

Burning mouth syndrome

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(Received on December 28, 1994 ; Accepted on June 7, 1995)

Key words : Burning mouth syndrome, glossodynia

Abstract : Burning mouth syndrome is a burning sensation of one or several oral soft tissues with the tongue being affected the most, and may be associated with some other symptoms outside the oral structures. The oral symptoms may appear suddenly or gradually within a time course, may be persistent throughout the day or get more intense as the day progresses in a complaint-free patient in the morning. The syndrome affects mostly women and those over 50 years old, and usually caused by multiple factors. Local factors including allergy, high residual monomer level in dentures, trauma, fungal and bacterial infections; systemic factors including menopause, vitamin deficiency, iron deficiency, anemia, and xerostomia, finally psychogenic factors are thought to be responsible in the etiology of burning mouth syndrome. The treatment of burning mouth syndrome is complicated, related with the difficulty in isolating the causative factors. Thorough patient examination along with detailed anamnesis, some laboratory tests, and in some cases salivary analysis, radiographic examination and biopsy are mandatory for eliminating the causes and providing the relief of symptoms. Also, characterization of psychologic disorders that are thought to have an impact on this syndrome is of utmost importance for a successful treatment. The etiology, clinical features and suggested treatment modalities of burning mouth syndrome are reviewed in this article.

抄録：Burning Mouth Syndrome (BMS) は一か所ないし数カ所の口腔粘膜に灼熱感をきたす症候群で、舌がもっとも侵されやすく、口腔以外にも何らかの症状を呈することがある。口腔症状は突然出現することもある。一定の期間を経て段々強くなることもある。また、その症状は一日中続くものもある。午前中は無症状で午後になって次第に症状が強くなるものもある。患者は50才以上の女性に多く、その発生にはいろいろな因子が関与しているとされている。BMSの病因としては、アレルギー、義歯に残留する高濃度のモノマー、外傷、カビあるいは細菌感染などの局所的因子や閉経、ビタミン欠乏症、鉄欠乏症、貧血、口腔乾燥症、精神的要因などの全身的因子があげられている。BMSの治療は、その原因を特定出来にくいことから、難しいことが多い。既往歴、現病歴をよく聞き、必要に応じて臨床検査を行ない、症例によっては唾液検査、レントゲン検査、生検なども含めた十分な患者の診察が原因の鑑別と症状の緩解には欠かせない。また、治療を成功に持っていくためには、本症の発生に強く関与しているといわれている精神的要因を十分に分析、解明することがもっとも重要である。この論文はBMSの病因、臨床症状および治療法について綜説したものである。

Burning mouth syndrome (BMS), also referred to as glossodynia is a burning sensation in oral soft tissues and the tongue from any cause without related clinical signs.¹⁻⁴ Pain and burning are predominantly located at the tongue, upper denture bearing area, lips, lower denture bearing area, buccal mucosa, throat, and floor of the mouth respectively.^{1,4,5,6} Females and people

over 50 years are affected more.¹

Other associated symptoms include insomnia, altered taste sensation, dry mouth, headache, and psychologic disorders like irritability, depression, decreased desire to socialize.^{1,4} Since the features of BMS have not rigidly been characterized, the studies dealing with this subject are based on the comparison of BMS patients with the matching control subjects.¹

Grushka³ in a survey of 102 patients found that the symptoms appeared suddenly in 37% of cases, and

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gradually in 63% of the cases and the onset of pain was in the late morning (59%) or in the afternoon (9%) being the worst (75%) in the evening.

Lamey and Allam³ proposed to evaluate the BMS patients in 2 groups; type 1 including the patients who do not have burning sensation on waking but go worse as the day progresses, and type 2 who has persistent complaints throughout the day.

As the cause of BMS may be multifactorial, thorough clinical examination and laboratory tests are mandatory to determine the causes and set up a proper treatment plan. Zagarelli⁶ suggested that in addition to the routine clinical examination the lesions in oral soft tissues associated with anemia, diabetes, moniliasis, geographic tongue, vitamin deficiency, local irritations, and trauma should be determined. Also, psychologic disorders, systemic disorders, current medication, and trauma should be stressed in anamnesis. Laboratory tests for BMS patients should include full blood count, blood glucose and *Candida albicans* cultures. In some cases salivary analysis, radiographic examination and biopsy may be required.

The etiologic factors thought to be responsible for BMS can be classified as local factors, systemic factors and psychogenic factors.

Local factors

Methyl methacrylate monomer may cause a hypersensitivity reaction especially in the hard palate characterized by burning sensation and allergy. Ali et al.⁷ reported that among 22 BMS patients using dentures, monomer levels were high in 73% of patients and 23% of patients were allergic. However, reducing the level of the residual monomer did not provide remission.

BMS may occur as a result of trauma. Zagarelli⁶ reported a patient who complained from burning sensation after developing the habit of rubbing his teeth against the scar of an excised fibroma on his tongue.

Geographic tongue has been found out in 26% of patients with BMS. Some of the patients complained of hypersensitivity to hot and spicy foods at the affected site.⁶

Mercury allergy has been reported to cause BMS characterized by burning sensation and metallic taste.⁸ Moniliasis may be a significant etiologic factor

in BMS. Oral lesions may appear as red and/or white lesions which are characteristic feature of this disease. Oral mucosa may also exhibit normal but dry appearance. The diagnosis can be made by obtaining a positive *Candida albicans* culture and the symptoms usually disappear after antifungal therapy.⁶

Katz et al.² isolated spirochet and fusiform bacteria in smears obtained from edentulous patients with BMS, and suggested a possible relation between BMS and fusospirochetal infection since metronidazole administration cured the symptoms. Obtaining smear routinely in patients with BMS is recommended.

Burning mouth secondary to acoustic neuroma has occasionally been reported in the literature. Audiometric tests and computerized tomography are necessary for the diagnosis of acoustic nerve neuroma.⁹

Systemic factors

The 33% incidence of BMS among women at menopause suggests a relation between these two entities.¹⁰ A decrease in estrogen level during menopause has been claimed to be responsible for BMS. However, resolution does not always occur even after replacement therapy.¹ Alternatively mood changes related with the hormonal changes during menopause may lead to BMS.

Vitamin deficiency is thought to be one of the major causes of BMS. Folic acid and Vitamin B₁₂ deficiency was found in 1.8% of patients.⁶ Lamey and Allam³ reported deficiency of B₁, B₂, B₆ or their combinations in 28 of 70 patients with BMS. However, they failed to prove deficiency of vitamins A, C, D or E and suggested Vitamin B complex deficiency to be an etiologic factor in BMS. Recovery is usually maintained by vitamin replacement therapy. BMS has been documented in 5% of patients with anemia due to iron deficiency which is accompanied by palpitations, fatigue and dizziness.¹¹ Gallagher et al.¹² reported a postmenopausal woman with a complaint of xerostomia and glossodynia who suffered from iron deficiency anemia secondary to blood loss caused by a tumor in the large intestine. Oral symptoms resolved after hemicolectomy.

Xerostomia and diabetes have been mentioned among the systemic factors causing BMS, but these factors have been found to be responsible only in few

cases.^{1,6}

Psychogenic factors

Psychological factors such as elevation in anxiety, depression, somatic reactions to stress, psychiatric reactions have been suggested in the etiology of BMS. However, it is not clear whether the psychopathologic distress of BMS patients is the cause of the oral symptoms or those factors are the result of the chronic pain experienced by these patients. It was demonstrated that BMS patients differ from the general population as to their psychopathologic profile.¹³

Van der Ploeg et al.⁴, by a psychological questionnaire, obtained scores above normal for anxiety, depression, somatic reactions to stress in 184 patients with BMS and emphasized the psychogenic or psychological factors in etiology. On the other hand, the authors pointed out that these high scores may be obtained secondary to oral problems, not necessarily causing this syndrome primarily.

Lamb et al.¹⁴ found the psychological factors to be present more than half of BMS patients and the incidence of these factors being higher in type 2 patients rather than in type 1 patients. No relation between psychological status and age, sex, cancer fobia, social status and current denture use could be found. Treatment was successful in 60% of cases.

Zagarelli⁶ reported depression to be frequent cause followed by geographic tongue and moniliasis among 57 patients with BMS and more than one cause has been determined in some of the patients.

In clinical practice multiple causes rather than one cause in the etiology of BMS should be taken into consideration to lead proper treatment and relief of the symptoms. The proper treatment is usually achieved by elimination of possible causes.

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