

Burning Mouth Syndrome - A Diagnostic Perplexity

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Abstract: Burning Mouth Syndrome (BMS) is characterized by a burning sensation in the tongue or other oral sites, usually in the absence of definitive clinical and laboratory findings. Affected person often present with multiple oral complaints, including burning, dryness and altered taste. Difficulty in diagnosing BMS lies in excluding the other known cause of oral burning. A logical/practical approach in clarifying this issue is to divide the patients into either primary (essential/idiopathic) BMS, whereby other disease is not evident, or secondary BMS whereby oral burning is explained by a clinical abnormality. The purpose of this article is to provide an understanding of various factors which may be responsible for oral burning associated with secondary BMS, therefore providing a foundation for diagnosing primary BMS.

Key words: Burning mouth syndrome, Oral burning, Local factors, Systemic factors, Psychological factors.

I. Introduction

The International Classification of Headache Disorders II describes BMS as an intra-oral burning sensation for which no medical or dental cause can be found¹. It is further observed that pain may be confined to the tongue (glossodynia), with associated symptoms such as dryness of mouth, paresthesia, and altered taste². From the aforementioned definition, the ambiguity about the nature of this condition can be seen from the fact that the burning pain in the mouth may or may not be associated with a clinical abnormality, and which might defy diagnosis by a clinician. The lack of distinction between BMS without a known cause and conditions that are responsible for oral burning symptoms creates a diagnostic dilemma. So, a practical approach is required to divide the patients into either primary (essential/idiopathic) BMS whereby any other diseases is not evident, or secondary BMS, where oral burning can be explained by a clinical abnormality.

This article seeks to provide a better understanding of the local, systemic and psychological factors which may be responsible for oral burning associated with secondary BMS, therefore laying a foundation for diagnosing primary BMS.

Prior to arriving at a diagnosis of primary BMS, the local factors must be ruled out. Local factors that can cause oral burning are:

II. Local Factors Associated With Secondary Bms

1. Dry mouth

Dry mouth is one of the commonest causes of oral burning, which may be due to hyposalivation (subjective) or xerostomia (objective).

25 % of BMS patients report dry mouth, which may either be idiopathic or secondary to the use of medication such as tricyclic anti-depressants and benzodiazepines^{3,4}. 50 percent of the elderly had exhibited the oral sensorial complaints, including BMS, which was more prevalent in those who used the above mentioned medications. These findings suggest a possible aetiological relationship between salivary function and BMS. Both hyposalivation and xerostomia result in the lack of lubrication, which predisposes the oral mucosa to friction and pain, often of burning quality³.

Literature also supports the fact that BMS subjects have shown higher concentrations of sodium, total protein, albumin, IgA, IgG, IgM, lysozyme, amylase and secretory IgA, suggesting a relationship between the salivary composition and BMS.

2. Oral Infections

Infections involving the oral cavity have been reported as a cause for oral burning⁵. Infections can be fungal, bacterial or viral.

Oral candidiasis is the most common fungal infection implicated in BMS and must be ruled out. Patients often report increased pain upon eating in cases of candida induced burning⁶, whereas in BMS patients, there is decrease in pain while eating⁷.

Bacterial infections involving spirochetes, fusiform, enterobacter and klebsiella species and helicobacter pylori have been suggested as causative factors for BMS⁸. Viral infections have also been considered.

In summary, apart from Candida- induced burning, no other infection clearly causes oral burning.

3. Oral Mucosal Diseases

Diseases such as lichen planus, benign migratory glossitis, hairy tongue and fissured tongue have been proposed as being causatives of BMS⁹. Atrophic and ulcerative forms of lichen planus are known to have a burning pain particularly during periods of exacerbation¹⁰. Benign migratory glossitis is usually painless but burning may occur in areas of depapillation. Fissured tongue is also usually painless unless grooves and fissures become inflamed or infected due to accumulation of debris, resulting in a burning sensation.

4. Taste Disturbances

Disturbances of taste such as an alteration in taste perception (dysgeusia) and/or a persistently altered taste are often reported by BMS patients¹¹. Gruskha⁷ reported disturbances of taste in 69% of BMS subjects, amongst which 88% of the subjects reported persistence of taste, and 59% reported altered taste perception, respectively. The literature regarding taste disturbance suggests the possibility of an aetiological relationship between these findings and BMS².

5. Allergic Reactions

Dental related products such as polymethylmethacrylate, epoxy curing agent, chromium, cobalt, nickel, cadmium, amalgam, gold, potassium, palladium and food related products such as ascorbic acid, propylene, glycol, fragrance mix (eugenol, cinnamic aldehyde), benzoic acid, mint and cinnamon may cause allergic contact stomatitis but their role in BMS is not evident^{4,12}.

6. Other factors

Parafunctional oral habits, oral galvanism and poorly designed dentures were proposed as causative factors in BMS, but studies do not support this hypothesis^{5,8,13}.

III. Systemic Factors Associated With Secondary Bms

A number of systemic factors have been considered to be involved in causing oral burning sensation. So, before diagnosing BMS, possible systemic causes of oral burning pain should be taken into consideration.

1. Haematinic disorders

Blood disorders associated with anaemias including deficiencies of vitamin B group, iron, folate and zinc are associated with a variety of oral manifestations including oral dryness, tongue papillary changes and burning pain¹⁴.

2. Gastro- Oesophageal Reflux Disease (GERD)

Gastro-Oesophageal Reflux Disease must be considered in any patient of oral burning. Careful history taking and examination is required for diagnosis, and the symptoms should rapidly respond to appropriate management².

3. Autoimmune type connective tissue disorders

Disorders such as Sjogren's syndrome and Systemic Lupus Erythematosus are associated with oral dryness and increased risk of Candida infection that may result in oral burning. More than 58% of persons with BMS display abnormal immunological features such as elevated rheumatoid factor and anti-nuclear antibody¹⁵.

4. Central Nervous System disorders

Central nervous system changes associated with condition such as Multiple Sclerosis, Parkinson's disease and Trigeminal neuralgia may be associated with oral neuropathic pain that may assume a burning nature².

5. Side effects of medication

Medication that may cause hyposalivation such as tricyclic antidepressants have been implicated, but the angiotensin converting enzyme (ACE) inhibitors namely captopril, enalapril and lisinopril have been particularly associated with oral burning pain¹⁶.

6. Idiopathic Focal condition

BMS has been linked with other "dynias", a group of idiopathic focal condition with a predilection for the oro-cervical and uro-genital region such as vulvodinia. However the meaning and relevance of this association remains unclear².

IV. Psychosocial Factors Associated With Secondary Bms

From the historical perspective the occurrence of BMS has been linked to patient's psychological status¹⁷. Various diseases such as depression, anxiety and somatization have been discussed as having a major association with BMS¹⁸. Finding of high levels of psychosocial disturbances involving depression, anxiety, somatization and personality disorder are not unusual or unique to BMS patients, these are common findings in the population suffering from chronic pain and may contribute to the cause, intensity and urgency of complaint or may be the result of constant pain¹⁹. Furthermore, many of the medication used to treat these psychosocial conditions and personality disorders can cause side effects such as dry mouth and taste alteration that may include or exacerbate the oral burning syndromes²⁰.

Therefore the question arises whether psychological disturbances and personality disorder are aetiologically related to BMS or if chronic oral burning sensation initiates or exacerbate psychosocial disorders².

V. Conclusion

This article highlights the condition and diseases that may be responsible for oral burning in an attempt to clarify the differences between secondary BMS from primary BMS when a cause for the burning pain is elusive. Based on the available evidence it is difficult to draw definitive conclusions for a pragmatic approach for differentiating primary and secondary BMS. Nonetheless, it is prudent for the practitioners treating BMS to recognize the possible local, systemic and psychological factors that may be responsible for oral burning and in turn manage the patient's symptoms appropriately.

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