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Case report

Management of Major Type Recurrent Aphthous Stomatitis

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ABSTRACT

Background: *Recurrent aphthous stomatitis (RAS) is a commonly found pathologic soft tissue lesion in the oral cavity. Although the specific etiologic factor remains to be understood, predisposing factors of RAS include diet, stress, genetics, and systemic conditions. Management of RAS involves a variety of pharmacological and non-pharmacological alternatives. First-line therapy of pharmacological modalities consists of the application of a topical corticosteroid.* ***Purpose:*** *This case report intends to describe the findings of a major type of RAS and the subsequent management by topical corticosteroid drug application.* ***Case:*** *A female patient 10 years old came to Dental Clinic Puskesmas Winong II with a chief complaint of non-healing oral ulceration after a week without treatment. The ulcer felt very painful and sometimes bleed. Upon subjective examination, it is noted that the patient's dietary habits consist of high-sodium and high-sugar foods, and a lack of fruits and vegetables. Clinical examination found loss of mucosal integrity in the form of a solitary ulceration on the lower labial mucosa, oval-shaped with a diameter of 15mm, with elevation in the border of the lesion resembling a crater. The lesion appears more erythematous compared to the surrounding healthy tissue, with a clearly defined border.* ***Case management:*** *RAS management in this case was achieved by application of the topical corticosteroid drug triamcinolone acetonide 0,1% in orabase. The chief complaint and clinical condition improved significantly after a week of drug application. Corticosteroid drugs act as anti-inflammatory and immunosuppressant agents.* ***Conclusion:*** *RAS major type management with topical corticosteroid drug successfully reduced pain and accelerated healing time.*

Keywords: *recurrent aphthous stomatitis; topical corticosteroid; pharmacological management*

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INTRODUCTION

Recurrent aphthous stomatitis (RAS) is a pathologic soft tissue lesion found in the oral cavity.[1] RAS is characterized by ulcers on non-keratinized mucosal tissue with unknown etiology, recurring in

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different regions in the oral cavity. Although the etiologic factor is yet to be completely understood, the pathophysiological process underlying this disease involving T-cell mediated immune response, leading to ulcer formation.[2] RAS are found in approximately 5%-25% population.[3] Predisposing factors triggering RAS include genetic, dietary habits, stress level, and systemic conditions.[4] Population group with higher risk for RAS is female 18-34 years old, individuals with high stress levels, dietary patterns of high sodium, high sugar, and spicy foods, and individuals with systemic diseases such as asthma, cancer, rheumatic, and digestive problems.[5]

Clinical appearances of RAS have multiple forms. Based on size, number, and duration, RAS is classified into three types: minor, major, and herpetiform.[6] Minor type RAS characterized by small-sized, round ulcers not more than 5mm in diameter, varying in number between 1 and 5, and usually resolve in 10 days without scarring. The major types differ in size by more than 5mm, are crateriform shaped, and could be between 1 and 10 ulcers in number. This type usually takes longer to heal than the minor type. The herpetiform type, rarely found, appears as multiple small round ulcers less than 5mm in size and more than 10 ulcers in number. This type appears scattered in the oral cavity; sometimes, a few multiple adjacent ulcers coalesce into one big irregular ulcer. [7,8] Due to its various clinical manifestations, RAS needs to be differentiated from other intraoral ulceration conditions such as traumatic ulcer, primary herpetic gingivostomatitis, and hand-foot-and-mouth disease.[9]

First line therapy for RAS cases comprised of topical application of corticosteroid, antibiotic, and analgesic, with the main objectives being to accelerates healing time and reduce disease severity.[10] Second-line therapy involves systemic drugs taken orally, especially for lesions inaccessible to topical drug application, extensive and painful lesions, and lesions interfering with quality of life.[11] Apart from that, other alternatives available involving herbal medications have been widely researched.[12] Besides pharmacological modalities, non-pharmacological therapies such as laser therapy have been rapidly developing and becoming more commonly used.[13]

This case report aims to describe clinical findings of major type recurrent aphthous stomatitis and the subsequent therapy by means of topical corticosteroid application.

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CASE

A female patient, 10 years old, came to Dental Clinic Puskesmas Winong II with a chief complaint of oral ulceration on the lower lip for a week ago. It felt very painful with a visual analogue scale (VAS) of 8, and sometimes bleed. The ulcer is preceded by a fluid-filled blister three days before arrival at the clinic. No treatment has been received. History of fever for the last two weeks denied. History of the same complaint in the family and neighborhood denied. History of lip-biting or traumatic incidence involving the lower lip denied. History of regular medications and allergies denied. The patient is an elementary school student. The daily diet consists of rice, tofu, tempe, chicken, meat, and snacks that contain high sodium and high sugar. The patient rarely eats fruits and vegetables.

Upon intraoral examination, findings show loss of mucosal integration as a solitary ulceration on the lower labial mucosa region, teeth 33-32 (FDI dental numbering system), oval-shaped with an elevated border resembling a crater, with a diameter of 15mm. The lesion appear as more bright red compared to the surrounding healthy tissue. The margin is clearly defined with an erythematous border. The texture is smooth with soft consistency. Only one lesion was found in the entire oral cavity. Extraoral examination found no relevant abnormalities. The general condition of the patient is *compos mentis*.

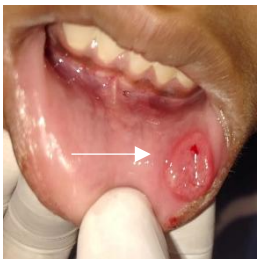

Figure 1. Clinical intraoral condition of the lesion on the first visit.

CASE MANAGEMENT

The patient came to the Dental Clinic Puskesmas Winong II with a chief complaint of an unresolved oral ulcer in the lower labial mucosa that has been persisting for a week. After subjective and objective examination, a working diagnosis was established as major type recurrent aphthous stomatitis (RAS). Differential diagnosis, including traumatic ulcer and recurrent herpes labialis.

Management of the lesion achieved by application of the topical corticosteroid drug triamcinolone acetonide 0,1% in orabase (Bufacomb). Patient instructed to apply the ointment three times a day, dry the ulcer before drug application, then wait for 30 minutes after drug application before drinking and eating. Apart from pharmacological intervention, the patient was also instructed to reduce the amount of high sodium and high sugar diet, increase

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intake of fruit and vegetables, reduce stress, keep water intake at 1,5 liters per day, and maintain good oral hygiene.

After a week from the initial visit, the patient was recalled for follow-up. Chief complaint is resolved. Intraoral examination shows a healing ulcer appear as a mucosal loss of integrity in the form of a solitary ulceration, oval-shaped with a diameter of 3mm, diffuse border with erythematous edge, and lesion height parallel to the surrounding healthy tissue.

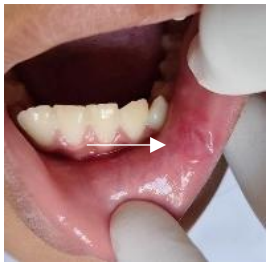

Figure 2. Clinical intraoral condition on the second visit.

DISCUSSION

The etiological factor of recurrent aphthous stomatitis has been yet exactly determined; in most cases, it is believed that a multifactorial immunologic interaction causes tissue destruction, thus resulting in an ulcer. This pathophysiologic condition involves a cell-mediated immune response, starting a cascade of acute inflammation reaction resulting in injuries in the epithelial layer of oral mucosal tissue. The responsible factor starting T cell activation could not be clearly determined.[2] In children, RAS affects up to 20% of the population aged 10-13 years old.[14] Literatures mention genetic factors have a role to increase susceptibility of an individual to develop RAS.[15] Nutrient deficiencies also predispose to RAS, especially deficiencies of elements such as vitamin B12, vitamin D, iron, zinc, and selenium.[16] Studies mention that the level of vitamin D in RAS patients is statistically lower than in healthy individuals. However, there is no correlation between vitamin D level and the severity of the disease.[17,18] Furthermore, a psychological condition of high stress levels increases the risk for an individual to develop RAS.[19] Systemic diseases such as anemia, Behcet's disease, celiac disease, and Crohn's disease also manifesting it's condition in the oral cavity as recurrent oral ulcers.[20] In this case, the patient's dietary intake consists of low food on fruits and vegetables, too many foods with high sodium and high sugar content. This dietary factor is suspected of being the main predisposing factor for RAS incidence in this case.

The diagnostic method to determine the major type of RAS in this case relies on subjective and objective examination. No further additional examination is indicated because the signs and symptoms presented are characteristic of RAS. Furthermore, complaints of pain and clinical appearance

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improved significantly with the given treatment.

RAS management has a wide variety, ranging from pharmacologic and non-pharmacologic modalities. The aim of RAS treatment is mainly to alleviate symptoms, accelerate healing time, and prolong the disease-free period.[21] Pharmacological modalities consist of first line local acting drug, including topical corticosteroid (triamcinolon acetonide), antibiotic (doxycycline), or antiseptic (chlorhexidine). Second-line therapy consists of systemic drugs for conditions where first-line therapy is insufficient, including corticosteroids (prednisone), immunomodulatory drugs (thalidomide), and antibiotics (clofazimine).[10] Furthermore, herbal ingredients have been proven effective in research. Licorice (*Glycyrrhiza glabra*), bilimbi (*Averrhoa bilimbi*), ethanol extract from lime peel (*Citrus aurantifolia*) and a few other plants known to have therapeutic effects of reducing symptoms and speeding up the healing process of localized intraoral ulceration.[12,22–25]

Moreover, nonpharmacological alternatives are also available, by themselves or in conjunction with pharmacological options. Some options have been applied clinically and shown promising results, such as laser therapy, photodynamic therapy, and cryotherapy.[26] Low-level laser therapy (LLLT) has been proven clinically to decrease symptoms immediately after exposure.[27–29]

The treatment of choice for paediatric patients is mainly aimed at supportive therapy. Considering the disease severity, children's age and cooperation, topical medication is oftentimes sufficient to alleviate symptoms and accelerate healing time. Systemic drugs are not necessary for RAS therapy in children, except if the patient presents with a history of immunocompromised conditions.[30]

In this case, pharmacological therapy with application of topical corticosteroid triamcinolone acetonide 0,1% in orabase has proven to successfully alleviate symptoms and reduce healing time. Triamcinolone acetonide is a corticosteroid drug working to hinder inflammatory reactions as an anti-inflammatory agent and dampen immune response as an immunosuppressive drug.[31] Topical preparation in orabase is a special paste designed for the oral cavity, forming a barrier membrane once it adheres to mucosal tissue. Carboxymethylcellulose, a base of polyethylene resin and mineral oil (orabase) component in this drug, helps to resist displacement of the paste over saliva

or functional movement of the oral cavity. This factor maximizes the contact time of the drug with tissue, especially in the oral cavity environment, where retention of the topical agent to the mucosa is difficult to achieve. This mechanism ensures maximum contact of the drug and the lesion, hence reducing pain and supporting the re-epithelization process to accelerate healing.[32] Besides, topical drugs have minimal effect on systemic condition, therefore it become a more favorable treatment option for localized lesion.[33]

Major type RAS are characterized by painful, bigger than 1cm ulceration. In general, the etiological factor cannot be identified, but in this case, nutritional deficiencies are suspected as a strong predisposing factor. This case was successfully managed with topical corticosteroid application.

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