BURNING MOUTH SYNDROME

Definition

Burning mouth syndrome (BMS) is defined as a burning discomfort or pain affecting the oral soft tissues of psychogenic or unknown causation in people with *clinically normal, healthy oral mucosa in whom a medical or local dental cause has been excluded*.

A number of other terms have previously been used to describe what is now called BMS including -

- glossodynia
- glossopyrosis
- stomatodynia
- stomatopyrosis
- sore tongue
- oral dysaesthesia

The symptom of a burning mouth may represent a separate disease process where local or systemic factors are involved. In these cases the effective treatment of this disease process will result in its resolution. Thus local and systemic factors (i.e. infections, dermatological diseases with oral features such as lichen planus, allergies, ill fitting dentures, hypersensitivity reactions, hormone and vitamin deficiencies) and some drugs may cause the symptom of a burning mouth and should be excluded before formally diagnosing burning mouth syndrome. Confusingly, many research studies concerning people with symptoms of burning mouth do not distinguish those with burning mouth syndrome (i.e. idiopathic disease) from those with other conditions (such as vitamin B deficiency), making the results unreliable and difficult to interpret.

Epidemiology

Burning mouth syndrome predominantly seems to affect women, particularly after the menopause and its frequency seems to increase with age. Reported incidence and prevalence in general populations varies significantly according to diagnostic criteria employed: many studies have included people with the symptom of burning mouth rather than with BMS as defined above, and when this is taken into account, prevalence of 1% or less is more accurate.

Clinical presentation

Many patients will give a long history of burning mouth and may have already consulted a number of other health care professionals before seeking help from an oral physician. The burning sensation may be felt as either a continuous or intermittent discomfort which most frequently affects the tongue, and sometimes the lips or palate. Other oral mucosal sites may also be involved. Patients may describe the discomfort of BMS with words such as *tender*, *annoying* and *tiring*. Onset of the symptom may be sudden or gradual over months and it has been suggested that severe life events are associated with the onset of BMS

In patients with BMS, no oral mucosal lesions will be detected on examination.

Up to 50% of patients with BMS report an associated sensation of oral dryness which is not confirmed on investigation. Some of these may also notice increased thirst. In addition affected patients may report altered taste sensation - either with reduction in taste perception or the presence of a persistent unusual taste, most frequently bitter or metallic. Unlike most other oral disorders, BMS usually does not interfere with sleeping, and drinking or eating may temporarily reduce the severity of symptoms. Patients may have associated anxiety or depression. There is some research which suggests that patients with BMS are significantly more likely to score highly for various personality traits such as somatisation, obsessive-compulsive, personal sensitivity when compared with unaffected control subjects.

Aetiopathogenesis

The cause of BMS is unknown and to date there have been no good aetiological studies. It is a medically unexplained symptom.

Suggested possible causal factors for BMS include hormonal disturbances associated with the menopause, psychogenic factors (including anxiety, depression, stress, life events, personality disorders, and phobia of cancer) and nerve abnormalities. It has been suggested that in some subjects who have sustained damage to the facial nerve and have a heightened taste sensation (the so-called ‘supertasters’), the balance of taste sensation is upset and phantom tastes and a burning sensation can ensue owing to lack of the normal inhibitory function of the facial nerve.

Whilst many patients with BMS show clinical features of anxiety, depression, and somatisation or various personality traits it is often difficult to clarify whether they have occurred as a reaction to the distress associated with BMS or are actually involved in its development.

Diagnosis

The diagnosis is essentially one of exclusion.

An in-depth social history should always be obtained from patients with symptoms suggestive of BMS. This explores social factors which may be contributing to psychological stresses which may be involved in the patient's symptoms, as well as the coping strategies employed to deal with them.

The patient's health and medication will be thoroughly reviewed to exclude other causes of a burning mouth (Table 1). There are large number of medications which can cause a dry mouth and subsequent oral mucosal soreness.

Investigations are employed to confirm that the affected patient does not have one of the conditions which may give rise to symptoms similar to those of BMS (Table 1). They should only be undertaken if the detailed history and examination indicates that they are appropriate. Table 2 shows a number of investigations which might currently be considered in a patient with symptoms of a burning mouth.

Table 1- Suggested potential causes for the symptom of a burning mouth

LOCAL CAUSES

- Dry mouth (xerostomia)
- Mucosal disorders – geographic tongue (erythema migrans), lichen planus etc
- Trauma to oral mucosa from (e.g. poorly fitting dentures)
- Repetitive oral habits (such as “tongue thrusting”)
- Gastro-oesophageal reflux disease
- Sensory nerve damage (e.g. due to trauma)

SYSTEMIC MEDICAL CAUSES

- Vitamin B12, folate, iron deficiencies
- Medication (e.g. angiotensin converting enzyme [ACE] inhibitors such as captopril)
- Immunologically-mediated diseases (e.g. Sjogren’s syndrome)
- Psychogenic disorders (e.g. depression, anxiety, fear of cancer)
- Psychosocial stresses (e.g. stressful life events such as bereavement)
- Diabetes mellitus
- Menopause

Table 2 – Investigations and assessment which might currently be considered in patients with symptoms of a burning mouth.

- Full blood count - to exclude anaemia
- Iron, vitamin B12 and red cell folate levels – to exclude deficiency
- Random blood glucose levels – to exclude diabetes mellitus
- Measurement of salivary flow – to exclude a dry mouth
- Immunological blood investigations – to exclude Sjogren’s syndrome
- Oral biopsy - if an oral lesion is found on examination
- Assessment of denture fit and function
- Psychological assessment – to investigate possible depression or anxiety

Treatment

If any obvious causative factors contributing to the symptoms of a burning mouth are identified then these should be further investigated and corrected appropriately. In the absence of local or systemic causes then the diagnosis of BMS is likely and the patient needs to be thoroughly reassured that there is no other cause.

Patients with BMS often feel that they have insufficient information about the condition and verbal information should be reinforced with well-designed written information.

Management of this condition is hampered by a lack of good quality trials of treatment. There is an evidence-based review of interventions in BMS published in Clinical Evidence[1] which is regularly updated, in addition to a Cochrane review[2] which may be helpful for the interested reader.

Cognitive behaviour therapy (CBT) has been shown to have some benefit in this condition but is complex and clinically intensive. This involves the identification of maladaptive thought processing and it attempts to change this in a positive way.

Other treatment modalities which may be considered in BMS patients which have been used but so far do not have good quality evidence for efficacy include antidepressants, vitamins or dietary supplements such as alpha lipoic acid, analgesic sprays or mouthwashes such as benzydamine hydrochloride and, in post menopausal female patients, hormone replacement or topical oestrogen applied to the oral mucosa. Where a dry mouth is a prominent symptom then saliva substitutes may be considered.

Outcome

The natural history of BMS has not been clearly defined but there are suggestions that partial spontaneous remission may occur in one third to a half of affected patients within 6-7 years of symptom onset. Improvement in BMS may be expected in about one third of cases, particularly in those patients with intermittent symptoms.

Further reading

1 Buchanan J, Zakrzewska J. Burning mouth syndrome. Clin Evid. 2002 Jun;(7):1239-43.

2 Zakrewska JM, Gleeny AM, Forsell H. Interventions for the treatment of burning mouth syndrome (Cochrane review). Cochrane Database Syst Rev 2001 Vol 3, Database no CD002779

3 Zakrzewska JM. Burning Mouth. Chapter 16: 371-384. In 'Assessment and management of Orofacial Pain.' Zakrewska JM and Harrison SD Eds. 1st edition 2002 Published by Elsevier Science BV ISBN : 0-444-50984-4

4 Scala A. Checchi L. Montevecchi M. Marini I. Giamberardino MA. Update on burning mouth syndrome**:** overview and patient management Critical Reviews in Oral Biology & Medicine. 14(4):275-91, 2003.