

Burning Mouth Syndrome and Prosthetic Dentistry: Pathogenesis, Assessment and Diagnosis

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Abstract: *Burning mouth syndrome (BMS), or stomatodynia, is an intraoral pain disorder, usually unaccompanied by clinical symptoms. The pathogenesis of the disease is controversial. The evaluation and diagnostics include an anamnesis, a thorough clinical examination and laboratory tests.*

Keywords: burning mouth syndrome, BMS, stomatodynia, stomatopyrosis, glossopyrosis, glossodynia, glossalgia, sore mouth, sore tongue, oraldysesthesia

1. Introduction

Burning mouth syndrome (BMS) is characterized by a burning sensation in the tongue or other oral sites, usually unaccompanied by clinical symptoms. The complaints are reported more often in women, especially after menopause. The etiopathogenesis and treatment of the disease is controversial. As a result, patients with inexplicable oral complaints are often referred from one dentist or physician to another without an effective treatment plan. This situation not only adds to the severity of these complaints but also has a significant emotional impact on the patients, who are sometimes suspected of exaggerating their symptoms.

Pathogenesis

Despite numerous studies over the years, the pathogenesis and pathophysiology of the disease remain unclear and controversial.

2. Assessment and Diagnosis

The multiple causes of BMS make an organized approach to the problem important. The most accurate diagnosis and proper treatment is achieved through the cooperation of a dermatologist, dentist, psychiatrist, neurologist, otolaryngologist and/or other specialists. (Chapanov, 2020)(Chapanov, 2020)(Dimitrova, 2019)(Kazakov, 2019)(Kazakova, 2019)(Kazakova, 2019)(Kazakova, 2019)(Kazakova, 2019) Sometimes a good attitude towards patients can significantly improve the outcome of treatment.

The anamnesis focuses on the patient's medical, dental, mental and psychological history, as well as on the main symptoms. The description of the pain should include duration, nature, score according to the visual analog scale (VAS)– from 1 to 10, localization, peculiarity and tendency (regularity). Open questions about depression, anxiety, carcinophobia should be asked. Sometimes it is necessary to do psychometric tests. Exacerbating factors related to food and oral hygiene (mouthwashes, toothpastes, chewing gum, mint ingredients, cosmetics, smoking, etc.) should also be ruled out. The connection between the pain and the wearing of dentures, dental work – prosthetic restorations in particular, parafunctions (bruxism, bruxomania, improper swallowing) should also be noted. The xerostomic potential

of all drugs taken is also assessed. (Bergdahl, 2007)(Grushka, 1987)(Gurvits, 2013)(Kazakov, 2018)(Laskaris, 2006)(Patton, 2007)(Scala, 2003)(Vasilev, 2012)

A thorough clinical examination of the oral cavity should be performed. In addition to excluding other diseases that cause pain, the patient is assured that there is no cancerous change. The mucosa should be examined for erythema, glossitis, atrophy, candidiasis, geographic tongue, lichen planus, and xerostomia. Clinicians with many years of experience and solid knowledge in the field of mucosal diseases are the most reliable in confirming a normal mucosal finding. It is also very important to assess the manipulations performed by the dentist, the presence of dentures and other prosthetic restorations, and their normal functioning. (Grushka, 2002)(Lamey PJ, 1988)(Lamey, 1996)(Riley, 1998)(Volpe, 1991)

Laboratory tests are diverse. They include a complete blood count, iron, iron-binding capacity (IBC), total iron-binding capacity (TIBC), ferritin, vitamin B₁₂, folic acid, zinc, glucose, glycosylated hemoglobin, *Candida albicans* culture test, etc. There is biopsy finding if normal mucosal structure is confirmed. The patch test is very indicative, especially in patients with type 3 BMS. It should include testing for traditional allergens, metals, preservatives, and dietary supplements (Table 1).

Table 1: Allergens

Patch test for BMS

1. Standard tests (68 different allergens are included in the Mayo clinic)(Mayo Clinic Allergy Testing)
2. Preservatives, additives, colorants
3. Metals

Allergens that must be included

- Methyl methacrylate
- Ethyl acrylate
- Ethylene glycol dimethylacrylate
- Triethylene glycol dimethylacrylate
- BIS-GMA
- Benzoyl peroxide
- Propylene glycol
- Sorbic acid (E₂₀₀)

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- Benzoic acid
- Tartrazine (E102)
- Mint ingredients
- Cinnamon aldehyde
- Menthol
- Fragrances
- Peruvian balm
- Cobalt chloride
- Nickel sulfate
- Gold sodium thiosulfate
- Amalgam
- Mercuric chloride
- Cadmium chloride
- Potassium dichromate
- Formaldehyde
- p-phenylenediamine (PPD)

3. Conclusion

Despite the fact that an enormous amount has been published in this field, a universally accepted diagnosis and treatment of burning mouth syndrome is still lacking. Some issues on BMS are still controversial, and they present a challenge for both researchers and clinicians. What generates a major dilemma is that BMS is defined by symptoms that can potentially be caused from numerous different local and systemic pathologies. Some of them can be clearly identified and managed, whereas others can impede diagnosis and, thus, hinder management.

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