



Acute oral ulcers

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Abstract Accurate diagnosis of acute oral ulcers can be challenging. Important historic details include the pattern of recurrence, anatomic areas of involvement within the mouth and elsewhere on the mucocutaneous surface, associated medical symptoms or comorbidities, and symptomology. Careful mucocutaneous examination is essential. When necessary, biopsy at an active site without ulceration is generally optimal. Depending on the clinical scenario, supplemental studies that may be useful include cultures; perilesional biopsy for direct immunofluorescence testing; and evaluation for infectious diseases, gluten sensitivity, inflammatory bowel disease, human immunodeficiency virus infection, connective tissue diseases, or hematinic deficiencies. Clinicians should maintain a broad differential diagnosis when evaluating patients with acute oral ulcers.

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Introduction

Acute oral ulcers are one of the most common conditions to afflict the oral mucosa.^{1–6} Acute oral ulcers are often named *aphthae*, a term which refers to an ulcer of a mucosal surface. The oral mucosa is susceptible to painful ulceration.

Acute oral ulcers may be single or multiple. They tend to form an oval shape due to tissue forces of the lamina propria. The periphery is often erythematous due to dilated blood vessels. The ulcer bed is covered by a yellowish fibromembranous slough in the process of wound healing. When the ulcer bed is covered, pain is diminished. Acute oral ulcers are short lived, lasting a few days to a few weeks. Ulcers persisting for longer durations are called chronic and are beyond the scope of this contribution.

Acute oral ulcers occur in many clinical settings and may represent a localized problem or evidence of an underlying

systemic disorder. Accurate diagnosis can be challenging, because different inflammatory reaction patterns that can appear distinctive on the skin may share clinical features, when in the oral cavity. Precise diagnosis requires not only obtaining a thorough clinical history but also performing a careful clinical examination and, in many cases, an oral biopsy. What follows represents a practical approach to the accurate diagnosis and evaluation of the patient with acute oral ulcers.

First, it is imperative that the clinician be aware of the broad spectrum of diseases that may present with acute oral ulcers. Trauma-induced ulcers and simple aphthosis represent the vast majority of cases, although oral ulcerations may also occur in the setting of infectious processes, inflammatory dermatoses,^{7–10} autoimmune processes,^{11–13} underlying remote malignancy (ie, paraneoplastic),^{12,13} and oral neoplasia.¹⁴

The first historic clue guiding the diagnosis of acute oral ulcerations is to consider whether the patient has experienced recurrent episodes (Table 1) or a single episode (Table 2).

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Table 1 Most common etiologies of recurrent oral ulcers

Trauma
Recurrent intraoral herpes simplex virus stomatitis
Recurrent aphthous stomatitis
Cyclic neutropenia
Other rare causes (drug, erythema multiforme, lupus erythematosus, and immunobullous disease)

Next, it is necessary to assess which areas of the mouth are affected, because this permits further refinement of the differential diagnosis (Table 3). In particular, it is important to develop a clear picture of whether the process involves primarily the masticatory mucosa or the nonmasticatory mucosa—the soft oral tissues of the soft palate; the buccal, sulcular, ventral, and lateral tongue; and the floor of the mouth mucosa. The clinical history should be thorough and should consider the presence or absence of involvement elsewhere on the mucocutaneous surfaces (including direct questioning about dysphagia, ocular or conjunctival involvement, and genital ulcerations, for example), along with precipitating, exacerbating, and relieving factors. Eliciting a history of painless oral ulcerations narrows the differential diagnosis substantially to syphilis (Figure 1), lupus erythematosus, traumatic ulceration from neuropathy, or carcinoma. Historic or current tobacco use should be explored with the patient.

Recurrent acute oral ulcers

The most common cause of recurrent acute oral ulcerations in the clinic is aphthosis.^{1–6} Given their frequency and the fact that their classification and clinical significance are occasionally misunderstood, aphthous ulcers are given special attention here. Please also refer to the contribution dedicated to this topic within this issue of *Clinics in Dermatology*.¹⁵

Aphthous ulcers (AU) typically present as shallow, round, painful ulcers with a gray to tan base and a surrounding inflammatory halo (Figure 2). These lesions usually affect the nonmasticatory (soft, unattached, nonkeratinizing) mucosa, a feature that aids in differentiation from recurrent intraoral herpes simplex virus (HSV) infection (Figure 3).

Table 2 Most common etiologies of the initial episode of acute oral ulcers which are not usually recurrent

Trauma
Drug reaction
Erythema multiforme
Infection
Immunobullous diseases
Lupus erythematosus

Table 3 Differential diagnosis of acute oral ulcerations based on intraoral anatomic areas of involvement

Gingiva, masticatory mucosa

Herpes simplex virus
Erosive lichen planus
Immunobullous diseases
Acute necrotizing ulcerative gingivostomatitis
Trauma
Cyclic neutropenia

Tongue, buccal mucosa

Aphthae
Syphilis
Lichen planus
Immunobullous diseases
Trauma
Drug reaction
Cyclic neutropenia
Varicella-zoster virus

There are two different classification systems for aphthosis. Based on morphology, aphthosis can be classified as minor (which involves the development of one or more small [<1.0 cm] AU that generally self-resolve within 1–2 weeks of their onset without scarring), major (characterized by the development of larger [>1.0 cm] and deeper AU that heal with scarring and may be accompanied by fever and malaise; Figure 4), and herpetiform (multiple [10–100] small, clustered AU that may heal with scarring).^{3–5}

An alternative classification system is based on severity, dividing AUs into simple or complex.² This classification system can be useful in determining the need for systemic therapy. Simple aphthosis is marked by the development of infrequent (fewer than 7 annual) episodes of self-limited, mild ulcerations limited to the oral cavity, which tend to resolve in 1 to 2 weeks. Complex aphthosis, however, may occur as more frequent episodes or continuous and persistent ulcerations that are slow to heal and highly symptomatic. Disease-free intervals in this subtype are typically short or nonexistent. It is not uncommon for genital lesions to occur

**Fig. 1** Painless indurated ulceration in a patient with the primary chancre of syphilis.

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