



# The practical evaluation and management of patients with symptoms of a sore burning mouth

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**Abstract** There are many etiologic factors to consider in a patient who presents with symptoms or sensations of a sore burning mouth. These range from local causes within the oral cavity to underlying systemic disease, including psychologic factors. This paper aims to describe the different clinical presentations and to outline a systematic approach to the evaluation and management of such patients. The clinician will be directed to the relevant diagnosis by following the traditional medical model of taking a focused history, performing a thorough clinical examination, considering the potential differential diagnoses, and requesting pertinent and appropriate investigations. The various differential diagnoses and broad treatment options will also be discussed and outlined. This paper will not, however, discuss burning mouth syndrome (oral dysesthesia), which is a diagnosis of exclusion, whereby the oral mucosa is clinically normal and there are no identifiable medical or dental causes to account for the patient's symptoms.

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## Introduction

Patients who present with a sore burning mouth (stomatodynia, stomatopyrosis, oropyrosis, glossodynia, and glosso-pyrosis) can be diagnostically challenging because there are many potential causes to account for their symptoms. The symptoms can be distressing psychosocially and affect the quality of life of the individual with respect to speaking, eating, and drinking. It is important to consider all local and systemic causes that can potentially cause a burning sensation of the oral mucosa in determining a differential diagnosis.

A structured approach to history taking and clinical examination can guide the clinician in formulating a differential

diagnosis before requesting suitable investigations to help ascertain a definitive diagnosis.

## History

A thorough history is essential to help identify clues as to the cause of the patient's discomfort. Questions should be asked regarding symptomatology; medical history, including any medications taken; dental history; and social history.

## Symptoms

In terms of the specific symptoms (soreness/burning) of which the patient complains, a good way to capture this

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information is to use the well-known and commonly used pain mnemonic SOCRATES.

**Site:** It is important to identify what sites in the mouth are affected by the burning sensation because certain conditions can affect specific sites (eg, be solely related to the tongue). Is the area of mucosa affected by the burning sensation related to certain teeth or restorations?

**Onset:** Does the pain appear suddenly or is there a gradual onset?

**Character:** What is the character of the pain—burning, stinging, etc? Does the character change at all?

**Radiation:** Does the pain radiate to any other part of the mouth or face or is it localized to a specific site?

**Associations:** Can the patient relate any other symptoms to the burning sensation?

**Timing:** How long have the symptoms been present? Are they transient, intermittent, or persistent?

**Exacerbating/relieving factors:** Can the patient identify a precipitant/exacerbant? Has anything helped ease or stop symptoms? This can be helpful in terms of managing the burning sensation.

**Severity:** How does the patient rate the severity and intensity of the pain from 0 to 10 on, for example, a visual analogue scale? This can be helpful for follow-up consultations.

### Medical history, including medications

A full medical history, including a review of symptoms, should be recorded. In particular, symptoms of gastroesophageal reflux and history of immunosuppression, such as diabetes, HIV, or use of immunosuppressant medication, should be elicited. Record all medications the patient takes, including herbal medications and those purchased over the counter, and identify if there is a temporal relationship with the introduction of a new drug or a dose increase of one that may have been taken for a longer period. Ascertain if the patient has any known allergies or sensitivities.

### Dental/oral history

It is important to identify a number of things directly related to the oral cavity, such as if the patient complains of xerostomia (subjective feeling of a dry mouth) or has a parafunctional habit such as bruxism, teeth clenching, or tongue thrusting. If the patient notices that the burning sensation commenced after the placement of dental restorations or the fitting of dental appliances (denture prostheses or orthodontic), then this too should be noted. Ask if the patient has changed toothpastes or mouthwashes that would relate to the onset of their symptoms.

### Social history

Smoking, alcohol consumption, and chewing tobacco history should be routinely recorded because these habits increase the risk of mouth cancer. Many patients complain that certain foodstuffs and drinks that they consume exacerbate their burning symptoms. Most notably, spicy, salty, and acidic foods are often cited, including vinegars and carbonated drinks.

### Examination

Examination involves an extraoral followed by an intraoral inspection. Examining the mouth involves looking at not only the soft tissues but also the hard tissues (teeth and bones) and any prostheses the patient may be wearing.

The examination should start with palpating the cervical lymph nodes to ascertain if there is any lymphadenopathy (increased size or change in texture), which may suggest infection or neoplasia.

An extraoral followed by an intraoral inspection of the oral cavity should then be performed systematically to ensure all soft tissues are examined. The lips should be examined for any mucosal changes such as ulceration or erosions or red or white patches. To aid with an intraoral inspection, a good light source should be used and tongue retraction (eg, with a wooden spatula or dental mirror) should be undertaken so that all sites are visualized. If the patient's tongue is particularly mobile and the patient has difficulty in keeping it still, it may be helpful to hold the tongue tip with a piece of cotton gauze to stabilize it. If the patient wears a removable prosthesis such as a denture or orthodontic appliance, request that he or she remove it to help facilitate inspection of the underlying soft tissue.

There is no prescriptive order as to how the intraoral soft tissues should be examined as long as the clinician inspects all areas: buccal mucosa, labial mucosa, gingivae, hard and soft palate, tongue, oropharynx, and floor of mouth. It should be recorded if there are any signs of inflammation, ulceration, atrophic patches, white or red patches (removable or not), or if the oral mucosa appears dry. If relevant and guided by the patient's history, an examination of the dentition should be undertaken, noting any sharp teeth or dental restorations and also the proximity of such restorations to any white or red patches, ulceration, or areas of soreness. Similarly, if the patient wears a fixed orthodontic appliance, note if the brackets on the teeth are traumatizing the oral mucosa. Again, if relevant, a comment could be made on the stability of any dentures (ie, if they are visibly loose and if the alveolar ridges on which they sit look atrophic) or removable orthodontic appliances. The palatal surface of the maxillary dentition should be visualized to see if there is any evidence of dental erosion from acid reflux or vomiting. If the medical doctor is not confident performing an oral examination, then liaison with a dentist would be advised to assist in both the clinical evaluation and management of such patients. If appropriate, a cranial nerve examination can be performed if there is any suspicion of a neurologic cause.

### Differential diagnosis

The various local and systemic causes implicated in causing a sore burning mouth are listed in [Table 1](#). These are also summarized in the Management section later.

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