Investigation of the Role of Helicobacter Pylori ın the Etiopathogenesis of Current Aphthous Stomatitis

Nino Tsilosani, Professor
Nino Khimshiashvili, Professor
Sophio Salia, MA
Grigol Robakidze University, Tbilisi, Georgia

Abstract

Nowadays, etiopathogenesis of recurrent aphthous stomatitis is not fully understood. Chronic gastritis, gastric and duodenal ulcers, diseases associated with H. Pylori, often attend this oral pathology. It is acknowledged, that H. Pylori is a conditional-pathogenic microbe which is included in normal mucosalflora of the gastrointestinal tract and oral cavity. Oral cavity appears to be a secondary reservoir for the microorganisms and also a source of gastric reinfection after the eradicative treatment in case of gastroduodenal pathologies. H. Pylori has got ability to enhance aggressive factors and considerably reduce mucous membrane protective factors. In order to carry out further investigations on this issue, we have initiated observation on the patients with recurrent aphthous stomatitis. The aim of the study was to determine whether there is a correlation between Helicobacter Pylori infection and recurrent aphthous stomatitis. The results of the given investigation show there is a higher possibility that the role of Helicobacter Pylori in the etiopathogenesis of recurrent oral ulcers (aphthae) is significant.

Keywords: Recurrent aphthous stomatitis, H. Pylori, chronic gastritis, gastric and duodenal ulcers

Introduction

Recurrent aphthous stomatitis (K-12.0), recurrent oral ulcers (aphthae), is common both in children and adults, primarily in women. Although its Etiopathogenesis is not fully understood, there still exist several theories:

- **Genetic predisposition** - Genetic predisposition was first ascertained in 60ies in Jordan where a survey was conducted (6). According to the survey among the patients 66.4% cases with family history of aphthous stomatitis was revealed.

- **Allergic disposition, nature** - Immunological aspects of the disease encourage us to assume its allergic genesis. Bacteria, viruses, food, and medications can cause cellular and humoral immunity response, accompanied by the damage of oral mucosal epithelium (12).

- **The role of bacteria and viruses** - According to the existing literature, some scientists do not exclude that bacteria and viruses, such as Streptococus, Citomegalovirus, Varicella Zoster, Herpes Simplex may play etiological role (13, 14).

- **Vitamin and mineral deficiency** - According to Barnadas' findings, in 26,2% of patients iron deficiency, folic acid deficiency and vitamin B-12 deficiency has been revealed (2).

- **Stress** - Greek and Indian scientists say that in the pathogenesis of the recurrent aphthous stomatitis an important role plays cortisol levels in blood and saliva (7).

- **Gastrointestinal diseases** - In recent decades, investigations on the role of H. Pylori in the etiopathogenesis of recurrent aphthous stomatitis has been appearing. (8, 10) Chronic gastritis, gastric and duodenal ulcers, diseases associated with H. Pylori, often attend this oral pathology.

Helicobacter Pylori appears to be one of the most prevalent infections in the world. The highest levels of the infection are observed in developing countries. But the level of the infection is quite high even in developed countries. According to Marshall's data 20% of the population above 40 and 50% of the population above 60 are infected with H. Pylori in developed countries. Infection levels are higher in children, rather than in adults, both in developing and developed countries.

Diseases associated with H. Pylori are as follows: chronic gastritis, gastric and duodenal ulcers.

The fact, that gastrointestinal tract disorders affect the mouth, can be explained by the morphofunctional similarity of the oral cavity and gastrointestinal tract mucosa (3). Besides, as we know, oral cavity mucosa has got a broad field of receptors, which may be reflectively affected by any internal organ dysfunctions (11).

Ways of H. Pylori infection transmission: fecal-oral route, oral-oral route and iatrogenic transmission (5). The gate for the infection is the mouth. It should be noted that there exist occupational risk factors among various professionals, but H. Pylori is most prevalent in dentists. Most likely it is transmitted via bacterial aerosol cloud, which is formed in the process of dental procedures.

H. Pylori has got ability to enhance aggressive factors and considerably reduce mucous membrane protective factors.

About 2/3 of H. Pylori strains manufacture, the so called vacuolating cytotoxins, which cause the death of a cell. The manufactured active

enzymes, such as ureases, phospholipases, catalases, oxidases, hemolysins, proteases and so on not only destroy the wholeness, integrity of epithelial cells, but they also reduce protective functions of the mucous membrane. In addition, vascular endothelium is damaged and tissue trophism is destroyed (15).

Nowadays, it is acknowledged that H. Pylori may be a conditional-pathogenic microbe which is included in normal mucosal flora of the gastrointestinal tract and oral cavity (4). Oral cavity appears to be a secondary reservoir for the microorganisms and also a source of gastric reinfection after the eradicative treatment in case of gastroduodenal pathologies.

H. Pylori may be found in saliva, gingival fluid, soft plaque, periodontal pocket contents, tongue and cheek mucosa and prosthetic constructions (dentures) (9). Oral colonization mechanism of these microorganisms has not been studied adequately yet and there is no data about the correlation between microbe persistence and dental status in the oral cavity, and the role of H. Pylori in the etiopathogenesis of recurrent aphthous stomatitis has not been proven as well.

In recent decades, investigations on the role of H. Pylori in the etiopathogenesis of recurrent aphthous stomatitis has been appearing. According to the data of the survey conducted in 2015, H. Pylori infection was detected in 65% of patients with gastrointestinal pathologies, and they had recurrent aphthous stomatitis simultaneously (1). After efficient eradication therapy the number of the aphthae had been reduced considerably and vitamin B_{12} level had been increased in the blood.

In order to carry out further investigations on this issue, we have initiated observation on the patients with recurrent aphthous stomatitis complaints at Gr. Robakidze University Dental Clinic “Alma Dental Studio” since February, 2016.

The aim of the study was to determine whether there is a correlation between Helicobacter Pylori infection and recurrent aphthous stomatitis.

Materials and Methods

19 patients aged 6-39 (6 children, 9 females and 4 males) were included in the study. None of the patients had had a diagnosis of gastroduodenal pathology before. All of the patients were investigated for Helicobacter Pylori infection. To ensure the presence of bacteria, a noninvasive “rapid urease test” (RUT) was used in all the nineteen patients. The test results appeared to be positive in all the nineteen cases. The patients were referred to the gastroenterologist to get a consultation and further examination. From 19 only 16 patients visited gastroenterologist.

The results and review of the research

According to endoscopic findings, only 5 of the patients appeared not to have any kind of gastroduodenal disorders, 3 of them were diagnosed with duodenal ulcer, 8 of them had chronic form of erosive gastroduodenitis.

All the 16 patients underwent a helicobacter eradication therapy. Simultaneously the patients were treated with local symptomatic treatment of recurrent aphthous stomatitis (treating mucous membrane with antiseptics, applying proteolytic enzymes to aphthae, administering medications stimulating epithelization, administering antihistamine medications Per os and local immunity stimulators). On the 5-th/7-th day of the treatment all the patients had marked improvement of the oral cavity mucous membrane and reduction of the aphtae in size, epithelization signs were also present.

After 4 weeks of treatment no complaints or clinical manifestations have occurred in these patients. All the patients have been under outpatient observation. Since then until August, 2016 no aphthous stomatitis recurrence had been detected except for one case (a male aged 32 with duodenal ulcer).

The results of the given study show there is a higher possibility that the role of Helicobacter Pylori in the etiopathogenesis of recurrent aphthous stomatitis is significant. Therefore, in order to study the issue more deeply, further complex investigation of the issue is being planned at the University Clinic. As the ascertainment of the role of Helicobacter Pylori in the etiopathogenesis of recurrent aphthous stomatitis is of great importance, not only in the sense of this certain oral pathology treatment, but also in the sense of preventing formation of ulcers in the gastrointestinal tract, the study will include different methods in diagnosing Helicobacter Pylori infection: “Urease Rapid Test”, serologic studies (to reveal antibodies), and investigation of the tissue sample (bioptate) taken from the damaged area of the oral mucous membrane.

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