

article

Helicobacter Pylori Gastritis : Correlation Between the Endoscopic and Histological Finding

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Abstract:

To determine the significance of the endoscopic finding of H. Pylori related gastritis in relation to histopathological changes , 100 patients undergoing upper gastrointestinal endoscopy were prospectively assessed by endoscopic and histological methods. Endoscopic biopsies from each patient were taken from three areas of the gastric wall (the antrum, body & fundus). Forty nine patients had endoscopic mucosal changes of gastritis. Abnormal mucosa was seen in 86 areas and of these, 79 had abnormal histology. There was no statistically significant difference between this and the other group of 214 areas, showing normal looking mucosa on endoscopic examination. Of these 163 had histological evidence of gastritis. (X^2 0.23 P value > 0.05). No histological changes were specific for

macroscopic appearance of gastric mucosa. These findings confirm the inappropriateness of an endoscopic diagnosis of gastritis and the term gastritis should be reserved for histological finding.

Conclusion:-

Endoscopical abnormalities are highly sensitive (91.7%) for mucosal congestion and (100%) for atrophic changes and nodularity of the gastric mucosa. Normal looking gastric mucosa has low sensitivity and specificity for histological gastritis (false negative result was 90%) and the overall sensitivity was about 40%. There was no association between endoscopical findings and specific type of gastritis. The endoscopical findings do not correlate with histological changes.

Introduction:

Helicobacter pylori (H. pylori) is a gram negative spiral organism, highly motile characterized by an abundant production of urease⁽¹⁾ It was first isolated from the antral mucosa in 1983 by Marshall, and Warren⁽²⁾ Interest in this organism has grown as a result of the close association between H. Pylori infection and

Various upper intestinal disorders.

It is well known that H. Pylori causes active inflammation in the gastric mucosa⁽³⁾, and now it is accepted that H. Pylori is the major cause of gastritis in man⁽⁴⁾. It was found that H. Pylori is responsible for about 69% of chronic gastritis⁽⁵⁾.

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Acute Infection:

H. Pylori is usually seen extra cellurly beneath the mucus layer covering the mucosa and in the gastric pits.

Inflammatory changes in the form of neutrophilic gastritis can be demonstrated⁽⁶⁾.

Chronic gastritis: -

There is focal epithelial damage with mixed inflammatory cell Infiltrate in the lamina propria. Lymphoid follicles are formed which are limited to H. pylori infection ⁽⁷⁾. When inflammation is more extensive and accompanied by glandular atrophy with increase in the distance between individual glands it is called chronic atrophic gastritis.

The antrum is involved in 45% (Type B gastritis). The body is involved in 31%. Both (body & antrum) are involved in 24% ⁽⁸⁾. H. Pylori is associated with 4-8 folds increase in the risk of developing carcinoma ⁽⁹⁾. Studies confirmed a close association between the H. pylori infection and gastric MALT lymphoma

Endoscopic findings of H. Pylori related gastritis:⁽¹⁰⁾

- 1-Normal appearing gastric mucosa.
 - 2-Erythema (redness, hyperaemia) ± granularity, either focal, segmental or wide spread. Occa-sionally red streaks can be seen.
 - 3- Exudate which simulates food residues.
 - 4- Sessile lesions with central umbilication.
 - 5- Mucosal atrophy.
 - 6-Rugal hyperplasia which occurs in massive infection, usually pangastric.
 - 7-Intestinal metaplastic changes seen in the ant-rum.
- The mucosa assumes mottled golden - yellow appearance.

Patients & Methods:

This study was conducted in the GIT. Center in Al-Shaheed Adnan Hospital, and the Department of Pathology and Forensic Medicine in the Medical College - Baghdad University. One hundred patients complaining from dyspepsia were enrolled during a 3 months period, from April -1999 to the end of June 1999. History of NSAID intake in the preceding 3 months period, alcohol ingestion, gastric surgery or radiation cases were excluded. Patients with history of jaundice or features of chronic liver disease were excluded as well. Biopsies in which H. Pylori were absent, were not included in this study.

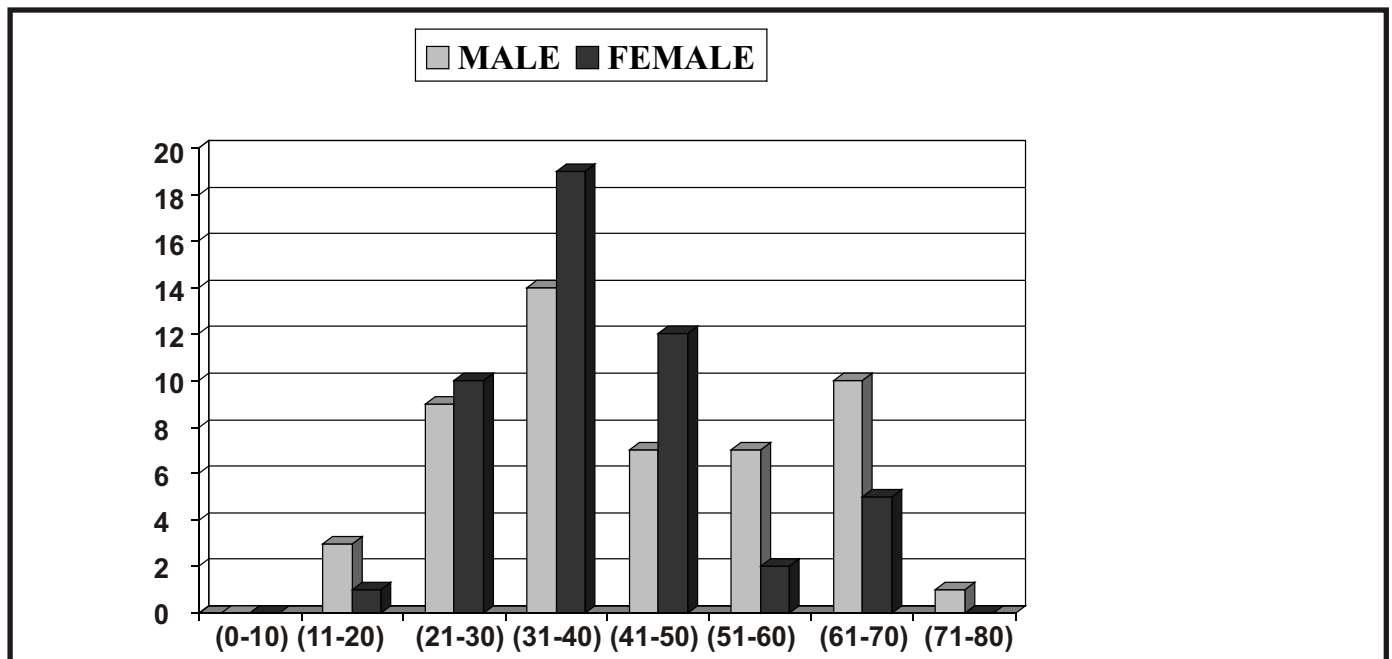
Endoscopic examination:

Endoscopy was performed with GIF-Q 40 fiberoptic gastroscope.

Patients were considered endoscopically normal, if the gastric mucosa was pink in color, smooth and lustrous. The antrum is usually flat. Folds of the corpus were flattened on air insufflation, showing a smooth surface. From each patient, 3 gastric biopsies were obtained, one from antrum 2 cm proximal to the pylorus, one from the corpus along anterior wall of the greater curvature and one from the fundus. From each site one piece was obtained which was about 0.4 in diameter, Chi Square test was used for statistical analysis P value of more than 0.05 was regarded as not significant.

Results:

This study was conducted on 100 patients including 53 males & 47 females. The age range was 19-75 years with a mean of 41.5



A histogram showing age and gender distribution of the patients included in this study

Endoscopic changes of the gastric mucosa of the patients included in this study:

No evidence of gastritis was seen in 12 antra, 13 bodies and 23 fundi. In 75% of the cases, in gastritis involved all the areas of gastric mucosa i.e., Pangastritis. Chronic gastritis of either type (superficial chronic active gastritis (fig. 6), and chronic atrophic gastritis (fig. 7) was detected in 90.4% of patients with *H. pylori* infection (fig. 8). The commonest endoscopic abnormality (erythema with granularity) was seen in 67 areas (41 antra, 14 bodies and 12 fundi). It was associated with histologic gastritis in 60 patients, i.e., a sensitivity of (89.5%). False positive diagnosis was made in (10.5%). Atrophic changes were seen in 4 patients. All showed histological gastritis.

Nodularity of the mucosa (antrum and body) were seen in 7 patients. All showed histologic gastritis too. This gives (100%) sensitivity for these endoscopic changes. The overall sensitivity of endoscopic abnormalities was (91.7%) for histological gastritis. False negative diagnosis was seen in (90%). Thus the calculated sensitivity of endoscopic finding for detection of histological changes was (40.1%), being highest in the antrum where it was (51.6%) and lowest in the fundus (17.9%). That of the body was (21.7%). Of the 86 areas of endoscopic gastritis, 7 had normal histology, and out of 214 endoscopically normal areas, 51 had normal histology. ($X^2 0.23$ P value > 0.05) There was thus no significant overall correlation between the presence of endoscopic and histological gastritis

Table (1) : The distribution of the endoscopic mucosal changes in 49 patients with abnormal endoscopic findings

| | Antrum | | Antrum & Body | | Pangastritis | |
|-----------------------|--------|--------|---------------|--------|--------------|--------|
| | Male | Female | Male | Female | Male | Female |
| Erythema ± granulariy | 15 | 13 | 1 | 0 | 8 | 4 |
| Normal | 0 | 0 | 1 | 3 | 0 | 0 |
| Atrophic changes | 0 | 0 | 0 | 0 | 3 | 1 |
| Total | 28 | | 5 | | 16 | |

Table (2) : The endoscopic versus histopathological findings of antral mucosa

| | Histopathological findings | | |
|---------------------|--------------------------------------|----------------------------|----------|
| | Superficial chronic active gastritis | Chronic atrophic Gastritis | Normal |
| Erythema granulariy | 28 | 9 | 4 |
| Atrophic changes | 4 | — | — |
| Normal mucosa | 4 | — | — |
| Total | 36 | 9 | 4 |

Table (3) : the endoscopic versus histopathological findings of the body's mucosa

| | Histopathological finding. | | |
|---------------------|--------------------------------------|----------------------------|----------|
| | Superficial chronic active gastritis | Chronic atrophic Gastritis | Normal |
| Erythema granulariy | 10 | 2 | 2 |
| Atrophic changes | 4 | - | - |
| Nodular mucosa | 3 | - | - |
| Normal | 18 | 8 | 2 |
| Total | 35 | 10 | 4 |

Table (4) : Endoscopic versus histopathological finding of the fundal mucosa

| Endoscopic Findings | Histopathological findings | | | |
|---------------------|-------------------------------|----------------------------|--------|---|
| | Superficial chronic gastritis | Chronic atrophic Gastritis | Normal | |
| | Erythema granulariy | 9 | 2 | 1 |
| | Atrophic changes | 4 | - | - |
| | Normal | 29 | 3 | 1 |
| | Total | 42 | 5 | 2 |

Table (5): The histopathological changes of (51) patients who had normal looking gastric mucosa.

| Histopathology | Antrum | Body | Fundus |
|--------------------------------------|--------|------|--------|
| Superficial chronic active gastritis | 30 | 29 | 20 |
| Chronic atrophic B-gastritis | 9 | 9 | 8 |
| Normal | 12 | 13 | 23 |
| Total | 51 | 51 | 51 |

Discussion:

In our study we tried to evaluate the endoscopic versus histological changes of H. Pylori related gastritis. No overall association was found between endoscopic abnormalities and histological gastritis. The lack of association results from the fact that endoscopy is an insensitive method for diagnosing gastritis, In spite of minimizing sampling error by taking biopsy specimens from specific area of endoscopic abnormality. The endoscopic abnormalities were not specific for the diagnosis of gastritis and such abnormalities were found in the absence of histological changes. In addition, no type of histological gastritis was associated with a specific endoscopic finding. Erythema has been suggested previously to have a poor association with histological abnormalities and the sensitivity was found 60.6%.⁽¹¹⁾ And in another study it was 98%⁽¹²⁾. In our study it was found to be 89.8%. False positive results (abnormal looking mucosa versus normal underlying histology) were found in 10.1% in comparison to another study where it was 23%⁽¹²⁾ and this difference might be related to the patchy distribution of gastritis and to the sampling technique.

Nodularity of mucosa was found to be associated with H. Pylori gastritis in 100% and this was comparative to a previous report⁽¹³⁾. In the study Of Khakoo and colleagues, it was mentioned to be

76.9%⁽¹¹⁾. Provisional diagnosis of gastric atrophy was proposed in 4 patients and was pangastric. Though the findings suggest gastric atrophy, the histopathological findings are consistent with chronic active gastritis. This might be related to the low sensitivity of the endoscopic changes or to additional factors that induce such gross changes⁽¹⁴⁾. The sensitivity of endoscopic abnormalities for histological gastritis was 91.7% while in another study it was 98.3%⁽¹²⁾. False negative results (normal endoscopic finding versus histological abnormalities) were found to be 90% in comparison to the study conducted by Khakoo and colleagues, where it was found to be 65%⁽¹¹⁾. This might be related to underestimation of the macroscopical changes. In 90.4% of patients positive for H. pylori, had chronic gastritis was seen and this was comparable to other studies where it was 95.4%⁽¹⁵⁾, 88%⁽¹⁶⁾, 91.4%⁽¹⁷⁾. Pangastritis was seen in 75% in comparison to other studies where it was 81%, 24%⁽¹¹⁾⁽¹⁸⁾. Normal looking gastric mucosa revealed normal histology in 10.2%, while in another studies it was 33%⁽¹⁹⁾. Endoscopy reports are more helpful if the endoscopic mucosal findings are accurately described and biopsy specimens taken, and the term gastritis is reserved for histological findings H. pylori associated gastritis, was seen in 17 out of 18 patients with duodenal ulcer (94%), and this was comparable to other studies ; 89%⁽¹⁶⁾, 95%⁽¹²⁾⁽¹⁾, 91%⁽¹⁹⁾.

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