

Burning Mouth Syndrome: A Clinical Enigma

1.5 Contact Hours

Presented by:

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Burning Mouth Syndrome: A Clinical Enigma

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Objectives

After completing this course, the learner will be able to :

1. Define Burning Mouth Syndrome (BMS), and where pain is most commonly felt by the patient.
2. List some of the common local causes that may cause BMS.
3. List some of the suspected allergic etiologies that may cause BMS.
4. List some of the suspected systemic etiologies of BMS.
5. Explain what a diagnostic workup of a BMS patient would entail.

Introduction

Burning Mouth Syndrome (BMS) has been defined as a sensory disorder consisting of burning pain in the tongue or oral mucosa, usually bilateral, with normal clinical and laboratory findings.^{1,2} Symptoms of BMS can manifest themselves in any area of the oral cavity, but the most commonly located sites are the tip of the tongue, the anterior hard palate and the inside surface of the lower lip. The pain usually improves during sleep, but returns in the morning and increases as the day progresses, reaching maximum intensity by late afternoon, and can be frequently relieved by eating.³ BMS can be found in any patient population, but seems to be most prevalent in postmenopausal women. The mean age of BMS patients is between 55-60 years old, with occurrence under the age of 30 rare.⁴

Symptoms

BMS can affect any area of the mouth. It is characterized by the sudden onset of pain and burning which tends to increase over time. The tip of the tongue is usually affected, and the pain is usually accompanied by “taste phantoms,” which are taste sensations that occur in the absence of stimuli.

In more than one-half of patients with BMS, the onset of pain is spontaneous, with no identifiable precipitating factor. Approximately one-third of patients relate time of onset to a dental procedure, recent illness, or a course of medication.⁵ Regardless of the nature of the pain onset, once the burning starts, it often persists for years.⁶

The burning sensation often occurs in more than one oral site, with the anterior two-thirds of the tongue, the anterior hard palate and the mucosa of the lower lip most frequently involved. In many patients with BMS, pain is absent during the night but occurs at a mild to moderate level by middle to late morning. The burning may progressively increase throughout the day, reaching greatest intensity by late afternoon into early evening.⁷

A number of other oral complaints have been associated with BMS. Xerostomia (dry mouth) is reported in about 50% of the patients,⁸ while other commonly associated oral complaints include alteration in taste, constant thirst, difficulty swallowing and symptoms located in the area of the temporomandibular joint.^{6,9}

Possible local causes

Main and Baker found ill-fitting dentures to be the single greatest contributor to BMS in their patient population.¹⁰ BMS patients were found to have significantly less routine denture use, reduced tongue space, incorrect placement of the denture occlusal table and increased denture vertical dimension¹¹; however, in the majority of patients in whom denture abnormalities were adequately corrected, the burning-mouth symptoms continued.¹²

A similar controversy attributes the cause of burning mouth to an allergic response to the denture material.³ Methyl-methacrylate monomer and other products used in denture fabrication have been shown to produce positive skin reaction to patch testing.¹³ Hypersensitivity to mercury was found to be one of the most common medical diagnosis concomitant with BMS.⁹ In addition to mercury, other metals used in dental restorations are gold, palladium, zinc, gallium, indium, cobalt, chrome, nickel, iron and silicone. Although hypersensitivity to these materials has been reported, their precise role in the symptoms of BMS is not absolutely clear. Galvanism, caused by the electrochemical reaction between different restoration materials and saliva, may produce burning symptoms. Treatment would involve removing the metallic material and/or using nonconductive materials if possible.³ Local irritation may also be caused by tongue piercing.¹⁴

Possible systemic causes

Iron deficiency anemia and vitamin B complex deficiency have been considered to be associated with BMS.^{9, 14} A burning sensation on the tongue may occur in 40% of patients with vitamin B deficiency. Tongue pain is usually located on the tip of the tongue, and patients may present papillary atrophy. Patients undergoing hemodialysis for kidney failure or that restrict their diet in some way (such as a vegetarian or lactose-free diet), alcoholics and the elderly are prone to vitamin B deficiency.¹⁵ In one study,¹⁶ replacement therapy of B₁, B₂, and B₆ was effective in treating 88% of patients; however, in another study, vitamin B replacement was unsuccessful.¹⁷

As mentioned previously, dry mouth has been implicated as an etiologic factor in BMS^{6, 11}; however, most salivary flow rate studies in patients affected with BMS has shown no decrease in stimulated or unstimulated salivary flow.⁷

Psychiatric causes of BMS may be considered. Hakeberg et al., focusing psychological aspects of women with BMS, observed that all patients in their study had gone through situations of great stress or disappointment in their lives, culminating with the appearance of mouth pain. These authors also found that these women were very anxious and described themselves as persistent and self-demanding.¹⁸ Vitkov et al. believe that BMS patients have a reduced pain threshold, and this threshold is lower still in some women.¹⁹

BMS may be triggered by the significantly altered salivary flow composition caused by activation resulting from psychological stress; however, while BMS patients may have

elevated psychological stress, the onset of BMS symptoms has not been found to be related to stressful life events.²⁰

Diagnostic workup

A thorough oral examination should be performed. Any suspicious lesions or masses should be evaluated and biopsied if suspicious. Blood work should include CBC, MCH, MCV, WBC, vitamins B₁ (thiamine), B₂ (riboflavin), B₆ (pyridoxine), B₁₂ (cobalamin), folate, serum iron TIBC, and ferritin levels.^{8,21}

Medical management

If an underlying cause of BMS can be identified, treatment should be directed toward the source.³ Some medications, such as angiotensin converting enzyme (ACE) inhibitors, have been implicated in some cases.²² Substitution or reduction of the suspected offending medication may be considered if possible. If vitamin deficiency is present, vitamin or nutrition supplementation may be considered. If the patient is postmenopausal, hormone replacement therapy may be an option.

Topical oral medications have been tried with limited success. Topical capsaicin has been reported to be beneficial in a few patients.²³ A recent article by Regard advocated topical anesthesia such as benzydamine mouthwash or lozenges containing a local anesthesia²⁴ such as benzocaine. Another oral local anesthetic which may be considered is viscous lidocaine oral rinses (as with all oral anesthetic rinses, the patient should be advised not to swallow the medication as it may cause nausea). The University of Connecticut Taste

and Smell Center recommends a two-week course of Nystatin vaginal troches slowly dissolved in the mouth four-times-a-day for two weeks for possible candidiasis, whether it is culturable or not. If the BMS symptoms improve, the patient is treated for an additional six weeks. Patients are reminded to disinfect their dentures simultaneously so infection is not reintroduced into the mouth.²⁴

Clonazepam (Klonopin), starting at 0.25 mg at bedtime and slowly increasing by 0.25 mg per week until a maximum dosage of 2.0 mg a day has helped some patients.²⁵ Chlordiazepoxide (Librium), starting at 5 mg at bedtime and increasing 5 mg every week to a maximum of 30 mg per day may be considered.²⁶ Other options are amitriptyline (Elavil), starting at 10 mg at bedtime, and increasing 5 mg per week to a maximum of 150 mg per day,²⁷ or gabapentin (Neurontin), 100 mg at bedtime, and increasing 100 mg per week to a maximum dose of 1600 mg a day.²⁸ One study found that zinc gluconate, 140 mg/day, was successful in treating BMS symptoms in a number of patients; however, the role of zinc in the transmission of nerve impulses from the taste buds is not fully understood.²⁹

Until a specific etiology or etiologies can be found for Burning Mouth Syndrome, each patient needs to be fully evaluated and treatment based on any abnormalities found.

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