THE MANAGEMENT OF RECURRENT APHTHOUS STomatitis WITH GASTROINTESTINAL DISEASE ASSOCIATED WITH HELICOBACTER PYLORI.
(Case Report)

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ABSTRACT

Background: Recurrent aphthous stomatitis (RAS) is a chronic remitting oral disease occurring in up to 50% of the general population. The precise etiology of RAS is still unclear but many various factors influence such as genetics, immunological factors, microorganisms, local trauma, stress, hormone, food hypersensitivity and nutrition. These lesions are

INTRODUCTION

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Kata kunci: SAR, Helicobacter pylori, Obat Kumur Clorheksidin Glukonat 0,2%, Obat kumur Tetracyclin

ABSTRACT

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classified according to the size, site, amount of ulcers, peak of onset and pattern of the healing ulcers into three groups: minor, major and herpetiform lesions.3,4

Gastritis is an inflammation of the stomach or the duodenum lining.3 The prevalence of peptic ulcer disease has been decreased because of the widespread use of antacids, Histamine antagonists and proton pump inhibitors.4,5 Many things can cause gastritis. Most often the cause is infection with the same bacteria — Helicobacter pylori — that causes stomach ulcers. In some cases, the stomach lining may be “eaten away,” leading to sores (peptic ulcers) in the stomach or first part of the small intestine. Gastritis can occur suddenly (acute gastritis) or gradually (chronic gastritis). In most cases, gastritis does not permanently damage the stomach lining.5

Helicobacter pylori is a microaerophilic, Gram-negative spiral bacillus4,6,7 which is an important human pathogen associated with the etiology of chronic gastritis, peptic ulcer, gastric cancer, and mucosa-associated lymphoid tissue lymphoma and has been designated as a Group 1 Carcinogen by the International Agency for Research on Cancer of the World Health Organization (WHO).5,6 Helicobacter pylori is a microaerophilic, Gram-negative spiral bacillus which is an important human pathogen associated with the etiology of chronic gastritis, peptic ulcer, gastric cancer, and mucosa-associated lymphoid tissue lymphoma and has been designated as a Group 1 Carcinogen by the International Agency for Research on Cancer of the World Health Organization (WHO).6,8 In addition to gastrointestinal diseases, recent data seem to suggest a possible association of this microorganism with other conditions, such as recurrent aphthous stomatitis, anemia, altered serum levels of lipoproteins, and coronary atherosclerosis.6,8

The uncertain nature of the pathogenesis of RAS is reflected in the variety of treatment modalities such as use of the protective emollient, topical anesthetic, topical and systemic steroid and other drugs and none of which is uniformly successful.10 In this case report, we discussed oral management of RAS with chronic gastritis caused by Helicobacter pylori.

CASE REPORT
A 19 years old female college student came to Oral Medicine Clinic of Rumah Sakit Gigi Mulut at Faculty of Dentistry Universitas Prof. Dr. Moestopo (Beragama) with chief complaint painful ulcers on lower lip and right cheek since 3 days before. She usually had recurrent ulcers three times a month and this has lasted since two years ago. She was also diagnosed dyspepsia due to chronic gastritis caused by H. pylori since 2 years ago and had been hospitalized in November 2012. There was no family history of RAS. Laboratory examinations showed normal value of Hemoglobin and Mean Corpuscular Volume (MCV) although in lower borderline, low value of Mean Corpuscular Hemoglobin (MCH) and Mean Corpuscular Hemoglobin Concentration (MCHC) and high leukosit count.(see table 1)

Clinical manifestations showed well rounded ulcers, erythematous margin and yellowish floor, 3 mm on right buccal mucosa and 1 mm on lower labial mucosa and also dental plaque and calculus (Figure 1). We instructed the patient to increase her oral hygiene by using Chlorhexidine Gluconate 0.2% oral rinse twice daily and removing dental plaque and calculus by a Periodontist. The diagnosis was Minor Recurrent Aphthous Stomatitis. At the second visit one week after, ulcers on left buccal mucosa and lower labial mucosa were healed but new ulcers were found on right mandibula gingiva and left buccal mucosa with the same previous RAS clinical manifestations (Figure 2).

<table>
<thead>
<tr>
<th>TABLE 1. Full Blood Count Examination</th>
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<tr>
<td>Hematologic (Unit)</td>
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<tr>
<td>Hb (g/dL)</td>
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<tr>
<td>Leukocyte (10^9/μL)</td>
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<tr>
<td>Basophil (%)</td>
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<td>Eosinophil (%)</td>
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<td>Neutrophil (%)</td>
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<td>Lymphocytes (%)</td>
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<td>Monocytes (%)</td>
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FIGURE 1.
Well rounded ulcers, erythematous margin and yellowish floor, 3 mm across on buccal mucosa (A) and 1 mm on lower labial mucosa and also dental plaque and calculus (B).

Chlorhexidine Gluconate 0.2% oral rinse was still given, Tetracycline oral rinse was also given three times a day for three days and multivitamins contains vitamin B1,B6, and B12 per oral once daily for 10 days. For the next two weeks, no ulcers were found, but when she started to study, while working part time, she got exhausted, new ulcers were found on non keratinezed mucosa (Figure 3).

FIGURE 2.
Well rounded ulcers, erythematous margin and yellowish floor 4 mm on right mandible gingiva (a) and 3 mm on left buccal mucosa (c), healed ulcers (b,d)
serum vitamin B12 is increased. Deficiency of vitamin B12 lead to suppression of the cell mediated immunity and changes in the epithelium of tongue and buccal mucosa. Serum B12 is important for the synthesis of DNA and these conditions could lead to mucosal bleeding and glossitis.

Although \textit{H. pylori} may be detected in the stomach of approximately half of the world’s population, the mechanisms of transmission of the microorganism from individual to individual are still being debated. The possible routes of transmission of \textit{H. pylori} include iatrogenic, fecal-oral, oral-oral, and through food and water. In this regard, it is noteworthy that transmission of \textit{H. pylori} between mother and child takes place in most instances around early childhood at a similar window of infectivity when certain oral microorganisms, such as mutans streptococci, which require the presence of teeth as a habitat, start to colonize the oral cavity.

\textit{H. pylori} exists in two different morphological forms, spiral and coccoid. The coccoid form is considered a degenerative or dead form of \textit{H. pylori}, and its role in transmission of disease is negligible. There is ongoing debate about its virulence and transformation. Although the coccoid form of \textit{H. pylori} is metabolically active, more resistant to antibiotics, and can not be cultured \textit{in vitro}. The organism has been reported to be present in soil samples in public playgrounds. However, no extra-gastric reservoirs of \textit{H. pylori} have been clearly demonstrated, and although organisms resembling \textit{H. pylori} may be detected in other animals, none except non-human primates and cats harbor \textit{H. pylori}. Infections by Helicobacter species (\textit{H. heilmannii} and \textit{H. felis}) have been reported in dogs and cats. Many possible routes of transmission of \textit{H. pylori} such as through orally and studies in developed countries showed that neither dental plaques and dentures are permanent reservoir for \textit{H.pylori} and can be found on buccal mucosa, deep muscle layer of tongue, normal tonsil and adenoid tissue. Meanwhile in developing countries revealed a high prevalence of \textit{H. pylory}. in dental plaques and saliva, though elsewhere the culture of bacterium or its DNA analysis by polymerase chain reaction (PCR) in the material obtained from oral cavity were not successful although we did not examine dental plaque by PCR to confirm that dental plaque are reservoir for \textit{H.pylori}.

The oral cavity is permanent reservoir of \textit{H.pylory} and has a clear association with gastroesophageal infection. However, the question still persists as to whether the oral cavity is a major extra-gastric reservoir for \textit{H.pylori} or harbors the organism only transiently. If the oral cavity, particularly the dental plaque, serves as an extra-gastric reservoir of \textit{H. pylori}, it may have a clear association with gastroesophageal infection and also serious implications regarding the treatment of \textit{H. pylori} infection leading to gastric reinfection. Poor periodontal health characterized by gingivitis and chronic periodontitis may be associated with \textit{H. pylori} infection and considered as a potential reservoir of these bacteria. Professional plaque removal and oral hygiene procedures should be performed along.

**FIGURE 3.**
Well circumscribed ulcers less than 10 mm, with erythematous margin on lower labial mucosa (g), right buccal mucosa (h), and left lower labial mucosa (i).

The medications which patient consumed consist of antacids, antireflux agent antiulcerant (Pantoprazole, Sucralfate and Strocain P), GIT regulators, antiflatulents and anti inflammatory (Domperidone). At the third visit, the gastroenterologist had stop all the medication and only gave Strocain P and Sucralfate, only consumed if there is a symptoms of gastritis. A Periodic consultation with the gastroenterologist is a mandatory in order to prevent reinfection and eliminate \textit{H.pylori} from the gastrointestinal tract.

**DISCUSSION**

Recurrent Aphthous Stomatitis is a chronic and inflammatory disease of oral mucosa, usually found on unkeratinized attached oral mucosa of lips, cheek and tongue, occasionally on gingival mucosa and heal spontaneously. It is characterized by recurring oral ulcers and the peak period of RAS is in the second decade with the first episode in childhood. All of these conditions are presented in our patient.

The patient had \textit{H.pylori} infection lead to chronic gastritis with dyspepsia since 2012. Some studies showed bacterial antigens such as \textit{H.pylori} have the potential factors to modify the immune response and to invoke RAS. The serum level of antibody against \textit{H.pylori} is elevated and Tas et al confirm the advantage effect of \textit{H.pylori} eradication in patients with SAR. Direct damage of surface epithelial cells or release of pro-inflammatory mediators after interaction with \textit{H. pylori} initially, leading to stimulation of an immune response and release of cytokines and oxygen radicals. Extracellular product of \textit{H. pylori} and bacteremia will cause local and systemic immune response. Helicobacter pylori can multiply in macrophages, dendritic cells and epithelial cells. After the elimination of \textit{H.pylori}, the serum vitamin B12 is increased. Deficiency of vitamin B12 lead to suppression of the cell mediated immunity and changes in the epithelium of tongue and buccal mucosa.
with eradication strategies of *H. pylori*. This is on account of the fact that treatment of *H. pylori* infection usually involves administration of systemic antibiotics in combination with other drugs, and dental plaque, being a microbial biofilm, provides protection for the resident microorganisms from systemically administered antimicrobial agents. Despite the current treatment regimens that lead to successful management of *H. pylori*-positive chronic gastritis, the re-infection rate is relatively high. It would be important as a dentist to increase oral hygiene and deter the predisposing factors when treat RAS patient with gastrointestinal disease especially infection of *H. pylori* incoorrent with consultation and treatment with the gastroenterologist.

Tetracycline acts as an anti-inflammatory agent via non-antimicrobial actions by many actions such as down regulations of pro-inflammatory cytokines, inhibit matrix metalloproteinases (MMPs), synthesis of prostataglandin, release of nitric oxide and activation of caspase. Tetracycline also has anti-collagenolytic properties an enhancement of collagen synthesis.

**CONCLUSION**

It is important to determine the predisposing factors of RAS in order to decrease recurrence of RAS. Hematologic disorders must be treated, elimination of *H. pylori* and improvement of oral hygiene will advance the healing of ulcers.

**REFERENCES**

5. Gastritis University of Maryland Medical Center http:// umm.edu/health/medical/altmed/disease/ gastritis/jxx3CPbdeE00 University of Maryland Medical Center
11. Vahedi M, AR. Khalilian AR, Abdollahzadeh Sh, Shafiei N. Saliva Secretion and Efficacy of Helicobacter Pylori Eradication in Peptic Ulcer Patients. Journal of Dentistry, Tehran University of Medical Sciences, Tehran, Iran (2011; Vol. 8, No.4)