Burning Mouth Syndrome: A Perspective

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ABSTRACT:
Burning mouth syndrome (BMS) refers to chronic orofacial pain, unaccompanied by mucosal lesions or other evident clinical signs. It is observed principally in middle-aged patients and postmenopausal women. Various local, systemic and psychological factors are associated with BMS, but its aetiology is not fully understood. Although effective therapies have been identified in concrete cases, a treatment modality offering efficacy in most cases of BMS remains to be established. This article discusses the pathogenesis, differentials and management of burning mouth syndrome.

Key words: Burning Mouth Syndrome, pathogenesis, management.

INTRODUCTION
Burning sensation of the oral mucosa is enigmatic due to its unknown etiology and very few evidence based remedies. The term burning mouth syndrome is synonymous with stomatodynia, stomatopyrosis, glossopyrosis, glossodynia, sore mouth, sore tongue and oral dysesthesia. The Headache Classification Subcommittee of the International Headache Society defines this condition as “an intraoral burning sensation for which no medical or dental cause can be found”.¹ The diagnosis is therefore one of exclusion and thus often not particularly satisfying to patient or doctor alike.
Pathogenesis

The etiology and pathogenesis of burning mouth syndrome is incognita. There has been a continuous argument whether it is primarily a physiological or a somatoform disorder. At present, most accept that the etiology is multifactorial with mounting evidence for a physiological basis. Axonal degenerative changes have been demonstrated in glossal terminal nerve fibres and sensory changes have been shown to be present in burning mouth patients, particularly perception of heat, cold, taste and noxious sensory stimuli. Abnormalities in trigeminal somatosensory evoked potentials have been demonstrated as well. The use of recent imaging modalities has suggested central nervous system changes.

A recent enticing hypothesis proposed that burning mouth syndrome is associated with an alteration of gonadal, adrenal and neuroactive steroid levels. Woda et al. suggested that chronic anxiety or stress results in a dysregulation of adrenal steroids, a reduction in adrenal steroids will, in turn, lead to an altered production of neuroactive steroids in skin, mucosa and the nervous system.

Clinical Features

Burning sensation of oral mucosa of tongue hard palate and lips is most commonly encountered. Numerous cases have been reported in which the onset is usually spontaneous but at times may be precipitated by any trauma or dental treatment. There can be an associated xerostomia (or the sensation thereof), dysesthesia and/or dygeusia. A poor quality of life, depression, anxiety and/or somatization are also often associated with this disorder. It is considerably more common in women than men (33:1) and most often perimenopausal or postmenopausal women.

Differential diagnosis

The dilemma lies in the diagnosis of burning mouth syndrome and involves exclusion of a detectable organic basis for the complaint. Therefore a number of local conditions must be considered and ruled out first. The first and most common cause is local irritation. A rough prosthesis or dental restoration will irritate the tongue and cheeks. Contact hypersensitivity to dental materials has been suggested as one possible mechanism although this has not been confirmed with patch testing. Tongue or cheek biting habits will result in localized discomfort that can, on occasion, present as a burning sensation as can smoking.

Another common finding is oral candidiasis which may be as a result of a primary infection but most often is secondary to either local irritation or systemic predisposition. The problem lies when oral candidiasis presents itself with little or no change than when it often presents as a white, red or mixed red/white lesion. A direct smear is the ideal way to make this diagnosis and if candidiasis is suspected, a course of antifungal therapy, such as mycostatin, should be tried first.

Various mucocutaneous diseases/disorders also need to be considered which include lichen planus, lichenoid reactions, benign mucous membrane pemphigoid, pemphigus and migratory glossitis. A visual clinical examination, possibly followed by biopsy will confirm or exclude these diagnoses. Similarly, viral diseases such as herpes simplex or zoster can result in symptoms that the patient interprets as a burning sensation. Although these will be clinically apparent when the lesions erupt, there can be a prodromal burning sensation. Although the pain of post herpetic neuralgia is usually much more severe, occasionally it can also present as a burning sensation on the oral mucosa.

Nutritional, metabolic or endocrine disorders may also result in a burning mouth. This includes diabetes, hypothyroidism, iron or zinc deficiency and vitamin B complex deficiency, particularly vitamin B12 (cobalamin). Vitamin B12 deficiency is a common cause of macrocytic anemia (pernicious
anemia). Serum vitamin B12 levels will only identify 50% of patients with subclinical disease and therefore measurement of serum methylmalonic acid and homocysteine levels are recommended as a more sensitive method of screening for vitamin B12 deficiency.\textsuperscript{14}

Finally, patients with true xerostomia will complain of a burning mouth. This can be as a component of Sj\textsuperscript{gren’s} syndrome, a result of radiation therapy to the head and neck, a side effect of medication or just an age related decrease in salivary production, particularly the serous component.

Thus it behooves the clinician to obtain a clear and detailed illness and medical/dental history as well as perform a thorough oral clinical examination including any laboratory studies indicated. A neurological examination can be useful although, unless there are marked deficiencies, the lack of baseline data can present a problem. If other causes of this symptom are ruled out and/or the patient fails to respond to a normal course of treatment a diagnosis of BMS is reasonable.

Management

The first thing to be done is to eliminate all potential local/systemic factors including smoking, medication (if feasible) and treat possible underlying conditions. Reassurance of the patient is equally important. Antidepressants have long been considered the mainstay for the management of neuropathic pain disorders. An excellent evidence based review of the treatment modalities for burning mouth syndrome was reported by the Cochrane Collaboration.\textsuperscript{15} There is anecdotal evidence of some effectiveness for both tricyclic amines and selective serotonin reuptake inhibitors but this is poorly supported in controlled experiments. As well, the antidepressants have significant side effects such as somulence, dizziness, cardiac concerns and, interestingly enough, xerostomia. Both anecdotal and experimental reports have demonstrated symptomatic reduction with cognitive behavioral therapy (CBT) with the added benefit of no adverse effects.\textsuperscript{16} Further improvement has been noted when cognitive behavioral therapy is combined with pharmacological management. Alpha-lipoic acid has been shown to result in effective symptom reduction, particularly when combined with cognitive behavioral therapy.\textsuperscript{17, 18}

Anticonvulsants have become more popular lately for treatment of neuropathic pain disorders as well and hence have been tried for burning mouth syndrome. Gabapentin has demonstrated mixed results and studies are ongoing with pregabalin.\textsuperscript{19} Clonazepam reports and studies exhibit some promise.\textsuperscript{20} Other modalities have also been considered such as systemic capsaicin, and it has shown to reduce pain, however, there is a significant incidence of adverse effects, particularly gastric pain.\textsuperscript{21} Similarly topical steroid hormones and anti-inflammatory rinses have been tried with little evidence of effectiveness in reducing or eliminating the symptoms of burning mouth syndrome, particularly when compared to placebo or spontaneous remission rates.\textsuperscript{22, 23}

Conclusion

The review of the available evidence suggests that burning mouth syndrome is a multifactorial disorder with a physiological basis. Psychological factors are likely often operative but unlikely to be the primary cause. Other oral diseases/disorders must be ruled out first to come to a definite diagnosis of burning mouth syndrome. Patient reassurance is paramount and should be combined with therapeutic approaches which include combination of cognitive behavioural therapy, alpha-lipoic acid and/or clonazepam. Concurrent treatment of any significant psychiatric disorder should also be considered, if present.
REFERENCES


