Burning Mouth Syndrome and Secondary Oral Burning

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KEYWORDS

• Burning mouth syndrome • Glossodynia • Stomatopyrosis
• Neuropathy • Taste change • Xerostomia

Burning mouth syndrome (BMS) is an idiopathic condition causing a deep burning pain of the oral mucosa, despite an absence of identifiable dental or medical pathology, lasting at least 4 to 6 months.[1–7] BMS should be distinguished from secondary oral burning reported by patients with a variety of documented oral mucosal and medical conditions. BMS was first described by Fox[8] in 1935 and has gone by many aliases, including glossodynia, glossopyrosis, oral dysesthesia, sore tongue, stomatodynia, and stomatopyrosis.[9] The International Classification of Diseases (ICD-9) uses the term glossodynia with the descriptors glossopyrosis or painful tongue for code 529.6.[10] In this article BMS is used to refer to idiopathic oral burning not associated with oral mucosal or systemic conditions.

BMS is found in a 7:1 female to male ratio and approximately 90% of sufferers are perimenopausal women.[5] In one study of 130 patients, a burning sensation was noted in the tongue in 72%, in the hard palate in 25%, in the lips in 24%, and other sites such as buccal and labial mucosa, soft palate, and floor of mouth in 36%. Whereas some patients had burning confined to the tongue only, others had other or multiple sites of involvement.[11] Another study showed similar prevalence of tongue involvement, though with palate and lip involvement in only 5.7% of respondents.[12] In many cases symptomatic complaints are bilaterally distributed. Many patients also report

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associated symptoms of oral dryness and alteration in taste, such as a metallic bitter sensation, as well as worsening with stress, excessive speaking, or hot foods, and improvement with cold food, work, and relaxation.[5,7,13–15] Taste change and oral dryness may be associated with etiology in some cases. In general, BMS does not interfere with sleep, but may be present on waking or increase later in the day.[16] In the patients who report xerostomia, measurement of saliva may or may not confirm hyposalivation, suggesting that in some cases the sensation reported of dryness may be related to altered sensation and not a change in saliva.[14] Because of the lack of findings on physical examination, BMS may be a source of frustration for the caregiver, the patient, and significant others related to the patient.[1] This article surveys the current state of knowledge regarding BMS with the aim of assisting the practitioner in forming a strategy for diagnosis and management of this condition.

EPIDEMIOLOGY

Several studies have attempted to assess the prevalence of BMS in various populations. The largest United States study surveyed more than 42,000 households for various types of orofacial pain, and estimated a BMS prevalence of 0.7%.[17] This method, of course, precluded examination to rule out other pathology and oral burning. A Swedish study in 1999 surveying 669 men and 758 women found a prevalence of 1.6% among men and 5.5% among women, with increasing prevalence with age up to more than 12% among the oldest women.[12] Patients in this study were brought in for examination if they reported burning mouth symptoms. In that study no BMS was found in men younger than 40 or in women younger than 30 years. Other studies have also confirmed that BMS is predominant in women,[6,18,19] especially in those who are perimenopausal.[20]

ETIOLOGY

Although there is no confirmed cause of BMS, the general consensus, including that of the International Headache Society, is that the condition represents a neuropathy resulting in chronic pain.[7,21–23] Evidence in favor of this is seen both on histopathology and in neurologic testing. Current areas of debate regarding the etiology of BMS include its status as primarily a central or peripheral neuropathic phenomenon, and the role of dysguesia as a primary or secondary event. Also, the nature of associations between BMS, menopause, and psychiatric disease remains unclear. Finally, it is important to understand the wide variety of other conditions causing oral burning symptoms, ensuring that patients diagnosed with BMS are not in fact experiencing burning secondary to a potentially treatable mucosal or systemic condition.

Evidence for BMS as a Peripheral Neuropathy

BMS is associated with unique histopathologic findings and alterations of levels of salivary neuropeptides. Lauria and colleagues[24] evaluated the innervation of the epithelium of the anterolateral tongue in 12 patients with BMS present for at least 6 months using 3-mm punch biopsies of the region. In addition, samples were obtained from 9 normal patients as a control. Immunohistochemical and confocal microscopy colocalization studies were performed with cytoplasmatic, cytoskeletal, Schwann cell, and myelin markers for pathologic changes. Of note, BMS patients showed a significantly lower density of epithelial nerve fibers than controls, with a trend toward correlation with the duration of symptoms. There was no correlation between density of fibers and severity of symptoms. Epithelial and subpapillary nerve fibers also showed diffuse morphologic changes reflecting axonal degeneration, demonstrating