Management of recurrent aphthous ulceration with iron deficiency anemia: a case report

Yuskhaider,1 Desiana Radithia, Diah S. Ernawati

Abstract

Objective: The purpose of this case report was to discuss the management of recurrent aphthous ulceration related with iron deficiency anemia.

Methods: A teenage girl aged 18 years 7 months comes with complaints of a lot of ulcers in the oral cavity. The patient said that she had had ulcers since 3 years ago, had no history of allergies, and with a weight that dropped below normal according to BMI standards. From intra oral examination multiple ulcers appear on the labial mucosa, buccal mucosa, painful gingiva and atrophy on the tongue.

Results: Patients undergo complete blood tests with Hb results of 10.8g/dL (N:11.7-15.3g/dL), eosinophils 5% (N: 2-4%), Neutrophils 42%, lymphocytes 42%, monocytes 8%, hematocrit 33%, MCV 68fl, MCH 21pg, MCHC 31g/dL.

Conclusion: Diagnosis of iron deficiency anemia is definitively established by blood test by showing a decrease in hemoglobin, hematocrit and the presence of hypochromic microcytic features by means of mean corpuscular volume (MCH), mean corpuscular hemoglobin (MCV) and mean corpuscular hemoglobin concentration (MCHC).

Keywords: Hemoglobin, Iron deficiency anemia, Recurrent aphthous ulceration


Introduction

Recurrent aphthous ulceration (RAU) or recurrent aphthous stomatitis (RAS) is an oral mucosal disease characterized by recurrence and ulcers that occur in the non-keratinized oral mucosa such as the labial, buccal, alveolar, and ventral mucosa of the tongue. The Greek term “aphthae” was originally used in oral disorders and was popularized by Hippocrates (460-370 BC). The prevalence of RAS is between 2% and 50% in the general population with a peak age for RAS between 10 and 19 years.

One of the factors causing RAU is iron deficiency anemia. Iron deficiency causes epithelial atrophy. RAU is a disease that often occurs due to epithelial atrophy. Diagnosis of iron deficiency anemia is definitively established by blood tests by showing a decrease in hemoglobin, hematocrit and the presence of hypochromic microcytic features by means of mean corpuscular volume (MCH), mean corpuscular hemoglobin (MCV), and mean corpuscular hemoglobin concentration (MCHC). Other tests also showed low iron, transferrin and ferritin concentrations, but as an initial diagnostic indication of presence of iron deficiency anemia was low ferritin. Iron deficiency causes microcytic anemia. Patients with IDA have characteristics of systemic symptoms such as fatigue, weakness, mild headaches, shortness of breath, and palpitations. Symptoms and manifestations in oral cavity include glossitis atrophy (AG), oral mucosal atrophy, tenderness or oral mucosal burning sensation, dry mouth, taste dysfunction, lingual varicosity, recurrent aphthous ulcerations (RAU), and oral lichen planus (OLP).

The purpose of this case report was to discuss the management of recurrent aphthous ulceration related with iron deficiency anemia.

Case report

Visit-1 (March 8, 2019)

An 18-years-old woman came to Dental Hospital Universitas Airlangga Surabaya with complaints of large thrush in the oral cavity and pain. Thrush occurs suddenly from 4 days ago in upper gum area and right upper lip and has not been treated. The patient started having thrush since 3 years ago and experienced it 5-6 times in 1 year. The patient’s body weight, height, and Body Mass Index (BMI) were 37 kg, 152 cms, 16.01 (BMI level was below normal). On medical history, patient did not have a history of allergies, and there were mild stomach ulcers and joints problem in term of systemic diseases.

The general condition of patient was normal. Extra oral clinical examination: on palpation of the submental and submandibular lymph glands dextra and sinistra were normal. The skin, palms and pupils were slightly pale.

Intra-oral clinical examination found in the dextra upper labial mucosa appeared as solitary, 6 x 4 mm ulcer, yellowish white, surrounding area redness, pain. Dextra upper anterior gingiva appeared reddish, solitary macula, round shape,
1st Control (4th Day, March 12 2019)
On the second visit, the patient felt pain in canker sores has diminished and began to improve, but new canker sores appear on edge of the lips and inside of the left cheek. Drugs were still available and consumed as prescribed. And patients came with the results of a complete blood test within the normal range except Hb 10.8g/dL (N: 11.7-15.3g/dL), eosinophils 5% (N: 2-4%), Neutrophils 42% (55 - 65%), 42% lymphocytes (25-35%), 8% monocytes (3-6%), erythrocyte sedimentation rate (LED) 48 mm/hour (N: 1-30mm/hour), hematocrit 33% (N: 35-47%), MCV 68fL (N: 80-100fL), MCH 21pg (N: 6-34pg), MCHC 31g/dL (32-36g/dL). The general condition of the patient seem better and the body temperature was normal.

On extra oral clinical examination, the upper and lower lips appeared normal. On intra-oral examination, in dextral labial mucosa, were found ulcer, solitary, measuring 4x3mm, the surrounding reddish area, not painful. In the anterior gingiva dextra RA there were a reddish, solitary macula, round shape, 1x1mm in size, no pain. Dextra RA’s posterior gingiva appeared erosive, solitary, round shape, 3x1mm in size, painless. In the posterior gingiva there were RA, solitary, oval, yellowish white, 3x1mm in size, painless. On the dorsum of the tongue, papillae was atrophy, redness, and painless.

Based on history, clinical examination, and the results of a complete blood examination, a temporary diagnosis was recurrent aphthous ulceration associated with anemia and differential diagnosis was recurrent apthous stomatitis associated with iron deficiency anemia. On the second visit, the patient was referred to an Internal Medicine Specialist for examination of TIBC, serum iron and ferritin to determine the possible causes of anemia. The patient was prescribed theragran M tab vitamin drug No. VIII, once a day, instructed to continue using topical and control drugs a week later.

2nd Control (7th day, March 19 2019)
On the third visit, the patient felt canker sores on the front and back of the right upper gum has healed and was painless since 3 days ago but new thrush appeared on the inner left lower lip, inner left cheek and there was still atrophy on the tongue. Thrush on the upper right labial mucosa and the left upper left gum and appetite begin to increase. The theragran M vitamin drug were used regularly and has run out. The results of laboratory test were TIBC 437.1 H (N: 300-400µg/dl) Serum iron 48.61 L (N: Lk: 59-158; Pr: 37-145µg/ml) and ferritin 62.71L (N: Lk: 30-350; Pr: 20-250µg/ml). The general condition of the patient seem to be better.

Extra oral clinical examination was not found

red color, 1x1mm in size, painless. The posterior and left posterior gingiva upper appeared, solitary ulcer, oval shape, yellowish white, surrounded reddish area, 4x2mm in size, pain.

Temporary diagnosis in this patient was recurrent aphthous ulceration with a diagnosis of appealing to recurrent apthous stomatitis associated with anemia. On the first visit, the patient was prescribed chlorine dioxide dental gel that was applied four times a day after eating and before going to bed. Patient was advised to do a complete blood check.
any abnormalities. Intra-oral clinical examination was found in the reddish macula, solitary in the upper labial mucosa, oval shape, 2x1mm in size, painless. In the posterior gingiva, upper appeared, solitary ulcers, oval shape, yellowish white, 1x1mm in size, slippery surface texture, clear borders, irregular edges, reddish areas, no pain. In the left labial mucosa lower appears, solitary ulcer, round shape, yellowish white, 2x2mm in size, surrounding redness area, and pain. In the left buccal mucosa, ulcer, solitary, round shape, yellowish white, 2x2mm in size, surrounding redness area, and pain. Dorsal tongue showed papilla atrophy, redness, and painless.

Based on history, clinical examination, results of TIBC examination, serum iron and ferritin, the diagnosis became Recurrent aphthous ulceration related to iron deficiency anemia. Patients were instructed to continue using topical drugs and patients prescribed vitamin becom-zel and control a week later.

3rd Control (14th day, 26th March 2019)
On the fourth visit, the patient said canker sores on the inside of the left lower lip and left buccal mucosa were still present and appetite had returned to normal. The patient has taken maltofer medicine given from a specialist in internal medicine.

4th Control (23rd day, 4th April 2019)
On the fifth visit, the patient came to feel thrush on the lower left labial mucosa, the left part of the buccal mucosa was still present, atrophy on the tongue was gone but new thrush suddenly appeared on the right cheek.

Extra oral clinical examination was found no abnormalities. Intra-oral clinical examination of the left labial mucosa lower appears macula, solitary, round shape, red, 2x2mm in size, painless. In the left buccal mucosa erosion, solitary, round shape, white 2x2mm in size, painless. On the dextral buccal mucosa, the ulcer appears, solitary, measuring 2x2mm, the surrounding area is redness, pain.

At the fifth visit, the diagnosis was RAU related to iron deficiency anemia. Patient were given IEC to improve oral hygiene, used medication regularly, consume water, vegetables, fruits and adequate rest and control for the next week.

5th Control (30th day, 11th April 2019)
On the sixth visit, the patient said canker sores on the right cheek mucosa were absent and
painless, the patient routinely used topical and vitamin drugs according to instructions. On extra oral clinical examination no abnormalities were found. Intra-oral clinical examination was found to be macular, solitary, reddish, 2x2mm in size, painless in the right dexal buccal mucosa, whereas in other areas it had undergone healing and treatment was declared complete.

Based on the history, clinical examination, investigation and follow-up were carried out for a month. And recovered under normal conditions, the final diagnosis in this case was RAU related to iron deficiency anemia.

Discussion

Recurrent aphthous ulceration or recurrent apthous stomatitis is a common oral mucosal disease, characterized by recurrence and painful ulcers in the non-keratinized oral mucosa such as the labial, buccal, alveolar and ventral mucosa of the tongue. At the beginning of arrival, the patient was diagnosed as RAS based on history and clinical examination. History results were known to have below normal weight according to the standard Body Mass Index (BMI) with painful ulcers causing decreased appetite. The clinical picture resembles a minor type of RAS, namely the presence of multiple multiple ulcers on the non-keratinized mucosa. Minor apthous ulcers are the most common ulcers in iron deficiency anemia. The ulcer has a small round / oval clinical picture in yellow-gray and halo erromatomatous. Usually healed, without scarring and permanent recurrent. This is related to the importance of estimating ferritin (which is a sensitive test for diagnosing iron deficiency anemia) in recurrent apthous ulceration. RAS is the most common disease, especially on women with low Hb levels causing epithelial atrophy caused by iron deficiency. Minor apthous ulcers are the most common ulcers in iron deficiency anemia. The ulcer has a small round / oval clinical picture in yellow-gray and halo erromatomatous. Usually healed, without scarring and permanent recurrent. This is related to the importance of estimating ferritin (which is a sensitive test for diagnosing iron deficiency anemia) in recurrent apthous ulceration. RAS is the most common disease, especially on women with low Hb levels causing epithelial atrophy caused by iron deficiency. According to WHO the lack of hemoglobin levels and their effects in carrying oxygen is insufficient for the oral mucosa which causes atrophy in the oral mucosa. Anemia is one of the most common blood disorders

Anemia based on iron deficiency, folate and/or vitamin B12.

The results of blood tests showed high values of eosinophil, lymphocytes, monocytes, and LEDs and were low in Hb, Neutrophil, Hct, MCV, MCH and MCHC values. The high value of eosinophil and monocytes is related to viral, bacterial and parasitic infections. Increased LED values occur in acute and chronic infections. This is in accordance with the condition of patients who were experiencing inflammation of the oral mucosa. Decreased Hb value can occur in anemia, cirrhosis, hyperthyroidism, pregnancy, and bleeding. Decreased MCV values were seen in patients with iron deficiency anemia, pernicious anemia and tallasemia. Decreased Hct value is an indicator of anemia, leukemia, cirrhosis, and hyperthyroidism. The decrease in MCH indicates microcytic anemia. In these patients the values of Hb, Hct, MCV, MCH and MCHC decreased indicating that patients had hypochromic microcytic anemia that could occur due to iron deficiency but high TIBC values and low ferritin levels so that patients with iron deficiency anemia occurred.

Chlorine dioxide gel contained in the dental gel preparation, has the ability to be antimicrobial. Other ingredients include Matrixia Extract (Chamomillarecutita) which helps relieve swelling, Glycerin which helps overcome infections and helps gel when applied to the wound surface, and accelerates the absorption of active ingredients, folic acid or vitamin B which helps regenerate body cells, zinc acetate which has the ability to neutralize the effects of poisons and odors from VSC (volatile sulfur compounds) which are usually formed in wounds, and Aloe vera which functions to reduce pain and accelerate wound healing. The pharmacological effects of Aloe vera are anti-inflammatory, anti-microbial, and healing. Iron (Fe) is a supplement that is adjusted to ferritin serum level, which is an indicator in the body. If serum ferritin <30 μg / dl is recommended for 100 mg Fe / day.

Iron tablets, Iron Polymaltose Complex (IPC) for the treatment of iron deficiency anemia is an alternative for patients who cannot tolerate iron. Another advantage of IPC is a non-ionic preparation that does not cause oxidative stress reactions, making it safer and tolerable for patients. IPC produces become more effective than SF. Iron Tablet Polymaltose Complex is a fairly good tablet with its absorption of 29% greater than the standard iron. IPC produces become more effective than SF.

Conclusion

Recurrent aphthous ulceration (RAU) is an oral
anemia is definitively established by blood tests by showing a decrease in hemoglobin, hematocrit and the presence of hypochromic microcytic features by means of mean corpuscular volume (MCH), mean corpuscular hemoglobin (MCV) and mean corpuscular hemoglobin concentration (MCHC). low iron, transferrin and ferritin concentrations, and high TIBC values. Therapy RAU with a food-based approach and a drug-based approach chlorine dioxide and Iron Polymaltose Complex. Efforts to increase overall food intake and consumption of iron-rich foods, folic acid and vitamin C and foods that increase iron absorption. Therefore, nutritional education accompanied by iron supplementation with natural sources of vitamin C is the best strategy to restore normal levels of hemoglobin and iron, thus preventing iron deficiency anemia.

Acknowledgment

Thank the patient who has been willing to share his case for reported and for his cooperation to come for control treatment.

Conflict of Interest

The authors report no conflict of interest.

References

7. Widagdo AK, Herawati D, Syaify A. Application of chlorine dioxide gel in chronic periodontitis paska curettage (study on pocket depth, clinical attachment level and bleeding on probing). J Kedektoran Gigi 2015;6: 268. (in Indonesian)