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Oral Medicine and the Elderly

Abstract: A focus often exists in dental practice on the maintenance and management of the dentition and the periodontium, however, conditions of the oral mucosa and orofacial pain can cause significant problems for older patients. Oral mucosal conditions are more prevalent in older patients and many orofacial pain disorders, such as burning mouth syndrome and trigeminal neuralgia, are more common in patients over the age of 50 years. Although these conditions may not be routinely managed in general practice, identification of these patients in primary care and appropriate referral will lead to more prompt and effective treatment.

Clinical Relevance: Dental practitioners need to be able to identify what is considered to be within the normal physiological limits of the ageing oral tissue and hence what is abnormal and requires further investigation to facilitate appropriate referral.

Dent Update 2011; 38: 30–36

Age-related changes in the oral mucosa are similar to those found in the skin. The tissue becomes less elastic owing to the increase in collagen cross-linkages in the dermis and a loss of elastin. A reduction in effective blood flow to the oral tissues is also seen due to the stiffening of the collagenous walls of blood vessels and the decrease in their diameter as lipid is deposited.¹ The oral epithelium has been reported to become thinner with age, resulting in decreased tissue regeneration and reduced disease resistance.² This may lead to an increased susceptibility to trauma and infection, a trend enhanced by the poorer response of the immune system to new challenges.

The prevalence of oral mucosal disease has been found to be higher in older individuals.^{3–5} Associations have been reported between oral mucosal disorders and ageing. Wolff *et al* state that the ageing process in isolation has no substantial effect on the oral mucosa or its protective defence mechanisms if the individual is in good

health. The authors conclude that reported age-associated oral mucosal disorders are related more to the following than simply to chronological ageing:⁶

- Systemic disease;
- Malnutrition;
- Drug usage; or
- The wearing of ill-fitting dentures.

With an ageing population, today's dentist must be aware of the patients' medical conditions and medications,⁷ as practitioners will inevitably become more involved in the management of older and medically compromised patients. This will result in the delivery of care that may become more complicated.⁸ The aim of this article is to describe oral mucosal lesions and orofacial pain conditions commonly seen in the elderly.

Oral mucosal lesions

An increased prevalence of oral mucosal conditions has been reported in the elderly when compared with a younger population.^{3,4} These conditions include xerostomia (Figure 1) oral lichen planus (OLP) (Figure 2) and the vesiculobullous conditions. Although oral cancer is not considered to be one of the most common malignancies affecting the elderly, it is more common in this age group than in the younger population (Figure 3).



Figure 1. Xerostomia.

Xerostomia

Xerostomia or dry mouth is a common problem for many elderly people with reported prevalence estimates ranging from 12% to 47%.⁹ It is the most common and significant oral side-effect of medications and has been associated with more than 500 drugs.¹⁰ The impact of drug-induced xerostomia is especially evident in the elderly owing to polypharmacy, with some patients taking more than one xerostomic agent.¹¹

Oral complications of a dry mouth include:

- The development of cervical caries;
- Loss of retention of dentures;

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Figure 2. Oral lichen planus.



Figure 3. Oral cancer.

- Plaque-like;
- Erosive;
- Atrophic; and
- Bullous.¹⁶

These different types of OLP can co-exist in the same patient.

OLP often presents asymptotically, however, many patients report symptoms ranging from mild discomfort to severe pain.¹⁷ Management of OLP is primarily aimed at symptomatic relief and topical corticosteroid applications are the mainstay of treatment.¹⁸ However, acute exacerbations can be treated with systemic steroids. Although the malignant potential of OLP is a controversial topic, the reported annual rate of malignant transformation for OLP is 0.27%.¹⁹ Long-term monitoring, including a minimal annual review, has been recommended.^{20,21} It most commonly presents in females under the age of 60 years, however, owing to the chronic nature of the condition and the long period of monitoring required, the management of OLP extends into old age.

Vesiculobullous lesions

Pemphigus is a rare but severe auto-immune blistering disease of the skin and mucous membranes that is twice as common in females as in males.²² The pemphigus vulgaris (PV) form consists of three types:

- Mucosal-dominant – mucosal lesions with minimal skin involvement.
- Mucocutaneous type – extensive skin blisters and erosions in addition to mucosal involvement.
- Cutaneous type – skin lesions only.

The disease incidence is 0.75–5 cases per million per year, with a considerable geographic variability noted.²³ PV can be a life-threatening condition, which results in the development of widespread painful erosions. In a recent large, population-based study carried out in the UK, the authors reported an average age of presentation at 71 years.²⁴

Mucous membrane pemphigoid (MMP) is an auto-immune blistering condition characterized by subepithelial bullae. It is a disorder that presents in women between the ages of 51–62 years²⁵ and, like OLP, persists into old age. The oral mucosa can often be the site of initial manifestation of MMP and can

result in pain, dysphagia and peeling of the mucosa.^{26,27} The intra-oral vesicles can rupture leaving persistent, irregularly shaped erosions with a yellowish slough and surrounding inflammatory halo.²⁸ Lesions can affect any mucous membrane and skin, including the conjunctiva, nasopharynx, larynx, oesophagus, genitourinary tract and anus.²⁹ Complications can arise from all lesions, with life-threatening complications resulting from MMP of the larynx, oesophagus and the lower airway.^{30,31}

Both of these vesiculobullous conditions may be managed with topical, oral and intralesional corticosteroids,³² however, systemic immunosuppressants, such as systemic corticosteroids, along with other immunomodulatory agents, are also frequently required for disease control.³³

Oral cancer

Approximately 300,000 patients worldwide are estimated to be newly diagnosed with oral cancer annually and the 5-year survival rate for oral cancer is very poor, at approximately 53%.³⁴ Screening for this malignancy with a thorough oral examination is important as early detection can lead to an improved prognosis and an awareness of signs and symptoms will allow practitioners to identify possible malignant disease rapidly. Knowledge of potential risk factors, such as smoking and alcohol, can allow the targeted monitoring of patients at greater risk, and the dental practitioner has a central role in smoking cessation initiatives. Oral malignancy can be treated with surgery, radiotherapy, chemotherapy or a combination of these, depending on the site, extent and stage of the cancer. The role of the dental practitioner before and during the treatment of oral cancer is vital.

Before commencing treatment, detailed oral hygiene instruction should be given to the patient and, if possible, all dental treatment should be completed. Any unrestorable teeth should be extracted at least two weeks prior to the start of treatment, particularly if radiotherapy is planned. This will minimize the risk of osteoradionecrosis, which can occur if there is trauma to the mandible or maxilla in an irradiated area.³⁵ Radiotherapy can also lead to mucositis, trismus and xerostomia.³⁶ Radiation-induced xerostomia can have

- Soreness with denture wear;
- Patients frequently report a difficulty with speech and swallowing; and
- They are also prone to candidal infection of the mouth and oropharynx.¹²

Lichen planus

Lichen planus is a chronic, systemic, mucocutaneous disease. Prevalence figures range from 0.1% to 4%.¹³ When manifesting in the oral cavity, the buccal mucosa, tongue and gingiva are the most common sites, whereas the palate is less commonly affected.¹⁴ Oral lichen planus (OLP) is a chronic condition that can persist for up to 25 years.¹⁵ Andreasen has classified oral lichen planus into six types:

- Reticular;
- Papular;



Figure 4. Fissured tongue.



Figure 5. Atrophic tongue.



Figure 6. Denture stomatitis.

multiple manifestations, with an increase in oral infections and radiation caries.

Common oral mucosal findings

Several studies have reported that lingual varices, fissured tongue and atrophic tongue are some of the most common oral mucosal findings among

elderly patients.^{37,38} Lingual varices are considered to be normal structural variations in the elderly. They occur as a result of a dilatation of the veins of the tongue and are frequently seen on the ventral surface. They have been reported in up to 60% of elderly patients in both genders and their prevalence increases with age.^{39,40}

Fissured tongue (FT) (Figure 4) is usually characterized by a central groove with multiple laterally extending, branching fissures. It is a common clinical presentation at all stages of life. Although no definitive data exists regarding a gender predilection, it has been found in some studies to be more frequent in males,^{41,42} and has been variously reported in association with:

- Psoriasis;
- Acromegaly;
- Sjögren's syndrome;
- Down's syndrome; and
- Melkerson-Rosenthal syndromes.⁴³

The prevalence of FT increases markedly with age and it can be considered as an incidental finding as it is a normal manifestation of the ageing process.

Atrophic tongue (Figure 5) results from atrophy of the filiform papillae. Patients can present complaining of pain, soreness or a burning sensation in the tongue. It is commonly associated with nutritional deficiencies such as vitamin B₁₂, folate and ferritin deficiencies, and correction of these nutritional deficits can result in rapid regeneration of the papillae. Malnutrition and nutritional deficiencies such as these are prevalent and well documented in the elderly.^{44,45}

Denture related conditions

Although patients are now retaining more of their natural teeth, the use of removable dentures is still relatively common among older people.⁴⁶ Some countries report that one-third to one-half of the older people wear full dentures, while as many as three-quarters wear removable full and or partial dentures.^{47,48} Denture use raises the probability of having one or more oral mucosal lesions in the elderly.^{49,50,51} The wearing of dentures is associated with particular oral mucosal lesions, these include:

- Denture stomatitis (Figure 6);
- Denture-related hyperplasia;

- Angular cheilitis; and
- Traumatic ulcers.⁵²

The presence of these conditions is influenced by the quality of the denture, its integrity and the oral hygiene habits of the patient.⁵³

Denture stomatitis

Denture stomatitis is characterized by erythematous mucosa in an area commonly limited to the palatal mucosa under an upper denture. It is reported to develop in 11–67% of denture wearers⁵⁴ and is more frequent in females than males.⁹ There are a number of factors associated with the development of denture stomatitis, such as wearing a denture continuously, smoking, dietary factors and denture cleanliness.^{55,56} It is thought that the denture serves as a protective barrier for micro-organisms from the protective mechanisms of the oral cavity, such as salivary flow. It is associated with the presence of a number of organisms, the most common species isolated being *Candida albicans*.⁵⁷ As denture hygiene and *Candida albicans* can both be considered causative factors in the development of denture stomatitis, the treatment includes denture care, topical and systemic antifungal preparations, or other appropriate agents if other organisms are cultured.

Angular cheilitis

Angular cheilitis is an infection in the fissures at the commissures of the mouth which are often surrounded by erythema. The lesions are frequently co-infected with both *Candida* and *Staphylococcus aureus*. Of these cases, 20% are caused by *Candida albicans* alone, 60% are due to a combined infection with *C. albicans* and *S. aureus*, and 20% are associated with *S. aureus* alone.⁵⁷ Vitamin B₁₂ deficiency, iron deficiency, loss of occlusal vertical dimension and accentuated creasing at the corners of the mouth have been associated with this condition.⁵⁸ Elimination or treatment of any underlying conditions that may be associated with angular cheilitis should be considered first, followed by the application of an appropriate topical agent if necessary.

Denture-related hyperplasia and traumatic ulcers

Denture-related hyperplasia often results from chronic irritation due to over extended denture margins or an ill-fitting denture. These swellings are usually firm and fibrous, but may be ulcerated and inflamed. Traumatic ulceration is not solely associated with dentures, but can also be seen due to fractured restorations or fractured teeth and sharp edges on worn teeth. Relief of any overextended areas of a denture or sharp area of a tooth, and restoration of fractured teeth, should be considered in the initial management of these traumatic lesions. In the case of hyperplastic lesions, surgical removal of the excess fibrous tissue may be required.

Orofacial pain

Pain is the most common reason for patients to seek healthcare. In an article by Riley *et al*, the authors found that, of 5860 elderly adults interviewed, 61% had facial pain and 50% reported symptoms of burning in the mouth.⁵⁹ The most common orofacial pain conditions affecting the elderly are burning mouth syndrome, trigeminal neuralgia and giant cell arteritis.

Burning mouth syndrome

Burning mouth syndrome is a common chronic pain disorder typically described by patients as a burning or stinging sensation of the tongue, lips or other oral mucosal surfaces without any clinical, pathological or laboratory findings.⁶⁰ This condition has a prevalence of 4–5%⁶¹ and it is six times more common in women over 50 years of age than in men.⁶² Zakrzewska *et al* emphasize the importance of the use of the term syndrome as patients can present with a variety of symptoms, including:

- Burning sensation;
- Subjective xerostomia;
- Oral paraesthesia;
- Dysguesia;
- Loss of taste; and
- Altered smell.⁶³

No specific and effective means of treatment can be given to all patients with this condition and

treatment interventions can range from reassurance and cognitive behavioural therapy to pharmacological interventions, including various psychotropic agents.

Trigeminal neuralgia

Trigeminal neuralgia (TN) is characterized by recurrent brief unilateral stabbing or electric shock-like pain paroxysms which are felt in the area supplied by the Vth cranial nerve, usually following light touching at a facial or intra-oral trigger point. Classically, attacks last for only a few seconds, and they are separated by a variable pain-free interval which may last for minutes, hours or days.⁶⁴ Trigeminal neuralgia has a prevalence of approximately 4 in 100,000.⁶⁵ It can occur in both genders, although there is a slight female predominance, and it is most commonly seen in patients over the age of 50.⁶⁶ The American Academy of Neurology and The European Federation of Neurological Societies recently published guidelines for the management of trigeminal neuralgia. Carbamazepine remains as the first line treatment for the condition, with consideration given to early surgical intervention for patients with TN refractory to medical therapy.⁶⁷

Giant cell arteritis

Giant cell arteritis (GCA) is the most common vasculitis of large- and medium-sized arteries that affects patients over the age of 50, with the average age of onset being 72 years old.⁶⁸ Prevalence in the US of 200 per 100,000 has been reported in patients over 50,⁶⁹ with an even higher occurrence of the condition in northern Europe.^{70,71} It commonly presents as tenderness, swelling and headache in the temporal region, headache, jaw claudication and loss of vision. Systemic manifestations are also common with fatigue, weight loss, low-grade fever, polymyalgia rheumatica and tenosynovitis seen in more than half of patients with GCA.⁷² Systemic steroids are considered to be the standard treatment for patients diagnosed with GCA; the course of treatment may extend for longer than one year in a significant number of patients and the resultant problems with prolonged steroid use may be evident in this patient group.⁷³

Conclusion

In conclusion, it is important for the practitioner to be able to identify what is considered to be within the normal physiological limits of the ageing oral tissue and hence what is abnormal and requires further investigation. This knowledge will allow for prompt and appropriate referral and improve patient care.

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