositis to the extent that swallowing is not possible.

It assesses any mucosal changes, symptoms and functional changes. This tool not only requires a visual inspection of the oral cavity, but also close questioning of the patient and their dietary intake, as this can affect the grade. In the author’s clinical experience, sometimes the cavity may look extremely sore, but the patient is managing to eat and drink normally, while another patient may have what looks like a normal mouth, but they are struggling with food.

CONCLUSION

Oral mucositis can impact on an individual’s physical health and quality of life. Appreciation of its effect on patients receiving cancer therapy is essential to how the condition is treated and managed. Thus, it is important that healthcare professionals dealing with this patient group have education around oral mucositis. Patient and carer education is also vital, as their understanding of the condition and how they can assist in managing it is often key both during and post therapy.
Roger was a 64-year-old ex auto-electrician, who had had a condition called oral lichen planus for 20 years. Lichen planus is a non-infectious, itchy rash which can affect many areas of the body. The exact cause of the condition is unknown and it is thought to affect between 1–2% of the worldwide population (British Association of Dermatologists [BAD]; http://bit.ly/2ztMj3p). Unfortunately, around 1–3% of patients who have suffered with lichen planus for a long time may go on to develop mouth cancer (Dental Health Foundation; http://bit.ly/2go6JWI), as was the case with Roger. He was treated with surgery, head and neck radiotherapy and chemotherapy.

The cancer developed inside the right cheek and Roger endured quite extensive surgery to this area of his mouth to remove the cancerous tissues. This was then followed up with six weeks of head and neck radiotherapy Monday–Friday, which Roger hated as he was claustrophobic and needed sedation just to lie in the machine. Chemotherapy treatment was planned, but Roger reacted badly to the first course so he could not receive the second.

It’s at this point that the author would like to talk about Roger the person, not Roger the patient with a cancer. He was a stocky man, an ex-rugby player and a kind, gentle person. To say he was a family man is an understatement; he was a husband, father and grandad. To quote his daughter Lisa, ‘he loved his grub’. He enjoyed nothing better than watching cooking programmes on the television and looked forward to every meal. The family are very social and loved going out for meals.

The picture above was taken on the day the family got the cancer diagnosis. Typically, Roger wanted to go out for a meal with his family before the onslaught of treatment.

As previously discussed, his mouth became extremely sore. Lisa would take Roger to each of his appointments for his radiotherapy treatment and afterwards they would go for a Peppermint Starbucks, which was the only drink Roger enjoyed as he could taste it. He would have to drink through a straw as his mouth was so sore and both Lisa and Roger were acutely aware that people would stare at him as he would try and drink without making a mess or noise. Once the mouth became sore, Roger never ate out in public again, although on their last holiday together he did manage a meal, Harry Ramsdens Chips and Gravy which he could eat on the beach without people staring and wondering why a grown man was making a mess when eating. His diet mostly consisted of mashed potatoes and he would complain that his food had no texture and that he felt he was eating baby food. Together with the messiness of eating, Roger felt he was losing what little dignity he had left and would only eat on his own. This affected the wider family, as mealtimes had previously always been a family event.

At one point, his mouth became so sore that he had to be fed through a nasogastric tube and drink supplements, as his weight was dropping.

His pain was managed and the mucositis was treated with saline rinses, Capheosol and oral mucoadhesive mouth rinses, which seemed to help his symptoms.

Roger hated as he was claustrophobic during radiotherapy Monday–Friday, which he was making a mess when eating. Rogers health was immensely important to him. His mouth became very dry and the supplement drinks would just stick around his mouth. However, brushing his teeth was painful, so he was tried on unflavoured, non-foaming toothpaste. This was the only toothpaste he could use from then on.

The last time the author saw Roger, he wanted to clean his mouth and brush his teeth, which, even as his cancer progressed and he knew his time was short, was very important to him. Sadly, Roger lost his battle with cancer in Dr Kershaw’s Hospice, Oldham, Lancashire on 25 October, 2012. He had been in the hospice for 10 days.

Unlike Roger, many patients survive cancer treatment, but a greater understanding and appreciation of oral mucositis is needed. Often the pain of oral mucositis can be managed by addressing the condition before cancer treatment starts by improving the patient’s oral hygiene and prescribing products that can prevent and manage the condition. How this condition impacts on patient quality of life should never be underestimated.

This article could not have been written without the support and understanding of Roger’s family, who allow his story still to be told.