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Burning Mouth Syndrome - A review

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ABSTRACT
Burning mouth syndrome (BMS) is defined as a chronic pain condition characterized by a burning sensation in the clinically healthy oral mucosa. Its aetiopathogenesis remains unclear and is probably of multifactorial origin, with increasing evidence that BMS may be a neuropathic disorder. It is difficult to diagnose BMS because there is a discrepancy between the severity, extensive objective pain felt by the patient and the absence of any clinical changes of the oral mucosa.
KEYWORDS: burning mouth syndrome, anxiety, depression, diagnosis, treatment.

INTRODUCTION

Burning mouth syndrome is an idiopathic burning discomfort or pain affecting people with clinically normal oral mucosa, in whom a medical or dental cause has been excluded. It is a debilitating condition for the patients and is known for its persistent moderate to severe intensity of burning pain.[1]Synonyms used to describe burning mouth syndrome include Glossodynia, Glossopyrosis, Stomatodynia, Stomatopyrosis, Sore tongue, and oral Dysaesthesia.[2,3] Burning sensation in the oral mucosa syndrome was most often cited by patients but BMS might manifest as an itching sensation, numbness, taste alteration (the BMS patients reported ageusia for bitter/acid/spicy substances or metallic taste), dry mouth, burning pain, oral stinging, etc. These symptoms were almost always located in the tongue or oral mucous membranes, 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 being most frequently involved.[4]

Advances in the research of BMS aetiopathogenesis have led to two clinical forms, which are ‘Primary BMS’ and ‘Secondary BMS’. Primary BMS (BMS) is described as essential idiopathic BMS for which no organic local or systemic causes can be identified. Secondary BMS (oral burning symptoms) is a result from local or systemic pathological conditions or factors such as nutritional deficiencies, dental-related trauma, hormonal (menopause), endocrine (diabetes mellitus) changes, medications related and allergy or hypersensitivity reactions.[5]

The main symptoms were present in patients with BMS[6]:

a) The presence of the triad consisted of:

1. Pain in the oral mucosa: burning, scalding, tingling, numb feeling, swelling, stinging;

2. Altered taste (dysgeusia): persistence of a certain taste/ altered taste perception;

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3. Xerostomia, with dry mouth.

b) Other associated symptoms: thirst, headache, pain in the temporomandibular joint (TMJ) tenderness/ pain in the masticatory and neck, shoulder, and suprahyoid muscles.

EPIDEMIOLOGY

BMS predominantly affects middle-aged and older women, which are in the peri and post-menopausal stage and the female to male ratio is 7:1.The prevalence of BMS increased remarkably at the age after 60.[6,7,8]

Typically, BMS symptoms may persist for months or years without a period of remission. An earlier study has reported that 50% of BMS patients showed partial or complete remission with or without any treatment, and 20% achieved complete spontaneous remission within 6 to 7 years of onset.[9]

ETIOPATHOGENESIS

The etiopathogenesis is still debated but it is probably multifactorial in which peripheral small fiber neuropathy that involve A-delta and C-unmyelinated fibers of the trigeminal nerve, dysfunction in the brain network and psychological factors, play a role in central sensitization of the pain.[3]Recent studies on the pathophysiology of BMS have shown a decrease in peripheral nerve number and function with an overexpression of pronociceptive ion channels (transient receptor potential vanilloid 1; TRPV1) and purinergic receptors (P2 × 3). Moreover, functional Magnetic Resonance Imaging (fMRI) studies have showed several alterations in the structure and in the connections of pain matrix of the brain.[10]

Indeed, significant differences have been found in the activation patterns of the brain in the BMS patients in comparison with the control group mainly in the anterior cingulate gyrus, bilateral thalamus, left lingual gyrus, bilateral precuneus, right middle frontal gyrus, right pre-central gyrus, and right inferior semilunar lobule of the cerebellum,[11] a decrease in gray matter volume in medial prefrontal cortex with an altered functional connectivity between the bilateral medial prefrontal cortex and amygdala and an hypoactive thalamus.[12]

CLINICAL SYMPTOMS

Along with the burning pain, BMS patients complain of accompanying symptoms such as xerostomia, alteration in taste, poor sleep quality, health issues, and psychological disorders. The onset of BMS can be spontaneous or triggered by a precipitating event such as dental procedures, medications, foods, and stressful life events.[13,14]

There have been reports that spicy or hot food and beverages, psychosocial stress and fatigue, and speech, increased pain intensity.[15] Patients have claimed that by chewing gums, sucking sweets or lozenges, drinking cold beverages, and relaxation and recreation activities were

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able to reduce the pain. The pain is usually at its lowest in the morning upon awake, and once aggravated, it continuously reaching the maximum intensity by late evening. However, the pain seldom interferes with sleep.[16]

CLASSIFICATION

The intensity and duration of symptoms can vary from patient to patient, this observation making some authors propose a classification of BMS in three clinical subtypes[17]

Type	Relative frequency	Symptoms
1	35%	Present every day, but not at the wake. Occurence during the day and deepening in the evening, when intensity was the highest
2	55%	Present every day from the awakening.
3	10%	Present only a few days and located in unusual regions (neck).

Scala et al.[6] (2003)proposed a set of positive diagnostic criteria for the identification of BMS difference between the fundamental criteria and additional criteria

Fundamental criteria

Daily deep burning sensation of oral mucosa (bilateral)

Pain of at least 4-6 months

Constant intensity or increasing intensity during the day

Characteristic symptoms are not getting worse/ sometimes there may be an improvement over the ingestion of food and liquid

No interference with sleep

Additional criteria

The occurrence of other oral symptoms (dysgeusia +/- xerostomia)

Sensory changes/ chemosensory alterations

Psychopathological alterations/ mood changes that translate the patient's personality disorder

TREATMENT AND MEDICAL MANAGEMENT

Since the treatment is generally unsatisfactory and BMS is a chronic pain syndrome, it is necessary that patients are properly informed regarding the expectations that need to be realistic, appropriate.

The first step in the treatment of BMS was subject to the differentiation of primary from secondary form because in the presence of the latter, therapy was directed to treating the causal disease. This etiologically directed therapy usually produces a good response.[5] Thus,

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in the presence of allergic contact reactions, the simple removal of the suspected allergen (e.g. the material/ dental alloy) determined the remission of the symptoms of BMS.

In the case of idiopathic BMS, the therapeutic principles coverd a triple purpose: improvement of symptoms, correction of biological and/ or morphological disturbances and the therapy of psychoemotional changes.

Therapeutic strategies included benzodiazepines (clonazepam), tricyclic antidepressants (amitriptyline), anticonvulsants (gabapentin), selective inhibitors of serotonin receptors (paroxetine and sertraline), capsaicin topical/ systemic, alpha-lipoic acid (neurological antioxidant), benzydamine hydrochloride at 0,15% or 3%, hormone replacement therapy, vitamins supplementation and/ or zinc, iron.[18]

However, the current level of knowledge about the disease does not have any certainly effective treatment. The treatment conduct of BMS included the counseling process, possibly applied by a physician who demonstrated empathy for the patient [6]. The purpose of counseling was to provide patient information and explanations about the sickness, about benign lesion notions of correlation with the field (age and sex). These patients should always know that their disease is most often related to stress and if they let it go, at least in part, the state of pain may reduce.[19,20]

CONCLUSION

BMS is a diagnosis by exclusion, as yet a systematic and standardised BMS diagnosis protocol is yet to be established. In distinguishing BMS from ‘oral burning symptoms’, multiple strategies are required. Research must focus on genetic, environmental, and familial factors to better understand the susceptibility of individuals in developing BMS and preventing it where possible.

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