

## Histopathological Findings of *Helicobacter Pylori* Infection in Endoscopic Antral Biopsy

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- ✓ The aims of this study are to investigate the presence of *H. pylori* in endoscopic antral biopsy and to evaluate the histopathological features in *H. pylori* positive biopsy specimens. One hundred sixty-six biopsy specimens obtained from antrum by upper gastrointestinal endoscopy were studied. Microscopic examination was normal in eight cases and *H. pylori* was negative in all of these biopsy specimens. The histopathological diagnosis was nonspecific gastritis in 158 cases. *Helicobacter pylori* was present in 109 of the 166 (69.7%) biopsy specimens. The scores of mononuclear cells and neutrophil polymorph infiltration and the combination of these scores (inflammatory score) were significantly higher in *H. pylori* positive cases than in *H. pylori* negative cases. Lymphoid aggregates were more common in *H. pylori* positive cases. Lamina propria edema was less severe in *H. pylori* positive biopsy specimens than in *H. pylori* negative biopsy specimens. These results indicate that *H. pylori* should be searched carefully if there are histopathological findings suggesting inflammation including mononuclear cells and neutrophil polymorph infiltration in antral biopsy specimens.

**Key words:** *Helicobacter pylori*, histopathological findings, antral biopsy

✓ **Endoskopik antral biyopsilerde *Helicobacter Pylori* İnfeksiyonunda Histopatolojik Değişiklikler**

Bu çalışmanın amaçları endoskopik antral biyopsilerde *H. pylori*'nin varlığını ve *H. pylori* pozitif biyopsi örneklerinde histopatolojik değişiklikleri incelemektir. Üst gastrointestinal sistem endoskopisi ile alınan 166 biyopsi örneği çalışılmıştır. Mikroskopik incelemede normal olan 8 vakada *H. pylori* negatif idi. 158 vakada ise histopatolojik tanı nonspesifik gastrit idi. 166 biyopsi örneğinin 109 tanesinde (%69.7) *H. pylori* pozitif olarak bulundu. *H. pylori* pozitif olan vakalarda *H. pylori* negatif olan vakalara kıyasla mononükleer hücre ve polimorf nötrofil infiltrasyon skoru ile bu skorların kombinasyonu (inflamatuvar skor) anlamlı derecede yüksekti. *H. pylori* pozitif vakalarda lenfoid agregat daha sık idi. *H. pylori* pozitif olan vakalarda *H. pylori* negatif olan vakalara kıyasla lamina propria ödemi daha az şiddetli idi. Bu sonuçlar, antral biyopsi örneklerinde mononükleer hücre ve polimorf nötrofil infiltrasyonu gibi inflamasyonu düşündüren histopatolojik bulguların varlığında *H. pylori*'nin dikkatle aranması gerektiğini göstermektedir.

**Anahtar kelimeler:** *Helicobacter pylori*, histopatolojik bulgular, antral biyopsi

### INTRODUCTION

*Helicobacter pylori* is a nonsporing, S-shaped, gram-negative rod and it plays an etiologic role in the pathogenesis of chronic active gastritis, peptic ulcer disease, gastric malignancies and non-ulcer dyspepsia<sup>(1)</sup>. Besides, some authorities doubt a causative

role of *H. pylori* in peptic ulcer disease, suggesting the organism is a commensal of the stomach<sup>(2)</sup> and point out the high prevalence of *H. pylori* infection in asymptomatic persons<sup>(3)</sup>. The presence of typical histological features of *H. pylori* infection would support the hypothesis that

*H. pylori* causes gastritis and ulcers and may yield diagnostic information. The aims of this study are to investigate the presence of *H. pylori* in endoscopic antral biopsy and to evaluate the histopathological features in *H. pylori* positive biopsy specimens.

### MATERIAL AND METHODS

One hundred sixty-six biopsy specimens obtained from antrum by routine upper gastrointestinal endoscopy were studied. Patients who had underlying malignancy or prior gastric surgery were excluded. Tissues were fixed in 10% formalin, embedded in paraffin wax, and 5 µm thick sections were stained with hematoxylin and eosin.

A score was developed to obtain a semiquantitative assessment of the observed modifications. For each feature, a grade from zero to three was attributed, equivalent to normal or absent (0), mild (1), moderate (2), and severe (3). The score for reactive changes included foveolar hyperplasia, vasodilation and congestion, lamina propria edema, and increased intracytoplasmic mucin. The

inflammatory score included mononuclear cells and neutrophil polymorph infiltration. Intestinal metaplasia and atrophy were graded and added to the reactive and inflammatory scores to obtain an overall score. The presence of lymphoid aggregates were also evaluated as positive or negative. Mann Whitney U test and khi-square test were used for statistical analysis and a p value less than 0.05 was considered as statistically significant.

### RESULTS

Microscopic examination was normal in eight cases and *H. pylori* was negative in all of these biopsy specimens. The histopathological diagnosis was nonspecific gastritis in 158 cases. *Helicobacter pylori* was present in 109 of the 166 (69.7%) biopsy specimens. The scores of mononuclear cells and neutrophil polymorph infiltration and the combination of these scores (inflammatory score) were significantly higher in *H. pylori* positive cases than in *H. pylori* negative cases (Table I). Lymphoid aggregates were more common in *H. pylori* cases. Lamina propria

**Table I.** Features and Scores of *Helicobacter Pylori* Positive and Negative Cases  
Results (1-11) are expressed as mean values.

Features and scores	<i>H. pylori</i> (-) (n=57)	<i>H.pylori</i> (+) (n=109)	p value
1. Foveolar hyperplasia	0.19	0.30	> 0.05
2. Intracytoplasmic mucin	0.16	0.21	> 0.05
3. Vasodilation	1.12	0.90	> 0.05
4. Lamina propria edema	0.70	0.35	0.007
5. Reactive score (1-4)	2.18	1.73	> 0.05
6. Mononuclear cells	1.56	2.04	0.0001
7. Granulocytes	0.84	1.34	0.0015
8. Inflammatory score (6-7)	2.35	3.38	< 0.0001
9. Intestinal metaplasia	0.32	0.17	> 0.05
10. Atrophy	0.70	0.71	> 0.05
11. Total score (1-10)	5.56	5.98	> 0.05
12. Lymphoid aggregates			0.02
Absent	27	32	
Present	30	77	

edema was less severe in *H. pylori* positive biopsy specimens than in *H. pylori* negative biopsy specimens. Other histopathologic findings were not different between *H. pylori* positive and negative patients.

### DISCUSSION

The data about histopathological changes in *H. pylori* infection is limited and contradictory and as far as we know a study from our region has not been published previously. Faigel et al.<sup>(4)</sup> have studied histological predictors of active *H. pylori* infection in 50 patients and have showed that active *H. pylori* infection is associated with the presence of both acute and chronic inflammation, but not lymphoid aggregate or intestinal metaplasia. This study shows that the presence of any acute or the combination of acute and chronic gastritis, is predictive of *H. pylori* infection and the absence of chronic inflammatory cells rules out active *H. pylori* infection. It has also been reported that the severity of the antral inflammation is associated with the density of *H. pylori* infection<sup>(5)</sup>. Our study also shows higher inflammatory score in *H. pylori* positive cases than in *H. pylori* negative cases.

Besides, there has been an association between the presence of intestinal metaplasia or lymphoid aggregates and active *H. pylori* infection in some studies<sup>(6-8)</sup>; the reason of this contradiction remains to be defined. There is an association between the presence of lymphoid aggregates and *H. pylori* infection in our study. Our study also shows less severe lamina propria edema in *H. pylori* positive cases. We could not explain the significance of this finding and it remains to be defined.

We suggest that *H. pylori* should be searched carefully if there are histopathological findings suggesting inflammation including mononuclear cells and neutrophil polymorph infiltration in antral biopsy specimens.

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