

# A Study of Changes in Stomach Wall at Sites Other Than the Ulcer in Chronic Duodenal Ulcer Patients

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**Abstract** It is known that at least 90% of duodenal ulcers are caused by infection with the bacterium *Helicobacter pylori*. Eradicating this organism usually results in complete resolution of the disease (Rosengren, Br J Gen Pract 46(409):491–492, 1996). To study the different changes if any in stomach wall at sites other than the ulcer in chronic duodenal ulcer patients by upper Gastro-Intestinal Endoscopy followed by histopathological examination of different parts of stomach. This study was a retrospective study conducted in the Department of General surgery, V.S.S. Medical College, Burla, Sambalpur, odisha during the period of June 2007 to May 2009. Subjects were patients with chronic duodenal ulcer who underwent endoscopic examination, gastric biopsy and rapid urease test. Chronic gastritis of antrum, followed by erythematous pangastritis was the prominent feature both in endoscopy and histopathological examination. The Inflammatory change affected the mucosa and submucosa of the stomach wall. The prevalence rate of *Helicobacter pylori* was 84%, the antrum being the most common affected part (84%) followed by gastric fundus (41%). Chronic superficial atrophic gastritis of antrum, followed by pangastritis is the most common pathological abnormality in stomach wall in CDU cases. Gastric antrum is the most common site for *H. pylori* colonization followed by fundus. Presence of *H. pylori* in stomach wall is associated with active on chronic gastritis.

**Keywords** Chronic duodenal ulcer · Endoscopic findings · Histopathological pattern · *Helicobacter pylori*

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## Introduction

Duodenal ulcer, a common ailment, accounting for two thirds of all peptic ulcer cases, is characterized by the presence of a well demarcated breach in the mucosa that may extend into the muscularis propria of the duodenum. The irrational use of NSAIDs, decreased mucosal resistance, and *H. pylori* infestation are the three major reasons for development of duodenal ulceration in the general population. While both hyperchlorohydria and *Helicobacter* infection can act throughout the stomach and duodenum, it remains unexplained, why there should have predilection for certain well documented and specific sites for peptic ulceration. It has to be explained whether they produce any change in other parts of the stomach besides the ulcer site.

Colonization of *H. pylori* occurs in the gastric mucosa as well as metaplastic mucosa in the proximal duodenum and causes chronic inflammation that persists for long period in most subjects.

Recent works like eradication of *H. pylori*, leading to healing of peptic ulcer diseases and reduction of ulcer recurrence rate have given encouraging results and proved beyond doubt an association between *H. pylori* infection and peptic ulcer disease [1].

## Methods

This study was a retrospective study conducted between June 2007 and May 2009. Subjects were 100 patients with chronic duodenal ulcer who had symptoms for at least 1 year and had undergone upper gastrointestinal endoscopic examination. Biopsy from gastric fundus, body and antrum was taken and each specimen was sent for

histopathological study and rapid urease test separately. Endoscopic findings and histopathology results were studied. Association of *H. pylori* infection was sought for in different parts of stomach wall from rapid urease test results.

## Results

There were total 100 patients in this study; 74 (74%) males and 26 (26%) females with ranged of age 22–80 years old.

The Endoscopic findings: 91% patients had chronic gastritis of antrum. The pangastritis rate was 59% and the common inflammation was erythematous gastritis. Gastric ulcer was detected in 8% of cases.

The Histological findings: chronic gastritis of antrum was found in 93% cases. The pangastritis rate was 87%, the common gastritis of antrum was atrophic type (82%) while the common gastritis of fundus was superficial type (66%). Intestinal metaplasia in stomach was found in 4% of cases. Biopsy from different parts of stomach showed mostly superficial inflammation confined to mucosa and submucosa, containing mainly lymphocytes and plasma cells. The *H. pylori* infection rate was 84% in gastric antrum and 41% in fundus. In 6% cases *H. pylori* was detected in the corpus of stomach and interestingly all of them showed features of active inflammation in biopsy.

## Discussion

This study showed almost similar results as was done by various other researchers.

*Nghiên cứu đặc điểm nội soi et al.* (Việt Nam –2006) in his study, on 124 duodenal ulcer patients observed the feature of chronic gastritis of antrum in 100% patients both in endoscopy and biopsy, pangastritis in 64.5% and 89.5% in endoscopy and histology respectively. The common gastritis of antrum was atrophic type (90.3%) while the common gastritis of fundus was superficial type (72.6%). He observed 44.3% and 87.9% of *H. pylori* infection rate in fundus and antrum respectively [2].

J. S. A. Collins et al. (Belfast, Northern Ireland-1988) studied the mucosal changes and its relationship to *H. pylori* infection in gastric antral and body biopsies in 20 patients with duodenal ulcer (DU;  $n=20$ ). According to him, the prevalence rates for *H. pylori* was 94% for antral and 8% for body biopsies. In the antrum and body, the mononuclear cell count was significantly higher in lamina propria in *H. pylori*-positive cases showing active inflammation [3].

Chattopadhyay G et al. observed that presence of helicobacter-like organisms in patients with peptic ulcer is

significantly associated with acute on chronic gastritis. Howard W. Steer et al. (U.K.-1985), in his study found intestinal metaplasia in the biopsy taken from the greater curvature of stomach in 6% cases of chronic duodenal ulcer [4].

Various studies in different parts of world have revealed *H. pylori* infection rate of 77.2% (Spain, 1997) [5], 85.1% (Singapore, 2000) [6] and 100% (Rawalpindi, 2008) [7] in chronic duodenal ulcer patients. This trend of higher *H. pylori* prevalence rate in developing countries than the developed ones may be due to difference in geographic location, sociocultural practice, and life style of people in different parts of world.

## Conclusion

In conclusion the present study reveals that chronic atrophic gastritis of antrum, followed by pangastritis, confined mainly to mucosa and submucosa is the most common pathological abnormality in stomach wall in CDU cases. *H. pylori* infection is a frequent association with chronic duodenal ulcer cases, with gastric antrum being the most common site for its colonization. Besides antrum, *H. pylori* also affects fundus and body of the stomach, though in lesser number of cases. Presence of *H. pylori* in stomach wall is associated with active on chronic gastritis.

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