



Case Report

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Rosacea and *Helicobacter pylori*, is there any Relationship?

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Abstract

Aim of the study: Rosacea, an inflammatory skin disease, may have a potential relationship with *Helicobacter pylori* (*H. pylori*) infection. This correlation is controversial. This study was designed to assess whether *H. pylori* infection might play a pathogenic role in rosacea.

Patients and methods: 50 patients with rosacea and 50 controls were enrolled. The *H. pylori* infection was evaluated by C Urea Breath Test (C UBT). A baseline breath sample was obtained and another 30 minutes later. *H. pylori* infected subjects were treated with PPIs, 1 gr amoxicillin, 500 mg clarithromycin, 500 mg metronidazole, bid. *H. pylori* status was re-evaluated 4 weeks after completion of therapy. Infection was considered eradicated if patients had a negative test.

Results: In terms of *H. pylori* positivity, no significant difference was observed between the two groups. Among rosacea patients, *H. pylori* infection does not appear more often compared to the general population. However, the *H. pylori* positive group on eradication therapy showed significant improvement in the rosacea severity. The results maintained for 1 year.

Conclusion: All rosacea patients should be tested for *H. pylori* infection. The early detection and eradication of *H. pylori* reduces the risk of complications from long term survival of the microbe. Moreover, it improves the rosacea that could develop into a resistant form.

Keywords

Rosacea, *Helicobacter pylori*, Treatment for *Helicobacter pylori*

Introduction

Rosacea is an inflammatory skin disease affecting the central part of the face characterized by erythema, papules, papulopustules and telangiectasia of unknown etiology. Several factors have been implicated in the pathogenesis of rosacea which includes genetic, environmental, vascular, inflammatory factors and microorganisms [1-4]. Although etiopathogenesis is not fully known an element commonly found in patients with rosacea is the presence of gastrointestinal disorders. Several studies suggest a potential relationship between *Helicobacter pylori* (*H. pylori*) infection and rosacea but this correlation is controversial [1,2,5-7]. Some studies also report that the symptoms of patients with rosacea improved with the eradication of the *H. pylori* infection [5,8-10]. A variety of systemic and topical treatment options are used for rosacea, such as tetracyclines and topical ivermectin, metronidazole, azelaic acid and brimonidine. However, the disease is chronic with frequent recurrences, treatment resistance and negative impact in quality of life poses the need for more effective and long-lasting treatments [11,12].

H. pylori is a gram-negative spiral shaped bacteria that

colonize the gastric mucosa lining and tend to cause upper GI diseases [13,14]. *H. pylori* can stimulate the immune system to produce a larger number of inflammatory mediators, leading to the aggravation of rosacea disease [15]. The toxic factor of *H. pylori* may cause delayed skin changes with two different mechanisms. Firstly, increasing the concentration of nitrous oxide (N₂O) affecting skin physiological activities by causing vasodilation, inflammation and immune stimulation. Furthermore, *H. pylori* infection, can also induce a specific cytotoxic reaction, through which can express TNF α , IL-8 and then induce a series of inflammatory reactions [16,17].

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This study was designed to assess whether *H. pylori* infection might play a pathogenic role in rosacea. The primary endpoint of this study was to assess the prevalence of *H. pylori* in rosacea patients compared to control subjects. The secondary endpoint was to evaluate whether eradication of *H. pylori* infection led to any improvement and long-term recession in rosacea skin lesions.

Patients and Methods

This study was conducted from April 2017 to May 2018 and included 100 patients: 50 with rosacea who were followed up in the outpatient clinic of Dermatology in our hospital and 50 controls who attended the outpatient clinic of Gastroenterology with dyspeptic symptoms or with a known family history of gastric cancer. Exclusion criteria were age < 18 years, pregnancy, any known gastrointestinal tract disease, every known surgery to the gastrointestinal tract, use of proton pump inhibitors (PPIs), histamine H₂ receptor antagonists, antibiotics or non-steroidal anti-inflammatory drugs in the last 2 months. Written informed consent was obtained from all people participating the study. The evaluation of *H. pylori* infection was made with C Urea Breath Test (C UBT) that was held in the outpatient clinic of Gastroenterology in our hospital, and diagnosis was based on positivity to test. The C UBT was performed after an overnight fast. A baseline breath sample was obtained and another breath sample was collected 30 minutes later. All breath tests were analyzed at the same laboratory. *H. pylori* infected subjects were treated with concomitant therapy (PPIs, 1 gr amoxicillin, 500 mg clarithromycin, 500 mg metronidazole, bid) and *H. pylori* status was re-evaluated by C UBT performed at 4 weeks after

completion of therapy. Infection was considered eradicated if patients had a negative test. The study was approved by the Institutional Ethics Committee of Tzaneio General Hospital of Piraeus and was in accordance to the Declaration of Helsinki.

Statistical Analysis

A chi test was used to compare the outcome between groups. A P-value less than 0.05 was considered statistically significant. Test was carried out with the commercially available Statistics/Data Analysis (Statacorp, College Statio, TX, USA) software package.

Results

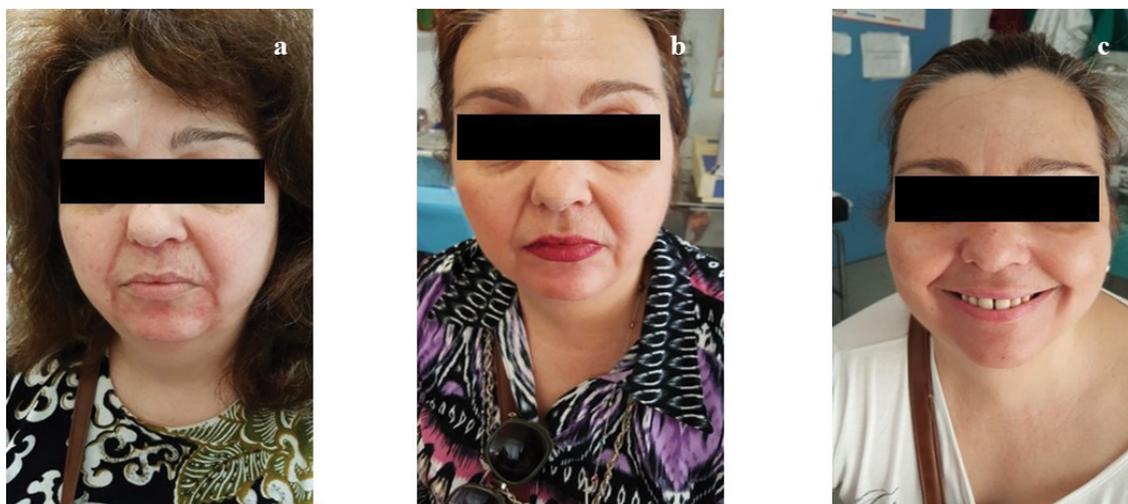
The baseline characteristics of patients enrolled in each group is shown in Table 1. Of the 50 rosacea patients only 7 were detected with *H. pylori* infection (14%) and from the 50 control group 10 were detected with the above infection (20%). In terms of *H. pylori* positivity, no significant difference was observed between the two groups (Table 1). Among rosacea patients *H. pylori* infection does not appear more often compared to the general population. However, the *H. pylori* positive group on eradication therapy that is known that contains metronidazole, showed significant improvement in the rosacea severity (Figure 1a and Figure 1b). The results maintained for 1 year (Figure 1c). Eradication of *H. pylori* led to a total regression of skin lesion in all patients and was not necessary oral treatment for rosacea. The improvement in these cases maintained for 1 year that the patients were followed up.

Discussion

In our study, there was no significant difference found

Table 1: Demographics and results of helicobacter pylori test of both rosacea and control group.

	Rosacea patients (n: 50)	Controls (n: 50)	P-value
Age	51.6 ± 14	47 ± 15.8	0.14
Gender (F/M)	37/13	28/22	0.061
HP positive	7 (14%)	10 (20%)	0.427



Figures 1: (a) Patient with rosacea and *Helicobacter pylori* infection before treatment; (b) One month after *Helicobacter pylori* oral treatment; c) One year after *Helicobacter pylori* oral treatment.

between the patients with rosacea and controls. Although the *H. pylori* prevalence is low among patients with rosacea, showing no etiopathogenic relationship, when the gram negative bacterium exists, its eradication enhances the therapeutic effect of rosacea. For the seven positive patients for *H. pylori* after the concomitant therapy with antibiotics and PPIs didn't appear recurrence of either rosacea or bacterial infection one year after. Therefore, it could be suggested that all rosacea patients should be tested for *H. pylori* infection. The early detection and eradication of *H. pylori* reduces the risk of complications from long term survival of the microbe and at the same time improves the rosacea that could develop into a resistant form in the skin.

Conflict of Interest

The authors declare no conflicts of interest.

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