

Burning mouth syndrome

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Abstract

Burning mouth syndrome (BMS) is a chronic condition characterised by a burning sensation of the tongue and other sites, usually without associated clinical or laboratory findings. These patients, mainly postmenopausal women, often present with dry mouth (xerostomia) and taste alterations. BMS may present in an idiopathic (primary) form or in association with local or systemic abnormalities (secondary). A detailed history and oral examination are important to help direct patient management.

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Introduction

Burning mouth syndrome (BMS) is a poorly understood chronic condition characterised by a burning sensation of the oral mucosa, usually without associated clinical or laboratory findings. "Syndrome" refers to features such as dryness of the mouth, alteration of salivary components and taste disturbances, which may be present with the burning sensation.¹ BMS has been described by terms such as glossodynia, glossalgia, stomatodynia, and sore or burning tongue, amongst others.² Many clinicians have difficulty with the concept of oral pain disorders in the absence of any clinical findings and may believe them to be psychosomatic in origin. It is important for clinicians to understand BMS to ensure appropriate patient care. The aim of this paper is to provide information on BMS with the emphasis on the diagnosis and management of this condition.

Classification

BMS is defined as an oral dysaesthesia (atypical sensation) with no obvious organic cause.³ The result of this restrictive definition is that primary BMS can be excluded from secondary BMS, which is associated with local or systemic conditions that produce similar symptoms.⁴

Epidemiology

BMS is most prevalent in postmenopausal women, although men and younger women can also be affected.¹ It has not been described in adolescents. It has been reported in 10–40% of women presenting for treatment of menopausal symptoms.⁵ The prevalence of BMS reported for the general population varies between 0.7 and 15%.^{4,6-7} The lack of

diagnostic criteria and definitions of BMS used in different surveys is responsible for this variation.

Clinical presentation

BMS classically presents with mucosal pain that is usually described as a burning, tingling, itching or numb feeling.⁸ The tip and anterior dorsum of the tongue, as well as the lip mucosa, are commonly involved. The facial skin is usually not affected. The onset of pain is typically spontaneous and without any precipitating factors.⁹ Some patients can, however, relate the start of symptoms to a specific event like a dental procedure, medication or stressful personal event.¹⁰ The pain described does not correlate to the distribution of any peripheral sensory nerve and therefore helps to exclude an underlying disease.⁹ Once the pain has started, it typically persists for several years.

BMS has also been divided into three categories based upon the daily pattern of symptoms (Table I).¹¹⁻¹²

Type 1 BMS is characterised by the absence of symptoms upon waking, with a burning sensation that develops in late morning and increases in severity as the day progresses (35%). This sensation is present every day and associated psychological factors are usually absent in these patients.

Type 2 BMS patients present with a constant burning sensation throughout the day, every day (55%). These patients may have difficulty getting to sleep and psychological disorders are generally present.

Type 3 BMS patients experience intermittent symptoms with variable manifestation between days (10%). Unusual sites such as the buccal mucosa or floor of the mouth may

be involved. Contact with oral allergens may be a significant aetiological factor in these patients.¹³

Other symptoms, such as xerostomia (dry mouth) and

Table I: Classification of BMS based on daily patterns of symptoms

	Symptoms	Additional factors
Type 1 35%	<ul style="list-style-type: none"> Wake up with no pain Pain develops during the day Pain increases throughout the day Pain is present every day 	<ul style="list-style-type: none"> Psychological disorders are usually absent May be associated with systemic diseases
Type 2 55%	<ul style="list-style-type: none"> Constant pain throughout whole day Pain is present every day May have difficulty getting to sleep 	<ul style="list-style-type: none"> Psychological disorders are usually present Most resistant to therapy
Type 3 10%	<ul style="list-style-type: none"> Intermittent symptoms Variable presence between days Unusual oral sites involved 	<ul style="list-style-type: none"> Oral allergens may be involved

dysgeusia (abnormal taste) are often present in conjunction with the mucosal burning sensation. The complaint of oral dryness is generally a subjective interpretation as most salivary flow studies of BMS patients could not show a decrease in stimulated or unstimulated salivary flow.¹⁴ This perception of xerostomia reported by patients is frequently associated with abnormal (metallic) taste sensations. The habitual use of a variety of drugs with a documented interference with taste perception has been suggested as a possible cause.¹⁵ Chorda tympani dysfunction has also been suggested to play a role in BMS patients.¹⁶

It has been documented that the pain intensity of BMS correlates with the density of fungiform papillae on the tip of the tongue.¹ An increase in the number of fungiform papillae is linked to a dense innervation of the sensory receptors associated with taste buds linked to the papillae. These patients are also referred to as “supertasters”. The oral pain can arise due to central loss of inhibition of pain following taste changes, including hormonally related bitter taste.¹ This postulate may explain the frequent occurrence of BMS in postmenopausal women. Although dysgeusia is often a prominent complaint at initial presentation, it tends to be one of the first symptoms to improve upon commencement of therapy.¹⁰

Diagnostic process

The diagnosis of BMS is made in the absence of visible oral lesions and is therefore a diagnosis of exclusion. It is important to differentiate patients with primary BMS from those with symptoms caused by local or systemic factors (secondary BMS). Diseases that should be excluded include: Sjögren’s syndrome, diabetes mellitus, and oral candidiasis, as well as iron, folate, zinc and vitamin B deficiencies. An accurate diagnosis of BMS can only be done by obtaining

a complete medical history and performing an intraoral examination.

Medical and dental history

The following should be noted:

- The characteristics, duration, onset and location of the pain should be recorded. The classic BMS patient presents with a description of burning of the tongue, similar to being burnt by a hot drink.¹⁰ The pain intensity described ranges from moderate to severe.
- Any medication that can induce xerostomia (typically antihypertensive and psychotropic agents) should be recorded.
- Presence of dysgeusia and/or perceived xerostomia.
- The personality and mood changes, such as anxiety and depression, as these are often present in patients suffering from BMS.¹

Clinical examination

The oral cavity should be examined to exclude:

- The presence of xerostomia.
- Diseases/conditions affecting the oral mucosa including lichen planus, lichenoid reactions, candidiasis or areas of erosion.
- Abnormalities of the tongue including geographic, fissured or hairy tongue.
- Vitamin B deficiency, which may present with atrophic glossitis due to loss of the filiform papillae.

Additional investigations

- Patch tests are indicated in patients presenting with intermittent symptoms (Type 3 BMS). This can be for food products, preservatives and additives or allergens used in dental prostheses (if applicable).¹³
- Psychological or psychiatric assessment may be indicated in Type 2 BMS patients or if a patient reports a high intake of anxiolytics.¹⁷

Management

The first step in appropriate management is to determine if the symptoms are due to primary or secondary BMS. Any underlying disease/disorder should be treated in the case of secondary BMS.

The treatment of primary BMS is generally directed at symptom management. It is important that BMS is explained to patients and they understand and accept the diagnosis. They should also appreciate that recovery is inconsistent and not predictable.¹⁰ A sympathetic approach towards BMS patients may improve the outcome and should not be underestimated. Patients should also be reassured that the symptoms are not linked to undiagnosed cancer. Cancer phobia has been documented in more than 60% of BMS patients.¹⁸ Spontaneous resolution may occur in up to 60% of patients after 6–7 years.⁵

Cognitive behaviour therapy has been shown to reduce symptoms after a period of six months.¹⁹ This was confirmed in a controlled double-blind study.²⁰ Topical agents that were shown to be of benefit include clonazepam, while systemic alpha-lipoic acid and selective serotonin reuptake inhibitors proved to be effective in controlled double-blind studies.⁸ It was demonstrated that a low dose of clonazepam (0.25 mg/day) can reduce the oral burning and taste alterations in up to 70% of BMS patients, suggesting common pathways for oral pain and taste.²¹ This can be incrementally increased to 2 mg/day until oral symptoms disappear.¹ The effectiveness of alpha-lipoic acid, an antioxidant nutritional supplement with a neuroprotective effect, was supported by a Cochrane collaboration review.²² A significant improvement was reported in patients receiving 600 mg alpha-lipoic acid per day for two months.²³ Topical capsaicin, acting as a desensitising agent, is another treatment option, but is usually poorly tolerated by patients due to its taste. Patients rinse with one teaspoon of a 1:2 dilution (or higher) of capsaicin (in the form of Tabasco sauce) and water. The concentration can be increased if it can be tolerated by patients.¹ Treatment options are summarised in Table II.

Table II: Treatment options for BMS

Patient reassurance (cancer phobia)	
Cognitive behaviour therapy	
Topical agents	
• Capsaicin	Rinse with Tabasco:water dilution (1:2)
Systemic agents	
• Clonazepam	0.25 to 2 mg/day
• Alpha-lipoic acid	600 mg/day for two months
• Selective serotonin reuptake inhibitors	Various drugs are available

Conclusion

BMS is a difficult and challenging condition to diagnose and manage but it is a treatable syndrome. Although most of the current understanding of this condition is based on the cumulative experience of clinicians dealing with BMS, with deficiencies due to a lack of appropriately designed studies, many patients with BMS can be helped.

It is the experience of the authors that patients respond well when treated with understanding and empathy for their condition. This should never be underestimated as, in the past, these patients were often shunted from practitioner to practitioner, being labelled “mentally unstable”. Health care workers should always adopt an attitude of belief in the patient’s history of symptoms and build a position of trust with the patient. From there it will be possible to execute an effective diagnostic and therapeutic regimen.

It may well end with a referral for psychological therapy, but patients tend to accept this if all other treatment options have failed to have the desired effect.

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