

Reccurent trauma-induced aphthous stomatitis in adjustment disorder patients

Y. Yuliana, Saka Winias, Hening Tuti Hendarti and Bagus Soebadi

Department of Oral Medicine,
Faculty of Dental Medicine, Universitas Airlangga,
Surabaya – Indonesia

ABSTRACT

Background: Adjustment disorder is a temporary psychological condition related to emotional responses or behaviour in reaction to stress resulting from certain changes in a specific period of an individual's life yet which does not significantly affect his/her daily life. Recurrent aphthous stomatitis (RAS) constitutes recurrent inflammation of the oral mucosa, in the form of an ulcer, frequently associated with psychological stress. Occasionally, a patient does not realise that she/he is suffering from a psychological disorder until the emergence of clinical symptoms, among them recurrent ulcers the causes of which are unknown. **Purpose:** This article presents a case of adjustment disorder diagnosed from symptoms observable in the oral cavity. **Case:** The case involved a 21-year-old student who presented with the symptoms of large, painful ulcers on her tongue, the inside of her cheek, and the floor of her mouth. These symptoms had been observable for one month but remained untreated. The patient only ate once a day or even once every two days. An introverted personality, she did not associate with other people. **Case management:** The procedure covered anamnesis, clinical examination, blood laboratory tests, total immunoglobulin E (IgE), an Antinuclear Antibody (ANA) test, bacterial and fungal culture in ulcus, questionnaire screening on psychological disorders, cortisol level examination and referral to a psychiatrist. Symptomatic therapy administered to the patient led to recovery of the ulcer in 29 days. **Conclusion:** RAS can be triggered by psychological stress which induces changes in the immune system and oral mucosa tissue.

Keywords: adjustment disorder; cortisol level; reccurent aphthous stomatitis; ulser

Correspondence: Saka Winias, Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Jl. Mayjend. Prof. Dr. Moestopo no. 47, Surabaya 60132, Indonesia. E-mail: saka.winias@fkg.unair.ac.id

INTRODUCTION

Reccurent aphthous stomatitis (RAS), repetitive inflammation of the oral mucosa, takes the form of a yellowish white shallow single or multiple ulcer surrounded by an erythematous halo. RAS can develop in non-ceratine oral cavities such as the buccal, labial, lateral and ventral tongue mucosa in addition to the mucous membrane in the floor of the mouth, soft palatum and oropharynx. The condition usually presents as a burning sensation lasting for 24 to 48 hours before the development of the ulcers sufficiently painful as to impede activities such as talking and eating.^{1,2}

The prevalence of RAS amounts to approximately 20% of the population. RAS begins in late childhood, between

the ages of 10 and 20 years of age, and continues through to adulthood, the condition having been found to be more common among females than males.^{1–3} The etiology of RAS remains unclear but has been tentatively attributed to environmental and genetic factors, including; stress, chemical or physical trauma, infection, systemic diseases, hormonal dysfunction, nutrition deficiency (zing, folat and vitamin B12), food allergies (for example; chocolate, coffee, peanuts, cereals, almonds, and cheese).^{4–6}

A stress-induced decline in the immune system seriously compromises the system itself; subsequently resulting in RAS. Furthermore, when a patient is under stress, local trauma caused by a bite can occur more frequently. Stress constitutes a condition where a person is unable to cope with stressors which then negatively impacts affect his/her

physical or mental condition. In cases of physical changes, stress will induce the body to release chemical substances that trigger the discharge of hormones and neurotransmitters into the bloodstream.^{6,7}

Adjustment disorder, a condition frequently related to either acute or chronic stress, is neither a permanent nor a psychotic disorder. Rather, this condition results from the failure of various aspects of the patient's general functioning caused by emotional responses when managing stress or specific changes.^{8,9} Epidemiological studies show that between 2% and 8% of the total number of sufferers from adjustment disorder are female, a percentage twice as high as that of their male counterparts. Interestingly, single women run a high risk. Adjustment disorder usually occurs three months after the emergence of stressors which can be recurrent or continuous in character.^{8,10} At the time of writing, no studies reporting cases of oral cavity problems related to adjustment disorder, such as RAS, exist. This paper aims to report the case procedure for trauma-induced RAS in patients with adjustment disorder.

CASE

The patient, a 21 year-old female student, visited the Department of Oral Medicine of the Dental Hospital at Universitas Airlangga on 14 August 2019. The various symptoms she reported included ulcers on the tip and sides of the tongue, the floor of the mouth and the left and right cheeks which had suddenly appeared a month before and had yet to recover due to their not having been treated. The patient had presented the same symptoms six months previously which had necessitated a two-month period of recovery. The patient consumed only vitamin C and a refreshing drink to cure her ulcer. She did not report suffering any allergies, but seldom consumed fruit and vegetables and ate irregularly, i.e. once a day or even once every two days. She complained of the ulcer causing her discomfort when eating or speaking.

In terms of her social history, the patient claimed that she was shy, chose to live a quiet life and lacked definite life goals. Moreover, she was lacking in self-confidence, found it difficult to socialize with new acquaintances and, on those occasions when willing to associate with others,

feared rejection. During the anamnesis period, the patient appeared restless and worried. Her hands were cold and the answers she gave to questions were delivered with flat intonation.

Clinical extraoral examination of the patient's left and right lymph nodes revealed no abnormality and she reported no pain. Furthermore, intraoral examination revealed multiple painful yellowish-white ulcers with a clear border surrounded by red areas. The dimensions of the ulcers were 6.5 mm x 5.5 mm on the right mucosa, 2 mm x 3.5 mm on the left mucosa; 6 mm x 6.5 mm on the lateral of tongue; 5 mm x 8.5 mm on the tip of the tongue; and 6.5 mm x 8.5 mm on the floor of the mouth (Figure 1). The provisional diagnosis was one of suspected aphthous stomatitis with a differential diagnosis of mucous membrane pemphigoid (MMP).

CASE MANAGEMENT

The prescribed treatment consisted of benzydamine HCl 0,15% mouthwash used four times a day and Theragran-M taken once a day. The patient was referred to the of Pathology Clinic Laboratory for a comprehensive blood examination, total Ig E test, and ANA test, in addition to the Periodontics Clinic for tartar descaling. A Depression Anxiety Stress Scale (DASS 42) examination indicated that the patient's level of anxiety was severe (score 17), while that of her depression was moderate (score 14). These findings resulted in the patient being referred for a cortisol level test. The patient was instructed to take medicines in accordance with the prescribed schedule, maintain oral hygiene, consume vegetables and fruit, eat more regularly, and manage her anxiety.

On her second visit to the hospital on the fifth day, the patient reported a reduction in pain and the complete healing of the ulcer on her right buccal mucosa, while that on the left had reduced in size. Conversely, the ulcer located on the border of the tongue had continued to increase in size and the one on the tip of the tongue was swollen and reddish in colour. The result of a complete blood examination produced normal scores for total Ig E and an ANA test. With the exception of the eosinophil which was 30/uL (normal 80-360 /uL), the level of cortisol in the afternoon

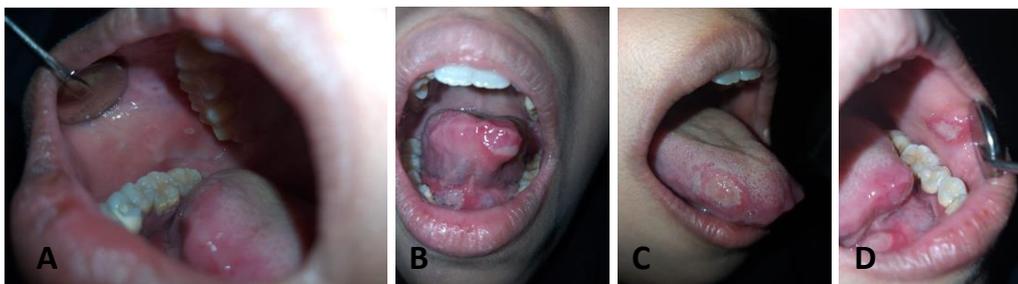


Figure 1. A-D) Painful ulcers, multiple, sizes: 2 x 3.5 mm; 5 x 8.5 mm; 6 x 6.5 mm; 6.5 x 5.5 mm; 6.5 x 8.8 mm; yellowish white centres surrounded by red areas. The surface is slimy with a clear border and an irregular edge.

was 17.39 ug/dL (normal 2.69 – 10.4 ug/dL). The previous symptomatic therapy was discontinued and replaced with a new prescription, namely; a 0.5 mg dexamethasone tablet in powder form mixed with water and gargled three times a day, while the once-daily administration of Theragran-M was continued. Furthermore, the patient was referred to the microbiology laboratory for bacteria and fungus analysis, as well as to a psychiatrist .

On the third visit (day 21), the patient reported that the ulcers were no longer painful and that her general mood had improved following her discussions with the psychiatrist. The microbiology examination results for bacteria culture and fungus were both negative. The intraoral image result indicated lesion erosion on the floor of the mouth, left buccal mucosa and tip of the tongue. The ulcer on the edge of the tongue had already reduced in size (Figure 2). Based on the Minnesota Multiphasic Personality Inventory (MMPI) psychiatric examination result, the patient was diagnosed as suffering from Adjustment Disorder (F43.20). No pharmacological therapy was undertaken, merely the provision of supportive recommendations that the patient should strive to manage both her anxiety and stress. Psycho-education was also provided by suggesting a change of lifestyle, including an attempt to gain weight and undertake regular exercise. The diagnosis in this case was one of aphthous stomatitis with a differential diagnosis of RAS.

By the fourth visit (day 29), the ulcers had completely recovered (Figure 3). The patient reported her anxiety as being reduced and that she felt more confident and comfortable. However, she looked less restless, only gradually opening up when required to converse, but

claimed to be eating more frequently (3-4 times a day) and to have gained three kilograms in weight since her first visit to the hospital. One month after her most recent check-up, the patient reported that two small ulcers had developed on the tip of her tongue. She admitted to feeling under pressure due to having to prepare a research proposal. The final diagnosis arrived at was one of trauma-induced RAS within a case of adjustment disorder (AD). The patient was instructed to continue the use of mouthwash, maintain oral hygiene, follow a healthy diet and manage her stress levels.

DISCUSSION

A diagnosis of trauma-induced recurrent aphthous stomatitis in this individual who was suffering from adjustment disorder had been arrived at on the basis of anamnesis, clinical description and supporting examination. With regard to anamnesis, the patient acknowledged being depressed and anxious about her brother-in-law, a new member of the family who had married her sister eight months before. She was experiencing difficulty in adapting to this new situation and even experienced feelings of terror when attempting to communicate with him. This situation led her to pay only infrequent visits to her home town in order to avoid meeting this individual. The primary conflict that the patient experienced was between her genuine willingness to socialize and the fear of not being appreciated, and possibly even rejected, by others. The patient preferred to spend her time alone reading books about outer space, dinosaurs and superstitions. Her thoughts

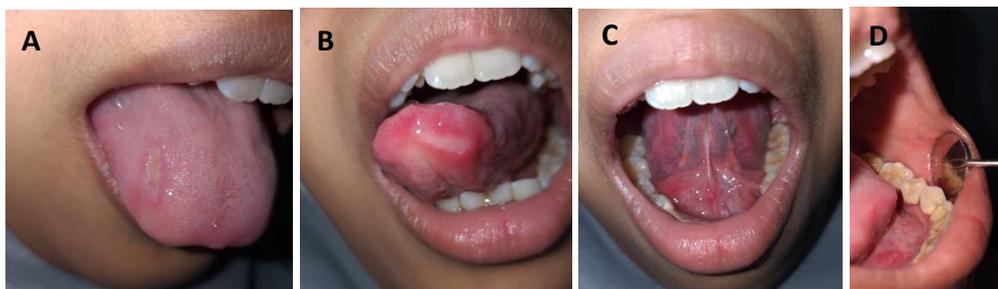


Figure 2. A-B) Size of painless ulcers 6.5 x 1.5 mm; 5.5 x 6.5 mm; C-D) Size of erosion ϕ 0.5 mm; 2 x 3 mm.

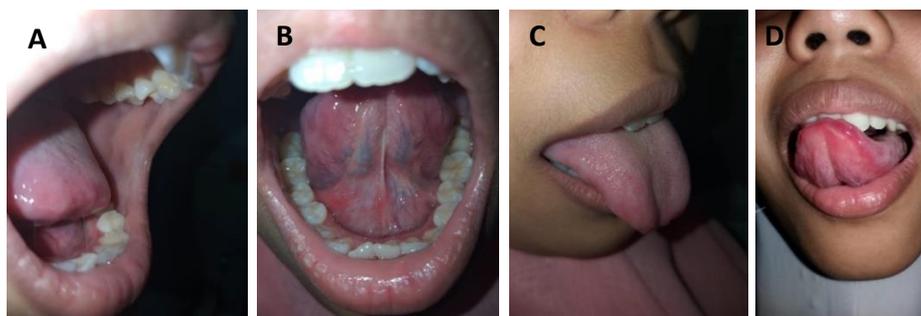


Figure 3. A-D) Healed ulcer of patients (day 29).

were dominated by the invisible or intangible. She appeared unconcerned about her own well-being, eating only once a day or once every two days due to having forgotten to do so. At times, she felt her life to be empty, aimless, and hypoactive. The results of DASS 42 showed her levels of anxiety, depression and stress to be high, moderate and normal respectively. Examination of the subject's cortisol level in the afternoon confirmed it as high.

Aphthous stomatitis constituted the initial diagnosis because the frequency with which ulcers occurred was twice every 6 months. Therefore, the subject's prevailing condition could not be classified as RAS. An ANA test produced a negative result, indicating that the prediction of autoimmune disease such as MMP, which constituted the differential diagnosis, was negative. The image of the tip of the tongue appeared to indicate a case of MMP. This led to a preliminary diagnosis of autoimmunity. Examination of total Ig E, bacteria culture and fungus produced negative results. Consequently, the prediction of allergy, infection, bacteria and fungus was disproved. Eosinopenia, a condition whereby the amount of eosinophil produced is extremely low, highlighted such hazards as consuming steroid-based medicines, excessive cortisol production, and overindulgence in alcohol.¹¹

One of the quality-tested instruments employed to measure stress levels is DASS 42 which consists of 42 questions designed to measure the level of negative emotions such as anxiety, depression, and stress suffered by a patient.⁹ In this case study, a psychiatric condition was diagnosed since the patient suffered from adjustment disorder as confirmed by an MMPI examination. The patient was recommended to adopt a new lifestyle, gain weight by eating more frequently, and take exercise, for example jogging, on a daily basis.

Adjustment disorder is maladaptive reaction to an identifiable psychosocial stressor occurring three months after its emergence. The reaction to one or two stressors in a person's life is more extreme than the normal reactions of others to those same stress factors. These symptoms are supposed to dissipate six months after the stressors appear but may persist for longer if they are eradicated. Psychiatry normally helps patients with adjustment disorder directly by providing support during critical periods and seeking to encourage the patient to manage their stressors through coping mechanisms. Psychotherapy is the preferred choice of treatment for adjustment disorder.^{8,10}

Stressors induce a drastic increase in the level of stress hormones while, under normal conditions, the amount released daily into the body is extremely limited. First, the hypothalamus in the brain releases corticotrophin releasing factor (CRF) into the bloodstream, which eventually reaches the pituitary gland located below the hypothalamus. CRF stimulates the release of adrenocorticotrophin hormone (ACTH) which, in turn, induces the adrenaline gland to discharge various hormones, including cortisol. Cortisol circulates within the body and plays important role in the coping mechanism. The secretion of cortisol can

increase 20-fold when an individual under stress, anxious and/or depressed. A high level of cortisol will intensify the regulation activity of the immune system through inflammation by increasing the quantity and quality of leucocytes. When stressed, patients do not consciously move the jaw, tongue, lips or cheeks which can result in the trauma of accidental self-inflicted bites. The tongue tends to be active and, therefore, it is most often affected by trauma or friction from the teeth which necessitates a lengthy recovery period. Under stable emotional conditions, effective coping mechanisms send signals to the brain instructing it to stop releasing CRF.⁷

Gargling with benzidamine HCL, an anti-inflammation nonsteroid (NSAID) medicine with analgesic effects as a local anaesthetic during the patient's first hospital visit helped to reduce pain in her ulcerated mouth. Benzidamine HCL 0.15% consists of 22.5 mg benzidamine HCl per every 15 mL of solution.¹² In addition, the patient was also administered a Theragran-M tablet on a daily basis which is a supplement consisting of multivitamins and minerals used to enhance the immune system and accelerate wound recovery. The ulcerated area inside the mouth improved significantly after provision of dexamethasone 0.5 mg contained in mouthwash. Dexamethasone is a corticosteroid of the glucocorticoid class which induces an adequate anti-inflammation effect by pressuring inflammation mediators such as TNF- α , IL-6 dan IL-1.¹³ Curcuma is a food supplement containing 20 mg of Curcuma xanthorrhiza extract whose function is to enhance the appetite and promote the metabolism. Chlorine dioxide mouthwash is an antibacterial whose function is to strengthen mucosa cell walls in order to accelerate wound recovery.¹⁴

The final visit report stated that all ulcers had been eradicated and only reappeared after one month, thereby proving that the ulcers were already in the recurrence stage. This is in line with the theory stating that RAS usually starts in sufferers at the age of 10-20 years.¹⁻³ Ulceration as a result of the psychological disorders suffered by this patient was supported by the DASS result: high levels of cortisol and, conversely, low levels of eosinophil. Therefore, the final diagnosis arrived at was one of trauma-induced RAS as part of adjustment disorder. It can be concluded that oral ulcers may be the result of psychological disorders which can also induce changes in the immune system and oral mucous tissue. Eliminating etiology is used as a therapy to prevent recurrence of RAS. Dentists play an important role in detecting psychological disorder-related oral abnormalities.

REFERENCES

1. Bruch JM, Treister NS. Clinical oral medicine and pathology. New Delhi: Humana Press; 2010. p. 1-169.
2. Gallo C de B, Mimura MAM, Sugaya NN. Psychological stress and recurrent aphthous stomatitis. Clinics. 2009; 64(7): 645-8.
3. Ślebioda Z, Szponar E, Kowalska A. Etiopathogenesis of recurrent aphthous stomatitis and the role of immunologic aspects:

- Literature review. Vol. 62, *Archivum Immunologiae et Therapiae Experimentalis*. Birkhauser Verlag AG; 2014. p. 205–15.
- George S, Baby Joseph B. A study on aphthous ulcer and its association with stress among medical students of an indian medical institution. *Int J Contemp Med Res*. 2016; 3(6): 1692–5.
 - Glick M, Feagans WM. *Burket's oral medicine*. 12th ed. Shelton: People's Medical Publishing House; 2015. p. 733.
 - Sari RK, Ernawati DS, Soebadi B. Recurrent aphthous stomatitis related to psychological stress, food allergy and gerd. *ODONTO Dent J*. 2019; 6: 45–51.
 - Lisdiana. Regulasi kortisol pada kondisi stres dan addiction. *Biosantifika*. 2012; 4(1): 18–26.
 - Carta MG, Balestrieri M, Murrù A, Hardoy MC. Adjustment disorder: epidemiology, diagnosis and treatment. *Clin Pract Epidemiol Ment Heal*. 2009; 5: 1–15.
 - Ali I. Adjustment disorders (stress related or psychiatric disorder). *J Psychiatry*. 2015; 18(5): 1–2.
 - O'donnell ML, Agathos JA, Metcalf O, Gibson K, Lau W. Adjustment disorder: current developments and future directions. *Int J Environ Res Public Health*. 2019; 16(14): 2537.
 - Kementerian Kesehatan Republik Indonesia. *Pedoman interpretasi data klinis*. Jakarta: Kementerian Kesehatan Republik Indonesia; 2011. p. 1–83.
 - Firza TA, Umar N, Ihsan M. Perbandingan obat kumur Benzylamine Hydrochloride 22,5 mg dan ketamin 40 mg dalam mengurangi nyeri tenggorok dan suara serak akibat intubasi Endotrakeal. *J Anestesi Perioper*. 2017; 5(1): 57–66.
 - Erlangga ME, Sitanggang RH, Bisri T. Perbandingan pemberian deksametason 10 mg dengan 15 mg intravena sebagai adjuvan analgetik terhadap skala nyeri pascabedah pada pasien yang dilakukan radikal mastektomi termodifikasi. *J Anestesi Perioper*. 2015; 3(3): 146–54.
 - Setiadhi R, Firman DR. *Obat di bidang penyakit mulut dan penulisan resepnya*. Bandung: Unpad Press; 2017. p. 1–61.