



## Pathophysiology Of Mouth Ulcers

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### ABSTRACT:

Mouth ulcers, also known as canker sores, are painful sores that develop on the inside of the mouth, lips, or throat. They can be caused by a variety of factors, including stress, hormonal changes, and certain foods or medications. While they are not usually serious, they can be uncomfortable and make eating and speaking difficult. Treatment options include over-the-counter pain relievers, topical medications, and avoiding irritants. In most cases, mouth ulcers will heal on their own within a week or two. However, if they persist or are accompanied by other symptoms, it is important to seek medical attention. The diagnosis and treatment of oral lesions are often challenging due to the clinician's limited exposure to the conditions that may cause the lesions and their similar appearances. This review aims at a systematic approach towards the diagnosis of oral ulcers based on their clinical and histopathological features while eliminating unrelated factors. Recurrent aphthous stomatitis (RAS) is one of the most common oral mucosal diseases characterized by recurrent and painful ulcerations on the movable or nonkeratinized oral mucosae. Clinically, three types of RAS, namely minor, major, and herpetiform types, can be identified. RAS more commonly affects labial mucosa, buccal mucosa, and tongue. Previous studies indicate that RAS is a multifactorial T cell-mediated immune-dysregulated disease. (Mutum Sangeeta Devi, et.al., 2019)

**Keywords:** Mouth ulcers, Recurrent aphthous stomatitis (RAS), Oral mucosal diseases, Oral lesions, Canker sores, Immune-dysregulated disease, T cell-mediated disease, Oral pathology

### Introduction:

#### Mouth Ulcers

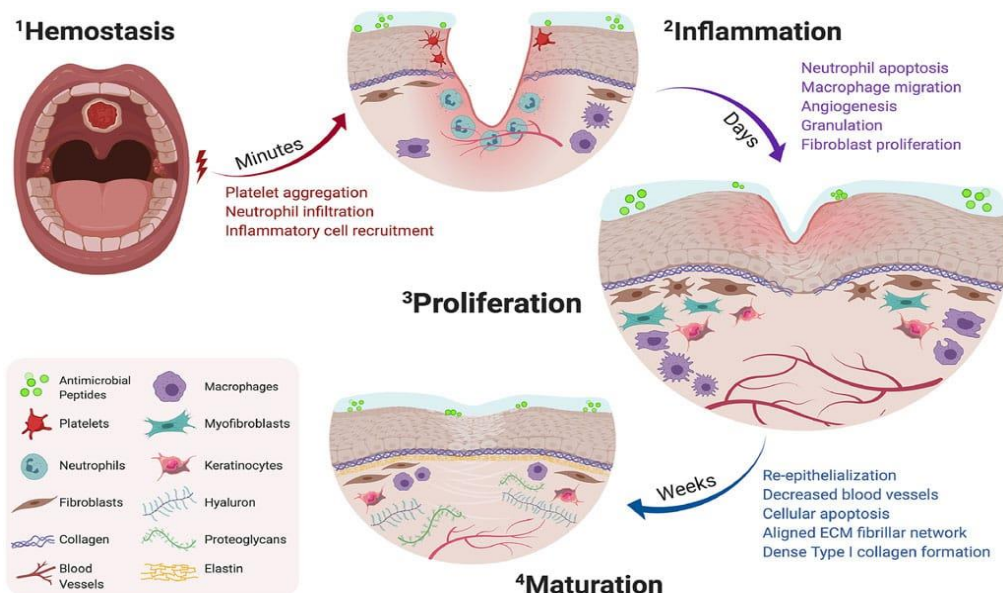
Stress, hormonal fluctuations, dietary allergies, and certain medical disorders are some of the possible causes of mouth ulcers. Additionally, oral injuries like biting the inside of the cheek or brushing too vigorously might cause them.

Although the majority of mouth ulcers will heal naturally in a week or two, they can be treated with over-the-counter drugs or natural cures to reduce discomfort and hasten the healing process. To rule out any underlying medical conditions, it's key to get medical help if mouth ulcers develop or are accompanied by other symptoms.

Patients who switch to mTOR inhibitors also frequently develop mouth ulcers. Once more, these ulcers typically go away on their own, although they might cause issues. Nine out of fifteen renal transplant recipients who were switched from a steroid-free regimen of tacrolimus and MMF to sirolimus and MMF at one year experienced mouth ulcers in one prospective randomized study.

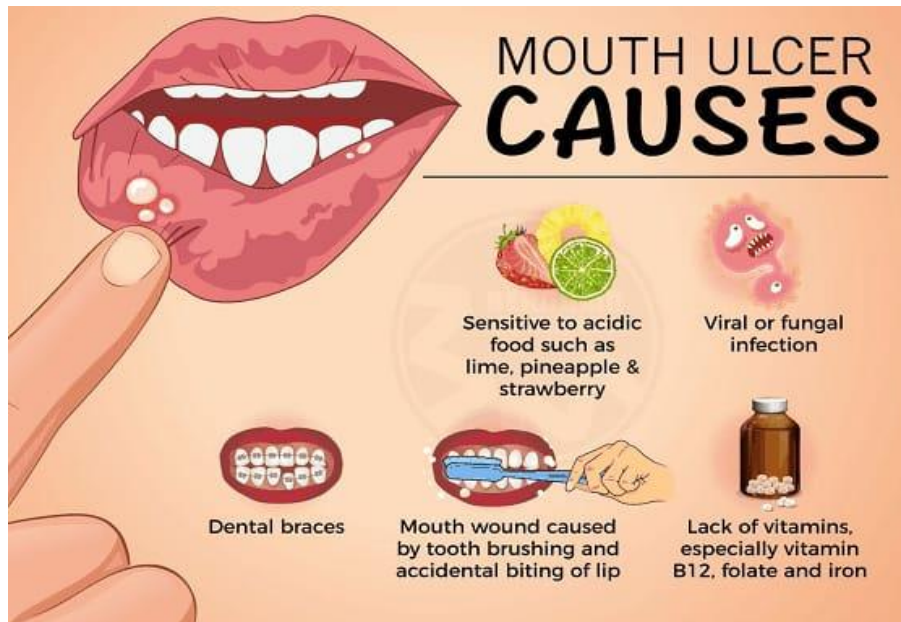
(. Eur J Oral Sci. et.al. 2018 Dec12)

#### Pathophysiology of Mouth Ulcers :



Although neutrophil and mast cell-mediated degradation of the mucus mucosal epithelium may also play a role, T cell-mediated immune dysfunction is the primary cause of phathous ulcerations.

#### *Causes of mouth ulcers :*



Although the exact etiology of mouth ulcers is unknown, some risk factors and triggers have been found.

The chance of having mouth ulcers is higher for people who were assigned female at birth, youngsters, teenagers, and those with a family history of the condition.

Triggers include:

- mild mouth injuries from sports injuries, dental work, harsh brushing, or unintentional bites
- dental braces Mouthwash or toothpaste containing sodium lauryl sulphate (SLS)
- An allergic reaction to germs in the mouth
- Hand, foot, and mouth illness are examples of bacterial, viral, or fungal infections that affect the mouth.
- sensitivity to acidic foods and drinks, such as coffee, chocolate, pineapple, citrus fruits, and strawberries
- Deficits in specific nutrients, including iron, zinc, vitamin B12, and vitamin B9 (folate)
- Hormonal changes, including those that take place during pregnancy or menstruation
- emotional stress
- lack of sleep

Additionally, mouth ulcers may indicate more serious illnesses that need medical attention, like:

- celiac disease
- inflammatory bowel disease (IBD), including ulcerative colitis
- diabetes
- HIV
- some autoimmune diseases, including:
  - lupus
  - oral lichen planus
  - Bechet's disease, a rare condition that causes inflammation throughout the blood vessels
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  - Behçet's disease, a rare condition that causes inflammation throughout the blood vessels

**Mouth ulcer symptoms**

Symptoms of mouth ulcers may vary depending on their cause, but they typically include:

- painful sores that may be yellow, white, or red
- Sores on the inside of the mouth, like the insides of your lips, cheeks, or tongue
- areas of redness surrounding the sores
- pain that worsens when you eat, drink, or talk

You may have more than one mouth ulcer at the same time.

Unless they are brought on by an infection, such as hand, foot, and mouth disease, mouth ulcers are typically not communicable.

Twenty percent of people will experience a canker sore at least once, making it the most prevalent type of mouth ulcer.

Canker sores come in three primary varieties:

- minor
- major
- herpetiform

- **Minor canker sore:**

Small oval or circular ulcers that are less than five millimeters (mm) in size are known as minor canker sores. They don't leave scars and heal in one to two weeks.

Minor canker sores are the most frequent kind, accounting for 80% of cases, according to DermNet New Zealand.

- **Major canker sore:**

Major canker sores are larger and deeper than minor ones. They often measure over 10 mm.

They can take weeks or months to heal and have uneven edges. Serious canker sores may leave scars that last a lifetime.

- **Herpetiform canker sore**

Herpetiform canker sores are typically seen on the tongue, are pinpoint-sized, and develop in clusters. Occasionally, the clusters may combine to create a single, sizable sore.

The borders of herpetiform canker sores are uneven, and they frequently heal in a month without leaving any scars. They may resemble the lesions caused by herpes, which is why they are called "herpetiform." There is no other connection between herpes infection and herpetiform canker sores.

Sr.No.	Common Name	Scientific Name	Family	Chemical Constituent	Uses
1.	Guava leaves	Psidium guajava L.	Myrtaceae	Flavonoid, tannin	Antimalarial, antiulcer, analgesic
2.	Indian cherry leave	Cardia dichotoma	Boraginaceae	Flavonoid, alkaloid	Headache and ulcer
3.	liquorice	Glycyrrhiza glabra	Leguminosae	Saponin, flavonoid	Expectorant, Anti-inflammatory
4.	Turmeric	Curcuma longa	Zingiberaceae	curcumine	Anti-arthritic, antiulcer
5.	Pomegranate flower	Punica protoponica	Punicaceae	Gallic acid, ellagic acid	Peptic ulcer, oral and anal ulcer
6.	Betel leave	Piper bette L.	Piperaceae	Alkaloid, amino acid	Antifungal ,anti oxident
7.	Aloe vera	Aloe barbadensis miller	Liliaceae	Antroquinones, vitamin, lignins	Anticancer, antidiabetic
8.	Capsicum	Capsicum annum	Solanaceae	Capsaicin, paprika,aloe resin	Stomach pain, mouth ulcer
9.	Noni fruit	Morinda citrifolia	Rubiaceae	Flavonoid, phenolics	Abnormal menstruatn acene, fever, blood pressure

**Diagnosis of mouth ulcers :**

Your doctor can use a visual examination to diagnose mouth ulcers. If you experience severe mouth ulcers on a regular basis, you may be examined for other disorders.

1. Pain or discomfort in the mouth, particularly when eating, drinking, or talking.
2. Redness or swelling in the affected area.
3. White or yellowish sores or lesions inside the mouth.
4. Difficulty in chewing or swallowing.
5. Tingling or burning sensation before the appearance of the ulcer.
6. Fever or swollen lymph nodes in severe cases.
7. Bad breath or a foul taste in the mouth.
8. Difficulty opening the mouth fully.
9. Feeling generally unwell or fatigued.

10. Recurrent outbreaks of mouth ulcers.
11. Sores that do not heal or continue to grow in size.
12. Ulcers that spread to the lips, gums, or throat.

Cold sores are also more likely to cause additional symptoms beyond the lesions, including:

- [fever](#)
- [fatigue](#)
- [malaise](#)
- [swollen lymph nodes](#) in the neck

The skin may begin to burn or tingle as a result of either type of lesion a few days prior to the lesions' onset. But cold sores are more directly linked to this feeling. (Chiang CP, et al. 2019)

### ***Aphthous ulcers***

An aphthous ulcer is another name for a canker sore. . Although it has several definitions, the medical term "aphtha" is most commonly used to describe a little ulcer.

Mouth ulcer treatment

Most mouth ulcers don't need treatment.

However, there are several treatments and home remedies that help reduce discomfort and healing time if you frequently acquire mouth ulcers or if they are really painful. These consist of:

- Applying a paste consisting of baking soda to the ulcer
- using other topical pastes
- Applying magnesia milk to the ulcer
- using a mouth rinse that contains a steroid to reduce pain and swelling
- applying ice to the ulcer
- The application of a moist tea bag to the ulcer
- Taking supplements if you are deficient in particular nutrients, such as iron, zinc, vitamin B12, or vitamin B9 (folate)
- Orajel and Anbesol are examples of over-the-counter topical medications that contain benzocaine (Hausmann JS, et al., 2019).

### ***Treatment Of Mouth Ulcers :***

There are essentially two types of mouth ulcer treatment:

alleviation of symptoms

There are several over-the-counter and prescription formulations that can be applied topically to relieve mouth ulcers and encourage quicker healing:

- Using mouthwash containing chlorhexidine gluconate helps shorten the ulcer's duration.
- Mouth ulcer-related infections can be prevented and treated with antiseptics.
- To relieve pain, topical gels with anesthetics such lidocaine and benzocaine are applied.
- Tetracycline-containing antibiotic mouthwash aids in lessening the ulcer's size and related discomfort.
- Oral painkillers like [diclofenac](#) are used to relieve pain.
- In situations of severe ulceration, dexamethasone-containing mouthwashes and oral steroids are given.
- Mouth ulcers may be somewhat relieved by medications like sucralfate, which are used to treat stomach ulcers.
- To encourage healing, dental lasers can be used to perform cautery, a type of mini-surgery on mouth ulcers. (Kirkham and others, 2018)

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