

## **Expert Recommendations for Prevention, Treatment and Care of Oral Ulcers and other Mucosal Diseases during the Outbreak of COVID-19**

Society of Oral Mucosal Diseases, Chinese Stomatological Association<sup>1</sup>

In December 2019, some new cases of coronavirus disease-19 (COVID-19) were found in Wuhan City, Hubei Province, China. The number of infected cases increased rapidly and spread continuously at home and abroad. Tens of thousands of medical staff throughout the country have rushed to Wuhan to invest in intensive medical treatment. Because of high mental tension and work intensity, unable to drink water for hours after entering the isolation ward and insufficient sleep, they might suffer from oral mucosal ulcers and other oral mucosal diseases. It is known that not only medical staff, but also police officers, community workers, long-term family members, and even patients with mild COVID-19, as well as those with oral mucosal disease in the past, all claim they feel uncomfortable with oral mucosal disorders, such as oral ulcer caused by great mental pressure, which mainly include recurrent aphthous ulcer (RAU), chronic cheilitis and oral lichen planus. This article will give some suggestions on the prevention and care of the oral mucosal diseases above mentioned during fighting against COVID-19, focusing on the measures to deal with the oral mucosal damage caused by stress response.

**Key words:** coronavirus disease-19 (COVID-19), recurrent aphthous ulcer, cheilitis, oral lichen planus, stress response

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## **Recurrent aphthous ulcer (RAU)**

### *The clinical characteristics of RAU*

RAU, also called recurrent oral ulcer (ROU), commonly known as "aphthous ulcer", is the most frequent form of oral ulcerations, with periodic, recurrent and self-limiting characteristics. The prevalence of RAU in the population is about 20%. The attack of RAU is related to psychological stress, emotional fluctuation, poor sleep, nutritional deficiency caused by less vegetables and fruits, genetic factors, female menstruation phase, immune disorders, digestive system diseases and other factors<sup>1-3</sup>. During the anti-epidemic period of COVID-19, psychological stress and poor sleep undoubtedly become the main inducing factor<sup>4</sup>, such as superposition of other susceptible factors, the incidence of the disease will increase.

RAU can be divided into three types: minor aphthous ulcer, herpetiform aphthous ulcer and major aphthous ulcer. Of which, 80% belong to minor aphtha, and their clinical characteristics are as follows:

- Oral ulcer can appear in any part of the oral mucosa (hard palate and gingiva are rare).
- The number of oral ulcer is usually 1 or several, round or ovoid, scattered with the size of needle tip, rice grain, mung bean or soybean.
- The surface of oral ulcer is light yellow or grey, surrounding with erythematous haloes.
- The pain of oral ulcer was obvious.
- Oral ulcer can heal within 1-2 weeks, usually 7-10 days.

If there are dozens of oral ulcers at the same time, it is herpetiform ulcers. If the diameter of a single oral ulcer is larger than 1 cm, it is major aphthous ulcer.

Three types of aphthous ulcer can recur after several days or months after healing. The no ulcer stage is called interval period. Some of the interval periods is not obvious, which can occur continuously one after another. The location of recurred aphthous ulcer is generally different from the previous one<sup>1,2,5</sup>.

### *Treatment principle and drug selection of RAU*

#### Local therapies

Main principles: anti-inflammatory, pain relief and promotion of healing<sup>5,6</sup>. This principle is also applicable to the local treatment of most oral mucosal ulceration.

- Anti-inflammation: solution of chlorhexidine, or compound chlorhexidine, or povidone iodine, or ethacridine lactate, or cetylpyridinium chloride, compound borax, and so on can be chosen to rinse mouth.. It can also be used to contain cetylpyridinium chloride lozenges, diquinium chloride lozenges or xididium lozenges.
- Pain relief: Compound Chamomile and Lidocaine Hydrochloride Gel is applied to the ulcer area.
- Promotion of ulcer healing: any choice of anti-ulcer powder, anti-ulcer ointment, ulcer film, patch, paste, gel and so on can be used topically.

#### Systemic therapies

In order to shorten the period of ulcer attack and prolong the interval period<sup>5,7</sup>, thalidomide, total glucosides of peony capsules, levamisole and Kouyanqing granules can be chosen to take orally as appropriate for weeks or months<sup>5,8,9</sup>.

#### *Care for RAU*

- Local painkillers should be used on the ulcer surface before eating and putting local medication;
- Systemic medication should be taken after meals at first;
- Secondly the mouth rinse should be facilitated for 1-3 minutes so that solution can penetrate into the submucosa and play an anti-inflammatory role.
- Thirdly, oral ulcer powder should be applied on the ulcer surface, with keeping fasting, water deprivation and silence for 15-20 minutes in order to facilitate the local healing-promoting drugs effectively.
- If buccal tablets are selected, they should be contained 20 minutes later than the application of local healing promoting drugs.

- Local medication should be applied before or after three meals a day.
- Please follow the doctor's advice for systemic medication using.

### *Prevention of RAU*

For the first-line anti-epidemic personnel, the combination of work and rest can relieve mental stress. Keeping adequate sleep and taking supplement vegetable, fruits and vitamins, keeping your mouth moist is essential to slow down and prevent the onset of RAU.

### **Chronic cheilitis**

#### *The clinical characteristics of chronic cheilitis*

Chronic cheilitis is a common chronic non-specific inflammatory disease of lip. The occurrence of the disease is mostly related to a variety of chronic long-term sustained stimulation such as dry climate, wind, cold weather, mechanical or chemical factors, surrounding temperature, medicine and other factors, or addicted to cigarettes and alcohol, licking lips, biting lips and other bad habits. It is also related to the mental stress of patients.

The clinical manifestations are swelling of lip, dry lip, congestion of labial mucosa, desquamation, chap, and scab exudation on the vermilion of the lips. The condition is recurrent and chronic lesions on the lips<sup>1,2</sup>.

#### *Treatment principle and drug selection of chronic cheilitis*

Treatment is mainly local treatment. Removal of irritation and anti-inflammatory is the principles<sup>1,2,10</sup>. First of all, all irritating factors should be removed and bad habits such as tearing and biting lips should be changed. Avoid wind blowing, cold and other stimulation, and avoid eating spicy foods. To reduce inflammation, 0.1% ethacridine lactate solution can be wet compress, or aureomycin solution or chlorhexidine solution can be wet compress. Then Reapply coated with anti-inflammatory ointment (such as erythromycin eye ointment) or steroid ointment, can also be applied with

aureomycin glycerin.

### *Care for chronic cheilitis*

Regardless of the severity of chronic cheilitis, it should be treated with anti-inflammatory drugs first and then with moisturizing care. Medication is divided into wet compresses and local application of ointment. Many patients with cheilitis are persistent and unhealed because there is no wet compress. Wet compress is the simplest and most effective way to treat chronic cheilitis. Lacks the wet compress step, spreads the ointment only, will not have good effect.

The procedure and steps of wet application and application of ointment are as follows:

- Cut the sterilized cotton into strips with the same size of lip lesion area, then soak it in the wet compress solution to make it supersaturated; pick up the cotton strip with tweezers and use it without dropping the liquid.
- Apply the soaked cotton pad soaked on the lip lesions and cover all the entire surfaces of the lesion.
- During 20 minutes of wet compress, the wet applied cotton may become dry due to the volatilization of the liquid medicine. A small amount of liquid medicine should be added to the cotton tablet every 3-5 minutes to keep it in an oversaturated state.
- The wet compress time can be increased or decreased according to the thickness of the scab. After the scab becomes soft and painless, it can be wet applied for a few minutes to consolidate the anti-inflammatory effect of the liquid medicine penetrating into the tissue, or the wet compress can be ended immediately.
- Immediately apply a medicated ointment on the surface of the moist lip tissue to keep it moist and achieve a long-term anti-inflammatory effect until the next wet application.

Medication for cheilitis can usually cure in 1-2 weeks. However, further moisturizing care should not be lax, you can use clean water wet compress, apply vaseline ointment (available in supermarkets) to protect the lips.

### *Prevention of chronic cheilitis*

For the frontline anti-epidemic personnel, paying attention to rest, balancing work and rest, alleviating mental pressure, and keeping the lip moist are all very important to slow down and prevent chronic cheilitis.

## **Oral lichen planus**

### *The clinical characteristics of oral lichen planus*

Lichen planus is a chronic inflammatory disease of skin and mucosa, and is one of the common diseases of oral mucosa. It is generally believed that in oral mucosal diseases, besides recurrent aphthous ulcers, oral lichen planus is the most common one, with a prevalence of less than 1%. The disease mostly presents a chronic and repeated process, which can last for months to years. The etiology of this disease is still unclear and related to many factors, among which mental tension, anxiety, depression, etc. are the main causes that lead to immune dysfunction of the body.

The clinical characteristics of oral lichen planus are as follows: gray-white keratinized streaks or plaques appear on the oral mucosa. In this case, the patient has no pain symptoms, only rough feeling. When congestion, erosion, ulceration, atrophy and blisters occur in the oral mucosa, irritation pain or spontaneous pain is obvious. Oral mucosal lesions can also be accompanied by skin lesions<sup>1-2</sup>. Under the condition of stress or high mental pressure, it is more likely to manifest as congestion, erosion and ulceration of the oral mucosa, leading to aggravation of stimulation pain while eating or spontaneous pain.

### *Treatment principles of oral lichen planus*

The treatment is based on the combination of systemic treatment and local treatment. If the white streak of the original oral lichen planus is not accompanied by congestion, erosion, ulcers, etc., and there are no pain symptoms, you can temporarily observe and see a doctor at an alternative date.

The principle of local treatment is to remove stimulation, anti-inflammation, analgesia and promote healing. Systemic medication is mainly immunomodulatory therapy, please follow the doctor's advice, and especially strengthen psychological counseling, relieve mental pressure<sup>1,2,11,12</sup>.

#### *Care for oral lichen planus*

Patients with oral lichen planus under stress are prone to manifestations such as congestion, erosion and ulceration of the mucosa, which require active treatment and care. The selection of local treatment drugs and care are basically the same as the corresponding part of the aforementioned “recurrent aphthous ulcer”, and the oral lichen planus can be treated with the reference. Attention should be paid to topical medication after three meals. Rinse mouthwash first and then apply medication to promote healing.

#### *Prevention of Oral Lichen Planus*

All patients with oral lichen planus need to mediate emotions. For the first-line anti-epidemic personnel, they need to alleviate tension and anxiety, work regularly and reduce the stress index as much as possible.

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