

CLINICAL AND PSYCHIATRIC MANIFESTATIONS OF BURNING MOUTH SYNDROME

KLINIČKE I PSIHIJATRIJSKE MANIFESTACIJE SINDROMA PEČENJA USTA

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Abstract: According to International Headache Society (IHS) classification, burning mouth syndrome (BMS) is intra oral burning sensation without obvious medical and dental cause. IHS diagnostic criteria of the disorder include the presence of burning oral sensation during the most period of day without obvious changes of oral mucosa. Local and systemic causes have to be excluded by appropriate diagnostic procedures. Subjective feeling of dry mouth, paraesthesia and taste changes could be associated symptoms. Estimated prevalence of BMS in general population varies between 1 and 15% and the disorder is seven times more common in females.

This condition is probably of multifactorial origin, often idiopathic, and its etiology and pathogenesis has not been elucidated completely yet. More recently, increasing attention has been given to the altered perception of sensory functions as well as to the changes in the psychological profile of many BMS patients. As a result, both disturbances should be included in the clinical spectrum of BMS.

BMS represents a disorder with a poor prognosis in terms of quality of life and treatment possibilities. As a result, BMS subjects continue to be high consumers of healthcare resources. As in the other chronic pain conditions it has been reported that depression and anxiety are strongly associated with BMS and that they are significantly more frequent in BMS patients than in non-BMS subjects.

Key words: burning mouth syndrome, classification, clinical presentation, psychiatric manifestations

Sažetak: Prema međunarodnoj klasifikaciji glavobolja Internacionalnog društva za glavobolje (International Headache Society-IHS), sindrom pečenja usta (burning mouth syndrome-BMS) predstavlja osećaj pečenja u usnoj duplji, a bez očiglednog medicinskog ili stomatološkog uzroka. IHS dijagnostički kriterijumi za ovaj poremećaj uključuju prisustvo senzacije pečenja u usnoj duplji za vreme najvećeg perioda dana, bez vidljivih promena sluznice usne duplje. Lokalni i sistemski uzroci moraju biti isključeni primenom odgovarajućih dijagnostičkih procedura. Subjektivni osećaj suvoće usta, parestezija i izmena osećaja ukusa mogu biti udruženi simptomi.

Procenjena prevalenca BMS u opštoj populaciji varira između 1 i 15%, a poremećaj je sedam puta češći kod žena. Ovaj poremećaj je verovatno multifaktorijsnog porekla, često idiopatski, a njegova etiologija i patogeneza nisu u potpunosti razjašnjeni. U skorašnjim studijama, posebno se ističe značaj izmenjene percepcije senzornih funkcija i sistema kao i specifična promena psihološkog profila mnogih pacijenata sa

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BMS. Zbog toga se preporučuje da oba navedena poremećaja budu uključena u klinički raznovrstan spektar BMS. BMS ima lošu prognozu u pogledu kvaliteta života obolelih i terapijskih mogućnosti, a kao rezultat ovaj poremećaj predstavlja veliki socio-ekonomski i medicinski problem. Kao i kod drugih hroničnih bolnih stanja, postoji značajna udruženost BMS sa depresijom i anksioznošću. Ovi ali i drugi psihijatrijski i psihološki poremećaji su značajno češći kod pacijenata sa BMS u odnosu na zdravu populaciju.

Ključne reči: sindrom pečenja usta, klasifikacija, klinička prezentacija, psihijatrijske manifestacije

INTRODUCTION

According to the International Classification of Headache Disorders (IHC), burning mouth syndrome (BMS) is an intraoral burning sensation for which no medical or dental cause can be found (1). BMS, coded 13.18.5, is classified in IHC as a separate group with other cranial neuralgias and central causes of facial pain (1).

Diagnostic criteria include: (1)

- A. Pain in the mouth present daily and persisting for most of the day
- B. Oral mucosa is of normal appearance
- C. Local and systemic diseases have been excluded

* Pain may be confined to the tongue (**glossodynia**).

* Subjective dryness of the mouth, paraesthesia and altered taste may be associated symptoms.

Epidemiological studies have estimated BMS to be prevalent in 1–15% of the general population and it is a disorder which is seven times more common in females than males (2). Despite the large number of clinical and epidemiological studies, pathogenesis and aetiology of BMS remains unclear (3). Recent clinical, electrophysiological (4, 5) and histological (6) studies suggest that primary neuropathic dysfunction might be involved in the pathogenesis of BMS. On the other hand, a central mechanism with the involvement of dopamine receptors in the basal ganglia was suggested to play a role in the pathogenesis of the disease (7). Recently, we published the data which showed based on decreased calcitonin gene-related peptide levels in saliva of BMS patients that trigeminal nerve

degeneration may be the underlying cause of BMS (8).

Psychological factors are, however, frequently associated with BMS. Previous studies have shown diagnoses such as depression, generalized anxiety, hypochondriasis, and cancer phobia are often represented in patients with BMS (9).

It has been reported that depression and anxiety are strongly associated with BMS and that they are more frequent in BMS patients than in non-BMS subjects (10-13). In contrast to this correlation, some authors assert that higher levels of anxiety and depression can be the consequence of chronic pain of BMS (14).

This chronic pain syndrome mainly affects middle-aged women with hormonal changes or psychological disorders. BMS is probably of multifactorial origin, often idiopathic, and its etiopathogenesis remains largely obscure. BMS represents a disorder with a very poor prognosis in terms of quality of life, and the patient's lifestyle may worsen when psychological dysfunctions occur (15). Despite the fact that a voluminous amount has been published in this field, a universally accepted definition of this syndrome is still lacking. Various synonyms—such as stomatopyrosis, glossopyrosis, stomatodynia, glossodynia, sore mouth, sore tongue, and oral dysesthesia—have been adopted to emphasize the quality and/or the location of pain in the oral cavity. In this syndrome, however, pain represents the main symptom within a variety of chronic oral complaints. Thus, BMS appears to be the most appropriate terminology. Despite this large body of evidence, some issues on BMS are still debated, 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 arise from numerous different local/systemic pathologies, some of which can be clearly identified and managed, and others that elude diagnosis and, thus, hamper management (15). Several authors (16, 17) have focused their efforts on establishing whether BMS should be considered as a distinct “syndrome”, or if it mostly represents a “symptom disruption” for a large number of conditions arising from a wide array of pathologies (hormonal changes, nutritional deficiency, etc.). They have proposed the lack of local/systemic factors as inclusion criteria for a “true BMS”, and assumed that all the other types of “unrelenting oral burning” correlated to different pathologies may be one symptom within the clinical spectrum of such a group of pathologies. Burning pain without mucosal or skin lesions, however, represents the typical symptom of chronic neuropathic pain conditions resulting from nerve damage, and in recent years a neuropathic basis of BMS has been better identified through the use of more sensitive diagnostic techniques (18). This new evidence, in increasingly larger groups of BMS subjects, suggests a common background of neuropathy in the pathogenesis of this syndrome. As a result, it seems more appropriate to recognize two clinical forms of BMS: “*Primary BMS*”, or essential/idiopathic BMS for which organic local/systemic causes cannot be identified; and “*Secondary BMS*”, resulting from local/systemic pathological conditions and thus potentially sensitive to etiology-directed therapy. According to these criteria, “idiopathic” BMS as well as the “secondary” form may represent two distinctive subgroups of the same “pathological entity”(15-18).

Classification of the BMS types and subtypes

According to potential associated etiologies, BMS may be divided into *primary* and *secondary* types. *Primary* type includes idiopathic, non-neuropathic BMS. *Burning mouth sensations* (formerly, *secondary BMS*) are associated with established organic/therapeutic-related etiologies (e.g., oral cavity disorders, including oral local neuropathy, systemic disorders, nutritional deficiencies, drug-induced, neurological and psychiatric abnormalities) (19).

Burning mouth sensations are symptoms of these alterations and according to available literature, do not represent a distinct type of BMS. The latter starts with a differential diagnosis based on the exclusion of both other orofacial chronic pain conditions and painful oral diseases exhibiting mucosal lesions. The cooccurrence of overlapping/overwhelming oral mucosal pathologies, such as infections, may cause difficulties in the diagnosis and it is classified as “*complicated BMS*” (19).

Burning mouth syndrome has been further divided into three subtypes based on the daily variation of the symptoms (19): *Type I BMS* refers to complaints of burning sensation every day, that is not present in the morning on awakening but develops later during the day, being maximal in the evenings. *Type 2 BMS* (the most frequent subtype; relative frequency: 55%) characterized by constant burning pain all day, every day. The patients with Type 2 BMS tend to be most resistant to therapy. In *type 3 BMS* (relative frequency about 10%) pain is present intermittently on some days with pain-free intervals and affects unusual sites, such as buccal mucosa or the throat. Nonpsychiatric factors have been linked with Type 1 BMS, psychiatric factors, especially chronic anxiety with Type 2, and food additives or flavoring allergies with Type 3 BMS (19).

CLINICAL PRESENTATION

BMS is dominantly characterized by burning and/or painful sensations of the mouth with no mucosal lesions or any other clinical signs. It can occur at any site within or surrounding the oral cavity. The most frequently affected site is the tongue, in particular the tip and anterior two thirds, followed by the lower lip and hard palate (15, 19). The pain in BMS is experienced as quantitatively similar to, but qualitatively different from toothache pain. BMS can be considered as a chronic pain syndrome with symptoms usually lasting for several months to several years (15). Oral burning is most prevalent in postmenopausal women; figures of up to 40% have been presented. The prevalence of prolonged oral burning of BMS patients is about 8% with less than 1% suffering from continuous burning symptoms (15, 18). The term

BMS clinically describes a variety of chronic oral symptoms (Table 1) that often increase in intensity at the end of each day, and that seldom interfere with sleep (15). Accordingly, two specific clinical features define this syndrome: (1) a “symptomatic triad”, which includes unremitting oral mucosal pain, dysgeusia, and xerostomia; and (2) “no signs” of lesion(s) or other detectable change(s) in the oral mucosa, even in the painful area(s) (15). In the remaining cases, “oligosymptomatic” (pain and dysgeusia or pain and xerostomia) or “monosymptomatic” (pain only) forms of BMS are the most frequent presentations.

More recently, increasing attention has been given to the altered perception of sensory/chemosensory functions as well as to the changes in the psychological profile of many BMS patients. As a result, both disturbances should be included in the clinical spectrum of BMS (18). Oral pain represents the cardinal symptom of BMS. The type of

pain experienced by BMS patients is a prolonged “burning” sensation of the oral mucosa. However, scalding, tingling, or numb feelings of the oral mucosa have also been reported (15-19). The onset of oral pain is generally spontaneous and without any recognizable precipitating factors. Some individuals with BMS relate the onset of pain to previous events such as dental procedures (particularly dental extractions, dental prostheses) or other disease (15).

PSYCHIATRIC MANIFESTATIONS

Personality and mood changes (especially anxiety and depression) have been consistently demonstrated in patients with burning mouth syndrome and have been used to suggest that the disorder is a psychogenic problem. However, psychologic dysfunction is common in patients with chronic pain and may be the result of the pain rather than its cause.

Table 1. Main symptoms in patients with BMS.

Symptom	Type(s) of Complaint(s)
Oral mucosal pain* (main complaint)	Burning Scalding Tingling Numb feeling
Dysgeusia*	Altered taste perception
Xerostomia*	Dry mouth
Others	Thirst Headache TMJ pain Tenderness/pain in masticatory muscles, neck, shoulder, and suprahyoid muscles

* BMS symptomatic triad; TMJ = temporomandibular joint.

Concerning the association between BMS and psychiatric diseases, an extensive literature, varying from anecdotal reports, psychoanalytic opinions, and controlled comparisons to large-scale surveys, attests to the importance that is generally assigned to the relationship between psychiatric disorders and BMS. Despite different methodological approaches and sometimes small study groups, all of the studies reported a high prevalence of psychiatric symptoms or of mental disorders: About 50% of the cases of BMS are comorbid with other current psychiatric disorders (20). There has been particular emphasis on depression

(21), chronic anxiety (22), cancerophobia, and hypochondriasis (20)

The association of psychiatric disorders, fundamentally depression and anxiety, with BMS has often been reported in the literature. As a result, some authors have suggested a psychosocial cause for BMS (20, 23).

Although there is widespread agreement over the participation of psychosocial aspects in the cause of this disorder, current thought is that multiple factors are involved (20-23).

However, when reviewing the literature, it is interesting to note that anxiety and depression are the two psychopathologic factors in BMS that have almost exclusively been evaluated by questionnaires. The situation of these patients in other psychopathologic contexts is somewhat uncertain, although recently a number of studies have addressed the subject (20).

Van de Ploeg et al reported on the high frequency of somatic reactions to stress observed in a series of 154 patients with BMS. The preoccupation of these patients with their physical condition and bodily functions constitutes a further feature of BMS with hypochondriac reactions (24).

In the study of Lamey and Lamb (25) the majority of the 75 patients studied were female, which agrees with previous studies relating to burning mouth syndrome. Analysis of the Hospital Anxiety and Depression (HAD) scale completed by the patients in this study showed that 39% had clinically significant anxiety, 23% had anxiety scores of borderline significance and 38% were not anxious.

The depression subscale presented very different score ranges, with 13% indicated as having depression, and 68% having scores that corresponded to a non-depressive state. 19% had results of borderline significance (25).

From the results of this study it could be concluded that more than one third of the BMS patients, the majority of whom were female, had anxiety. This suggested that their somatic symptoms of burning mouth were at least partly the psychological result of restlessness, tension, and an inherent inability to relax (25). Only one in seven patients in this cohort had depression, suggesting that depression does not seem to play an important role in the etiology of burning mouth syndrome as previous publications suggested (25).

The findings in the study of Rojo et al. (22) suggested that from the psychiatric and psychopathologic viewpoint two groups of patients with BMS may be distinguished: those with associated psychiatric symptoms and those without these symptoms. No psychopathologic phenomenon was de-

tected that was common to all patients with BMS and that differentiated them from controls free of oral symptoms. The association of BMS and psychological changes might be a mere coincidence, although the high percentage of persons with BMS who have these alterations (about 50%) compared with the general population would seem to disprove this.

BMS patients may be particularly vulnerable to psychiatric problems, primarily depression and anxiety. Such comorbidity could be mediated by many factors, including those of psychological nature, particularly in persons suffering chronic pain condition or other psychological triggering factors (20-22).

Consideration should also be given to other possible explanations for the association between BMS and depression or anxiety disorders, including the possibility that both aspects might be the product of a common factor.

In this sense, Wardrop et al. (26) for the first time more than 20 years ago suggested that the observed higher incidence of these alterations among postmenopausal women points to an endocrine disorder as the underlying cause of both the oral and psychopathologic symptoms.

The most commonly observed association is between BMS and depressive and anxiety symptoms. The items on the anxiety and depression scales tend to exhibit marked correlations to the point of rendering it empirically impossible to develop independent subscales of these two psychopathologic entities (21, 22).

TREATMENT

The treatment of BMS is usually directed at its symptoms and is the same as the medical management of other neuropathic pain conditions (27). Studies generally support the use of low dosages of clonazepam (28), chlordiazepoxide (29) and tricyclic antidepressants (30).

Evidence also supports the utility of a low dosage of gabapentin (31).

Studies have not shown any benefit from treatment with selective serotonin reuptake inhibitors or other serotonergic antidepressants (27).

Although benzodiazepines might exert their effect on oral burning by acting as a sedative-hypnotic, this possibility appears to be unlikely because the maximal effect of clonazepam is usually observed at lower dosages (27).

The beneficial effects of tricyclic antidepressants in decreasing chronic pain indicate that, in low dosages, these agents may act as analgesics (27, 30). Topical capsaicin has been used as a desensitizing agent in patients with burning mouth syndrome. However, capsaicin may not be palatable or useful in many patients (32).

CONCLUSION

BMS is the disorder with high prevalence in general population and is much more common in females and older age. Although many factors were described to be associated with BMS, etiopathogenesis has not been completely understood yet. Recent studies suggested that either primary neuropathic dysfunction or central mechanism with the involvement of dopamine receptors in the basal ganglia were suggested to play a role in the pathogenesis of the disease. BMS represents a disorder with a very poor prognosis in terms of quality of life, and the patient's lifestyle worsens when psychological dysfunctions occur.

The hallmark of this pain condition is a triad of intraoral burning and/or painful sensation, dysgeusia and xerostomia which is very frequently associated with personality and mood changes such as anxiety and depression.

Besides the primary BMS, there are plenty of medical and dental disorders, as well as drugs that could cause secondary BMS. These symptomatic causes have to be excluded particularly in older patients.

Treatment of BMS is challenging. It is usually directed at its symptoms and is the same as the medical management of other neuropathic pain conditions

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