ABSTRACT

Burning mouth disorder (BMD) is a burning or stinging sensation affecting the oral mucosa, lips and/or tongue, in the absence of clinically visible mucosal lesions. There is a strong female predilection, with the age of onset being approximately 50 years. Affected patients often present with multiple oral complaints, including burning, dryness and taste alterations. The causes of BMD are multifactorial and remain poorly understood. Recently, there has been a resurgence of interest in this disorder with the discovery that the pain of burning mouth syndrome (BMS) may be neuropathic in origin and originate both centrally and peripherally. The most common sites of burning are the anterior tongue, anterior hard palate and lower lip, but the distribution of oral sites affected does not appear to affect the natural history of the disorder or the response to treatment. BMS may persist for many years. This article provides updated information on BMS and presents a new model, based on taste dysfunction, for its pathogenesis.

Keywords: Stomatopyrosis, Glossopyrosis, Stomatodynia, Glossodynia, Oral dysesthesia, Scalded mouth syndrome.

INTRODUCTION

Burning mouth syndrome (BMS) is a chronic, idiopathic intraoral mucosal pain condition that is not accompanied by clinical lesions or systemic diseases. It is a chronic, oral pain condition associated with burning sensations of the tongue, lips and mucosal regions of the mouth. According to the International Association for the Study of Pain (IASP), it is defined as burning pain in the tongue or other oral mucous membrane, associated with normal signs and laboratory findings lasting at least 4 to 6 months.\(^1\) The word ‘syndrome’ seems to be justified because many of the patients will also have other subjective symptoms (i.e. xerostomia, oral paresthesia, altered taste) or other associated symptoms.\(^2\)

ETIOPATHOGENESIS

As per the definition, a true BMS is one condition with no specific etiology. But according to the classification, secondary BMS are those with an underlying cause. Thereby, the etiology can be further categorized as systemic and local causes.
include oral pain as well as sensations of touch and oral dryness. Damage to the chorda tympani release that inhibition leading to intensification of normal trigeminal sensations.

The second theory states that BMS is due to trigeminal small fiber sensory neuropathy. This is substantiated by a study conducted among BMS patients using quantitative sensory test, which revealed that most of the patients had some form of an altered threshold. Also the biopsies of the anterior two-thirds of the tongue showed a lower density of epithelial nerve fibers and axonal degeneration.

SECOND HYPOTHESIS
According to this hypothesis, the neuropathic pain phenomenons are not usually limited only to the peripheral neural changes, altering transduction and transmission of impulses into the brain but also have ongoing altered central modulation of nociceptive information. This is proved by electrophysiological examination in BMS patients which revealed an abnormal blink reflex. Since this reflex is under dopaminergic inhibitory control through the basal ganglia connection with the facial motor nuclei in the brainstem, it suggests that there is dopaminergic involvement in BMS patients. This is further confirmed by using positron emission tomography (PET) in BMS patients. When PET with fluorodopa was done, there was decreased striated fluorodopa uptake in BMS patients, thereby providing evidence for the involvement of dopaminergic system in BMS patients.

CLINICAL FEATURES
BMS is a disorder typically observed in middle aged and elderly subjects with an age range from 38 to 78 years and occurrence of BMS under the age group of 30 years is rare. Female predilection with a female to male ratio of about 7:1; although most prevalent among postmenopausal women, men, and women of any age can also be affected. There are two specific clinical features which define the syndrome. Of which, one is the presence of a symptomatic triad, which includes unremitting oral mucosal pain, dysgeusia, xerostomia. And the other significant clinical feature is that there should be no signs of lesions or other detectable changes in the oral mucosa even in the painful areas.

Pain
It is the cardinal symptom of BMS. Pain in BMS is described as a prolonged burning sensation of the oral mucosa which is similar in intensity but different in quality from toothache. Quality of pain is burning, scalding on fire or numbed. The intensity of pain is measured as about 5 to 8 cm on a 10 cm visual analog scale. The burning sensation often occurs in more than one oral site, with the anterior two-third of the tongue, the anterior hard palate and the mucosa of the lower lip most frequently involved. Common sites for pain are tongue, lower lip, palate, upper lip, mandibular alveolar region. Buccal mucosa and floor of the mouth are rarely involved. The onset of pain is usually spontaneous in 50% of the cases, in the rest of the cases, the pain can proceed a previous illness, previous dental procedures, previous medications and even due to life stress. Pain in BMS is usually constant and continuous, progressively increases over the day, reaching its greatest intensity by late afternoon and into early evening. It may interfere with onset of sleep but rarely wakes the patient at night. Pain is at its lowest intensity in the morning.

The location of pain is not pathognomonic, and patients with BMS may complain of burning sensations in many different sites, including extraoral mucosa, such as in the anogenital region. Oral pain is invariably bilateral, and more than one oral site may be affected.

Dysgeusia
In almost 70% of patients, persistent taste disorders are evident. Taste may be bitter, metallic or either. Dysgeusia tastes accompanying oral burning are often reduced by stimulation with food. Different alterations in taste perception appear at either threshold or suprathreshold levels. There are various local factors which can cause dysgeusia are oral candidiasis, desquamative gingivitis, oral galvanism, periodontitis, chlorhexidine rinse, xerostomia. Systemic factors can be vitamin A, B12, zinc, iron deficiency, Sjogren’s syndrome, chorda tympani nerve damage, liver dysfunction, alcoholism, chronic gastritis, radiotherapy to head and neck, psychosis or depression.

Xerostomia
Approximately 46 to 67% of BMS patients complain of dry mouth. It reflects a subjective sensation rather than an objective symptom of salivary gland dysfunction. Most salivary flow rate studies of BMS patients have shown no decrease in either stimulated or unstimulated salivary flow. Usually, there is normal salivary volume, but a compositional alteration with increased albumin, total IgM, and total IgG, which are serum components and not originating within the salivary glands. This altered salivary ionic composition might play a role in the local neuropathy demonstrated in BMS patients.
Burning Mouth Disorder

PSYCHOLOGICAL PROFILE

Personality and mood changes (especially anxiety and depression) have been consistently demonstrated in patients with BMS and have been used to suggest that the disorder is a psychogenic problem. These patients exhibit higher levels of oral cancer phobia, in particular with those patients whose family history is positive for head and neck cancer.

Classification (I)

Primary (or) idiopathic (or) essential BMS: For which organic, local or systemic causes cannot be identified and a neuropathological cause is likely.

Secondary BMS: Which would be a variant that resulted from local or systemic pathological conditions susceptible to etiology directed therapy.

Classification (II)¹¹

<table>
<thead>
<tr>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
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<tbody>
<tr>
<td>Daily pain, but pain is not present upon awakening and it worsens as the day progresses. It is a non-psychiatric pain</td>
<td>It is a constant pain and it is associated with psychiatric disorder and chronic anxiety.</td>
<td>In this type, the pain is intermittent and also occurs in unusual sites (like floor of the mouth). This type of pain is often associated with allergic contact stomatitis.</td>
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DIAGNOSIS

Diagnosis of BMS may be complex for three main reasons. BMS is positively defined only by symptoms without regard to signs and etiologies. The symptomatic triad rarely occurs simultaneously in one patient. Overlapping or overwhelming stomatitis may confuse the clinical presentation. Workup should include a complete blood count, TSH, free T4, fasting blood glucose, iron, ferritin, transferring and folic acid. Diabetics should also be tested for glycosylated hemoglobin to check, if diabetes is well controlled. Rheumatologic and autoimmune tests may be required, if warranted by the clinical history. Allergic tests are recommended in all BMS cases.¹² Electrogustometry may be used to verify salivary flow and content.

INCLUSION DIAGNOSTIC CRITERIA

The principal inclusion symptom criteria for BMS include daily bilateral oral burning (or pain-like sensation) and pain that is experienced deep within the oral mucosa, is unremitting for at least 4 to 6 months and is continuous throughout all or almost all the day.

It seldom interferes with sleep and never worsens, but may be relieved, by eating and drinking.

MANAGEMENT

Medical management of BMS includes nortriptyline (10-75 mg/day), clonazepam (0.25-2 mg/day), gabapentin (300-2,400 mg/day), tramadol (50 mg taken up to 4 gm/day). These drugs are believed to facilitate the inhibitory actions of gamma-aminobutyric acid (GABA).¹³ For many years, low dose tricyclic antidepressants (TCA’s) including amitriptyline, desipramine, nortriptyline, imipramine and clomipramine remained the treatment of choice in the management of BMS.¹⁴,¹⁵ Alpha-lipoic acid (ALA) significantly reduces symptoms of BMS.¹⁶ But treatment of BMS was found to be efficacious with a combination of medications rather than higher doses of a single medication, especially with regard to controlling adverse effects.⁹,¹⁷ Topical anesthesia, such as benzylamine mouthwash, choline salicylate, mucaine or lozenges containing local anesthetics have been advocated. In case of BMS due to secondary causes, then the management is concentrated on eliminating the cause for BMS.¹⁸ Patients with psychological conditions should be referred to a psychiatrist who will assess any relation between the onset of symptoms and events in the patient’s lives, such as intense stress, loss of loved relatives, fear of cancer, etc. A dental evaluation should also be done to recommend improved dental care and adequate use of dental fixtures.

CONCLUSION

BMS remains a fascinating, though poorly understood, condition in the field of oral medicine. It remains as a difficult challenge for the practitioner to diagnose. There should be a proper coordination between the dentist and the physicians in diagnosing the underlying cause in case of secondary BMS. The clinician must also consider the potential for neurological disease or diminished psychological functioning that may require psychologic management.

REFERENCES


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