

# “Review On Management For Mouth Ulcer”

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**Abstract**— Mouth ulcers, commonly referred to as canker sores, are painful lesions that appear in the mouth at the base of the gums, leading to discomfort and irritation. A mouth ulcer results from the erosion of tissue in the mucous membrane lining. Various etiological factors can lead to their development, including chemical exposure, lack of sleep, dental injuries, nutritional deficiencies, hormonal changes, vitamin B-12 deficiency, genetic predispositions, and the consumption of acidic foods. Oral ulcers are a prevalent clinical issue that can significantly diminish a person's quality of life. These ulcers, commonly affecting the oral mucosa, cause pain and discomfort, which can have a major impact on daily activities. Based on their presentation and progression, they are categorized as acute or chronic. Acute oral ulcers are associated with trauma, recurrent aphthous stomatitis, Behcet's disease, bacterial and viral infections, allergic responses, and adverse drug reactions. Chronic oral ulcers are often connected to conditions such as oral lichen planus. The presence of mouth ulcers typically leads to pain and discomfort, which can affect an individual's eating habits during the healing process. This article discusses the causes of oral ulcers and includes various classifications associated with them. In this review, efforts have been made to examine pomegranate peel, jasmine leaves, mint, and acacia bark, which can potentially be utilized in both Ayurvedic and modern medicine for the prevention of mouth ulcers.

**KEYWORDS:** mouth ulcer, types, oral ulcer, various types, categorization of ulcers, reasons, and natural treatments, home remedies, mouth gel

## INTRODUCTION

A mouth ulcer, known as an aphtha, can also be referred to as a canker sore or salt blister; it is an ulcer that forms on the mucous membrane within the oral cavity. A rupture in the integrity of the epithelium caused by molecular necrosis is referred to as an ulcer. The oral cavity is the most common site for these ulcers, prompting patients to seek medical or dental care. Typical symptoms include pain, a burning sensation, and/or inflammation. Ulcers can manifest in any part of the oral cavity, but those occurring in movable areas may cause discomfort. Mouth ulcers are quite common and can result from various conditions and actions; however, they usually do not have significant underlying causes.<sup>1</sup> Ulcers are sores located on the skin or mucous membranes characterized by a superficial tissue loss. They frequently occur on the skin of the lower limbs and within the gastrointestinal tract, though they can appear in almost any location. There are various types of ulcers, including mouth ulcers, esophageal ulcers, peptic ulcers, and genital ulcers. Among these, peptic ulcers are prevalent in many individuals. Peptic ulcers refer to erosions of the lining of the stomach or duodenum. A mucosal erosion is an erosion that occurs in the lining of body passages. Only the outermost cells of the skin or lining are lost, and the affected area doesn't go deeper than the basement membrane.<sup>2</sup> In an oral ulcer, the top layer of the mouth's lining is broken or lost. This is among the most frequently encountered problems in the mouth. These sores are usually painful and often appear on the sides of the cheeks or inside the lip. While the exact reason for a mouth ulcer isn't clear, many things are believed to play a role in causing them. These include viruses, fungi, bacteria like *treponema*, autoimmune issues, change in hormones, stress, cancer, and other factors. If someone has a health problem elsewhere in the body, it can affect the type, place, how long they last, and how often mouth ulcers occur, such as in cases of inflammatory bowel disease or cyclic neutropenia.<sup>3</sup>

## History:

History of Oral Ulcers In 1857, William Brinton was one of the first doctors to talk about stomach ulcers. But back then, there weren't tools like endoscopy or X-rays to help find ulcers. That made diagnosing them really hard. In 1899 the first edition of the Merck Manual, which is like the main guide for doctors, didn't even mention ulcers. At the start of the 1900s, doctors started to think ulcers were caused by infections. They used antacids or surgery to treat them. But since scientists couldn't find the actual cause, the idea that ulcers were a "focal infection" became less popular. Like with cancer, strokes, and heart disease, there wasn't a single germ that caused ulcers.<sup>4</sup> So doctors began to look more at things like mental

stress and environmental factors. Eventually, the idea that ulcers were caused by infection or indigestion was replaced by theory that diet, smoking, and stress were the main causes. An oral ulcer is when the top layer of the mouth lining completely disappears, and some of the deeper tissue is also lost. This creates a craterlike sore that can look worse if there's swelling or extra tissue growth around it. Ulcers can be a sign of many different problems, including autoimmune diseases, cancer, trauma, infections, poor nutrition, and reactions to certain drugs. Because of this, they are a challenge for dentists to diagnose.<sup>5</sup>

### **I. Types of mouth ulcer**

- I. Minor Ulcer**
- II. major ulcer**
- III. Herpetiform ulcer**



Fig 1. Minor ulcer

### **II] MINOR ULCER.<sup>6</sup>**

These are usually small, measuring between 2 to 8 millimeters in size, and can take up to 10 to 14 days to go away. Minor RAS is the most common type and often happens in people aged 5 to 19. The outbreaks involve a few shallow, round sores that are less than 10 millimeters in size. These sores have a grayish covering and a red ring around them. Minor aphthae usually appear on the lips, tongue, and inside the cheeks.<sup>7</sup>



Fig 2 major ulcer

**III] MAJOR ULCER-** Major ulcers are larger, deeper sores with uneven edges that are usually 1 cm or bigger. They can take several weeks or even a whole

month to heal. Major RAS covers a bigger area, often spreading to the gums and the inner throat lining. These sores are bigger than 10 mm and last longer than regular outbreaks. Minor aphthae usually go away in about two weeks, but major aphthae can stay for more than six weeks. Also, major aphthae are more likely to cause scarring.<sup>8</sup>



figure 3. herpetiform ulcer

### III] HERPETIFORM ULCERS:

These are a group of small ulcers, as tiny as a sewing needle. Herpetiform RAS appears as many small, deep sores that often come together, making them look like bigger sores with weird shape. These outbreaks don't leave scars and usually go away in about a month. No matter which type of RAS it is, the sores can make it hard to talk, eat, and take care of your teeth.<sup>9</sup>

### II] Classification of Oral Ulcerative Lesions:

**2.1] Traumatic Ulcers :** The most common ulcer is a traumatic ulcer, and it is acute in nature. The most common type of ulcer is a traumatic ulcer, and it happens quickly. These ulcers are usually caused by injuries to the inside of the mouth from physical, heat, or chemical damage. Physical injuries can happen during everyday activities like brushing teeth or flossing, or from sharp edges of dentures or teeth. Traumatic ulcers typically resolve within 7 to 10 days once the underlying cause is addressed. If an ulcer fails to heal in two weeks, it is advisable to perform a biopsy to exclude the possibility of a deep fungal infection or cancer. purpose while having a dental treatment. Heat related injuries often come from eating or drinking hot things like pizza, coffee, or tea<sup>10</sup>

**Necrotizing Sialometaplasia:** Necrotizing sialometaplasia is a rare, non-cancerous condition that goes away on its own. It happens when the small Salivary glands in the mouth become inflamed, and it can look like cancer. The exact cause is not known, but some doctors think it might be due to a lack of blood flow in the area. It most often appears on the hard palate, but it can also be found in other areas like the bottom of the mouth, tongue, lips, the area behind the last tooth, and the throat. The condition starts with a swollen area, then develops into a red, tender lump. This lump may break open and form an ulcer with a soft, dead tissue base. People usually don't feel pain, but some may experience a mild, constant ache in the affected area. Factors like mouth injuries from dentures, drinking alcohol, and using tobacco are thought to increase the risk of developing this condition<sup>11</sup>

### Acute Necrotizing Ulcerative Gingivitis (Aung) ;

Acute necrotizing ulcerative gingivitis (ANUG, Vincent's angina, or trench mouth) Acute necrotizing ulcerative gingivitis, also called Vincent's angina or trench mouth, is the only type of gum disease where bacteria attack healthy, non-damaged tissue. This condition is usually caused by an overgrowth of certain bacteria, like fusiform bacteria and spirochetes, that are

normally found in the mouth. Several factors can make someone more likely to get ANUG,<sup>12</sup>

including HIV infection, a history of gum disease, poor dental care, not getting enough nutrients, smoking, and being under stress. Using antibiotics and improving nutrition has greatly reduced how often ANUG occurs. ANUG is a rare infection that affects less than 1% of people. Among those with HIV, the rate of ANUG varies from 4.3% to 16%. In some areas, especially in parts of Sub-Saharan Africa, more children are getting ANUG, with as many as 23% of children under 10 years old affected.<sup>13</sup>

**treatment:** Treatment for ANUG involves several steps. Patients need thorough cleaning of their teeth by a dentist, which is why seeing a dentist is very important. To manage pain, doctors may suggest taking ibuprofen or a small amount of opioid medication. To help with oral hygiene, patients should use a special mouthwash called chlorhexidine 0.12% twice a day, eat a balanced diet, drink enough fluids, and stop smoking. If ANUG isn't treated, it can cause fast damage to the gums and might spread to other areas like the cheeks, lips or jaw, leading to serious conditions such as necrotizing stomatitis or noma.<sup>14</sup>

**Recurrent Aphthous Stomatitis (RAS):** Recurrent Aphthous Stomatitis, or RAS, is the most common problem that affects the mouth. It causes the mouth's lining to break down again and again, forming painful sores. Doctors call it a "diagnosis of exclusion," which means they must check for other possible reasons for mouth sores before deciding it's RAS. RAS is responsible for 25 percent of recurring mouth sores in adults and 40 percent in children.<sup>15</sup> The pain from these sores can make it hard for people to eat, drink, or take care of their mouth. [10], Some factors can increase the risk of getting RAS, such as mouth injuries, stress, quitting smoking, anemia, and a lack of certain nutrients. Conditions that affect the digestive system, like Crohn's disease, ulcerative colitis, and celiac disease, are also connected to mouth sores. In some cases, RAS can be a sign of Behçet's disease, and very severe RAS may indicate HIV infection.<sup>16</sup>

#### **Behçet Disease [Bd] (Behçet Syndrome):**

Behçet disease was first described in 1937 by Hulusi Behçet from Istanbul.<sup>17</sup>

It is a type of systemic vasculitis that causes recurring mouth and genital ulcers, along with skin problems. This disease can affect many parts of the body, including the eyes, skin, joints, digestive system, and brain. Most people with Behçet's disease experience painful mouth sores, which occur in more than 95% of cases. [13] Symptoms of Behçet disease: Oral Ulcers, Genital Ulcers, Skin Lesions, Eye Inflammation, Joint Pain, Neurological Symptoms<sup>18</sup>

#### **ORAL CANCER:**

Oral cancer is important because some early warning signs can look like sores or ulcers. Things that increase the risk of oral cancer include using tobacco, drinking a lot of alcohol, and chewing betel quid. These habits can cause long-lasting irritation and sores that might develop into cancer. It's very important to find oral cancer early and take steps to treat it, which can help stop it from getting worse.<sup>19</sup> Oral cancer includes swelling in the neck, bleeding gums, a cancerous lump on the lip, and a sore that doesn't heal on the lip or under the tongue.



Table . 1

### III]CAUSES AND FACTORS AFFECTING ON MOUTH ULCER

Causes and factors that can lead to mouth ulcers include:<sup>20</sup>

- Genetics
- Medical conditions
- Toothpaste or mouthwash with sodium lauryl sulfate
- Emotional or mental stress
- Changes in hormone levels
- Lack of certain nutrients in the diet (Nutritional deficiencies)
- Injury to the mouth from biting or brushing too
- Infections caused by viruses
- Allergies or sensitivity to certain foods or products
- Family history or genetic factors
- Digestion
- sleep deprivation
- Infections from bacteria or viruses
- Other health conditions that may affect the mouth<sup>21</sup>

#### Nutritional Deficiencies:

A lack of iron, folic acid, zinc, and vitamin B12 has been linked to frequent mouth ulcers. These nutrients help in making DNA synthesis, allowing cells to divide, and repairing mouth tissues. When the body doesn't get enough of these vitamins or can't absorb them well, it weakens the mouth's protective lining, making ulcers more likely to develop. Also, having low levels of zinc and other small amounts of nutrients has been connected to this problem as well<sup>22</sup>.

#### Stress and Hormonal Factors:

Psychological stress is recognized as a major contributing factor in the onset of aphthous ulcers<sup>23</sup> This type of stress may influence the development of recurrent aphthous stomatitis.<sup>24</sup>

**Food allergies:**

There are several foods that can trigger allergic reactions. Consequently, numerous foods known to commonly cause allergies (such as strawberries, tomatoes, and nuts) have not been definitively linked to recurrent aphthous stomatitis. Items like chocolate, coffee, peanuts, cereals, almonds, strawberries, cheese, tomatoes (including the skin of tomatoes), and flour (which contains gluten) might be related to symptoms in some individuals. Hormonal fluctuations, like those that occur during pregnancy, can also play a role.<sup>25 26</sup>

**IV]Symptoms: .**

- The sores can also be irritated by things like dentures, braces, or mouth guards
- Sometimes, the sore may not feel painful. This can happen in case of mouth ulcer
- One or more painful sores on the moist lining inside the mouth.
- Redness and swelling around the sore.
- Trouble chewing or brushing teeth because the area feels tender.
- The sores may get irritated by foods that are salty, spicy, or sour.
- Difficulty eating or drinking foods that are acidic or salty, and sometimes a fever may occur.<sup>27</sup>

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**V]How to Prevent Mouth Ulcers?**

- Brush Twice, Floss Once Daily

Make sure to brush your teeth at least two times each day and floss every day to help prevent oral infections and mouth ulcers.

- Rinse with Salt Water

Rinse your mouth with warm saltwater several times a day to help ease pain and support the healing of a mouth ulcer.

- Use Medicated Mouthwash
- Use a Soft Brush

Avoid using toothbrushes with stiff bristles and mouthwashes that contain irritating ingredients like sodium lauryl sulfate (SLS) or alcohol.

- Stay Hydrated

Drinking enough water is important for staying healthy and avoiding dehydration. It can also help make mouth sores less painful.

- Eat a Fresh, Healthy Diet

Make sure you're eating enough fruits and vegetables and getting the right balance of vitamins and minerals in your diet.

- Avoid Spicy, Sour Foods

Stay away from spicy or sour foods, as they can cause irritation in your mouth. Try to limit foods like hot sauces, lemon, limes, and drinks with carbonation or caffeine.

- Reduce Stress

Stress can affect your overall health, including your mouth. Getting enough sleep and doing things like exercise or meditation can help reduce stress and lower your chance of getting mouth ulcers. Stress significantly impacts our health.<sup>29</sup>

## **VI]HERBAL MEDICINE IN MOUTH ULCER TREATMENT**

The World Health Organization (WHO) characterizes herbal medicine as a practice that encompasses herbs, herbal materials, herbal preparations, and finished herbal products containing active ingredients derived from plant parts or other plant materials, either separately or in combination. These herbs originate from various parts of the plant, including leaves, stems, flowers, roots, and seeds. Herbal drugs contain active components, plant parts, or plant materials in either processed or crude forms, mixed with certain excipients such as diluents, solvents, or preservatives. Scientifically referred to as phytochemicals, they include multiple classes like saponins, flavonoids, glycosides, tannins, and alkaloids. Over the years, phytochemicals have been scientifically validated to offer health benefits for humans. For instance, herbal remedies formulated as sedative and stomachic mixtures are primarily made from aromatic plant species, which possess therapeutic essential oils that exhibit antibacterial, stomach-soothing, and antispasmodic effects. Plant species with high tannin levels are included in combinations for treating diarrhea and stomach ulcers, generally demonstrating antimicrobial, astringent, and anti-inflammatory properties. The effectiveness of these gels is further bolstered by evaluation criteria that cover stability, antimicrobial activity, anti-inflammatory effects, physicochemical properties, and clinical outcomes. Overall, herbal gel formulations present a safe, effective, and patient-friendly therapeutic option for addressing mouth ulcers.<sup>30</sup> Herbal and natural treatments have received considerable interest for treating mouth ulcers, thanks to their anti-inflammatory, antimicrobial, and wound-healing benefits. These remedies are frequently utilized alongside or as substitutes for standard therapies, particularly among individuals looking for natural options or those who have adverse reactions to pharmaceutical medications.[22]Herbal remedies are significant components of treatment approaches. Conventional herbal medicines are naturally sourced substances derived from plants, utilized in local or regional healing traditions with minimal or no industrial processing to address illnesses. In the field of medicine, traditional herbal treatments are becoming increasingly popular. Medicinal plants have consistently been employed to manage human ailments.<sup>31</sup>

### **VII]herbal mouth gel:**

Herbal gel is a gel-like substance that can vary in consistency from soft and pliable to firm and resilient. It is applied externally for multiple uses, including as a protectant, antiseptic, antimicrobial, and cooling agent.<sup>32</sup>

### **VIII]Pharmacological and health benefits of herbal mouth gel**

- Anti-inflammatory,
- Antimicrobial,
- Antioxidant, as well as properties that promote wound healing.
- Astringent
- Demulcent

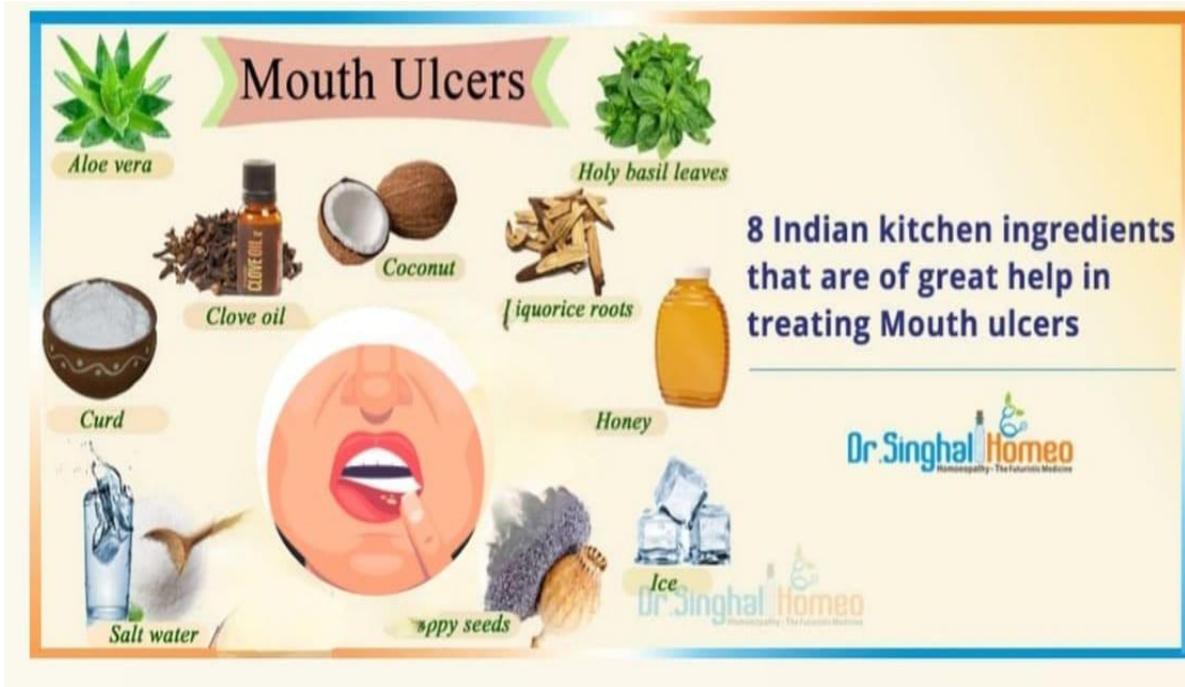
**IX]. Active ingredient and herbal drug used in herbal mouth gel**

<i>Sr no</i>	<i>plant</i>	<i>Active constituent</i>	<i>Medicinal properties</i>	<i>reference</i>
1	Pomegranate  B.S: Dried Peels of Punicagranatum. Part Used: peels Synonym: Punica Nana L, Punica Florida Salisb.	Glucose, fructose, Minerals, vitamins, polyphenols. pectin, <b>Organic acids</b> including citric, malic, tartaric, succinic, Fumaric and ascorbic acid	Anti-inflammatory property, Analgesic. Anticancer Property. Antioxidant, Pomegranate flowers have been used as for oral and anal ulcers, intra- nasal ulcers, peptic ulcer Anti-microbial Property.	<sup>33</sup>
2	Jasmine leaves	Benzyl Alcohol,	give anti-	<sup>34</sup>
	The primary biological origin of jasmine in India is mainly derived from the genus Jasminum, which is part of the olive family (Oleaceae).	Benzyl acetate, Linolool Indol Benzyl Benzoate, Cis jasmine Geroniol , Geroniol	inflammatory action so it is used to de -crease the inflammation due to the ulcer, it decreases pain due to presence of ulcer in mouth and also used to treat cancer as a pain removal	<sup>35</sup>
3	Acacia arabica :  Acacia arabica is the dried gum exudate sourced from the stems and branches of Acacia senegal, which is a member of the Leguminosae family.	Galic acid (Bark) Sucrose (Bark) Tannin (Bark)	applied on ulcer act as stimulant and astringent.	<sup>31 24</sup>

4	Mint: Pudina consists of dried leaves and flowering tops of <i>Mentha spicata</i> L which is part of Labiateae family	Vitamin A VitaminC, Iron Calcium, Magnesium	It provides an antimicrobial effect, making it useful in the treatment of ulcers. 2.It also provides	36
			cooling effect in mouth.	
5	Honey: Honey is a thick and sugary substance that is collected and stored in honeycombs by different species of bees, including <i>Apis indica</i> and others in the <i>Apis</i> genus, which are part of the Apidaeae family.	Gel/100% pure natural honey, Carbohydrate Protein Vitamin, Amino acid, Minerals, Organic salt, Flavonoids, Polyphenols , Glycosides	It demonstrates antioxidant- nt properties, making it beneficial for treating mouth ulcers. - It exhibits antimicrobial effects, helping to eliminate microorganisms in the mouth.	27 37

Table 4. Some example of herbal drug, active constituent and their medicinal use that have shows their effects on mouth ulcer management

**X]HOME REMEDIES FOR MOUTH ULCER:**



**XI]Marketed herbal product for mouth ulcer:**

<i>Product</i>	<i>Key ingredient</i>	<i>Manufacturer</i>	<i>Formulation</i>
Arimu Mouth Ulcer Gel	Lavanga, curcuma longa,pippali, gandhpura	Arihealthcare pvt. ltd	gel
Tuliq gel	Amla,khadir dalimb, clove oil yastimadhu	Aushadhikart	gel
Orobest cheuable tablet	Elayachi mulethi pudina, halad, Khadir triphala, sphataika Bhasma aloe	Icon remedies pvt ltd.	Cheuable tablet
Orasore gel	Mint, glycerin	Wings pharmaceutical pvt ltd.	gel
Livcare gel	Tulsi, Pudina ,Adulsa, Haldi, Ginger ,Karpoor, Pimpli,Yashtimadhu,	Liveelh biopharma pvt. Ltd	gel

Table no.5 marketed herbal product

**CONCLUSION:**

Mouth ulcers, especially recurrent aphthous stomatitis (RAS), rank among the most prevalent oral mucosal disorders globally. To sum up, oral ulcers present a challenging clinical issue with a variety of underlying causes. Traumatic ulcers, acute necrotizing ulcerative gingivitis (ANUG), Behçet's disease (BD), recurrent aphthous stomatitis (RAS), and even oral cancer illustrate the complexity of ulcerations that can occur in the oral cavity. Canker sores can be managed or avoided through dietary supplements and changes in lifestyle.

Homeopathic methods can be successful in treating mouth ulcers. Herbal medicine is regarded as the best approach for treating mouth ulcers because it contains naturally occurring chemical compounds that offer notable benefits and healing characteristics. In today's market, there is a growing demand for herbal formulations because they are cost-effective and have fewer side effects. The experimental data indicates that gel formulations containing herbal ingredients like Honey, Acacia Arabica, Indian Jasmine, pomegranate peel, and Mint exhibit favorable characteristics, viscosity, and also demonstrate significant antimicrobial, anti-inflammatory, and antacid activities, which are essential for treating mouth ulcers.

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