

# Frequency of Helicobacter Pylori Infection on Histopathology in Patients with Dyspepsia

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**Abstract Objective:** To determine the frequency of Helicobacter Pylori infection on histopathology in patients presenting with dyspepsia. **Background:** Helicobacter Pylori is associated with dyspepsia in patients who have gastric mucosal abnormalities and this infection can be diagnosed by invasive and non invasive test. Histology of endoscopically taken biopsy, for exploration of this organism is used in this study. **Study Design:** Cross-sectional, observational study. **Place and Duration of Study:** Department of Emergency Medicine, Ziauddin University Hospital, Karachi for Six months from March 2013 to August 2013. **Methodology:** A total of 362 cases with dyspeptic symptoms were underwent an upper gastrointestinal endoscopy after fulfilling the selection criteria. H. Pylori infection would be defined by the presence of dyspeptic symptoms with detection of the bacterium on histopathology. All the data was collected by using a proforma and different parameters were assessed for a minimum follow-up period of one month. Data was analyzed by descriptive statistics using SPSS software version 19. **Result:** Out of 362 cases of dyspepsia 218 (60.2%) males and 144 (39.8%) females (Male: Female was 1.5: 1). Two fifty one (69.3%) patients with dyspepsia were H. Pylori positive on histopathology. Out of 251 cases having H. Pylori infection 165 (75.7%) were male and 86 (59.7%) female. High percentage was found in the age between 31 – 50 years, 160 (77.3%). **Conclusion:** In this study 69.3% of the patients examined were H. Pylori positive on histopathology. Male sex and older age (> 30 years) are independent risk factor of H. Pylori infection in dyspeptic patients.

**Keywords:** dyspepsia, H Pylori, gastric mucosal biopsy, H. Pylori positive gastritis

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## 1. Introduction

In clinical practice, dyspepsia is a common and frequent presenting complaint and there causes are ranging from esophagitis, cholelithiasis, gastroduodenitis and peptic ulcer disease. Upper gastrointestinal endoscopy is the abundance examination in patients with upper gastrointestinal diseases. The symptoms of dyspepsia may be episodic, recurrent or chronic. Symptoms are often associated with eating, but this is not always the case.

Helicobacter Pylori (H. Pylori) infection is a worldwide problem and human beings have been the preferred host colonized for at least 50,000 years and probably throughout their evolution. The organism colonizes from childhood and persists throughout life [1]. It is estimated that about 50% of the world's population has H. Pylori colonization in the gastric mucosa [2] and it signifies a wide range of differences in the geographic, ethnic and racial differences throughout the world [3]. Extent of infection among developing nations is higher than in industrialized nation 80-90% Vs 25% respectively [4], probably due to poor sanitary conditions and standard of hygiene.

H. Pylori is a gram negative bacterium, it survives in water and is considered as a waterborne pathogen for transmission [5] and this provides compelling evidence that it is associated not only with gastro-duodenal diseases, including peptic ulcer diseases 83%, chronic gastritis 93%, gastric adenocarcinoma 6% and low-grade gastric mucosa-associated lymphoid tissue (MALT) lymphoma and non-cardiac [6,7] but also linked with extra-gut diseases [8,9]. Therefore, upper gastrointestinal endoscopy used for exploration of this organism. H. Pylori infection can be diagnosed by invasive and non-invasive tests [10]. The non-invasive tests include serologic tests, Urea Breath Test, and stool antigen assays. The invasive test used in this study is histopathology of the endoscopically taken biopsy, which has a very high sensitivity (96%) and specificity (98.8%), even though it requires expertise for interpretation [11]. Histological the prevalence of Helicobacter Pylori infection is 62.07% in dyspepsia [12]. The endurance potential of H. Pylori in the stomach make it complicated and multi drug regime which is consisting of two antibiotics (usually selected from Tetracycline, Metronidazole, Clarithromycin and Amoxicillin) pooled with acid suppressants and bismuth compound is necessitate for effectual treatment [13].

The role of Helicobacter Pylori in inducing dyspepsia is well known and proved. International studies revealed the incident of H. Pylori infection in patients with dyspepsia to be high, ranging of 60.5% to 73% [14,15,16] Considering the factors responsible for a relatively high and increasing prevalence of H. Pylori infection in poor countries i-e poverty, overcrowding, and poor hygienic conditions, the expected prevalence of H. Pylori infection associated with dyspepsia in these regions should be relatively high. Local studies on the subject are scarce. This makes a strong basis and rationale for my study to estimate the actual burden of H. Pylori infection.

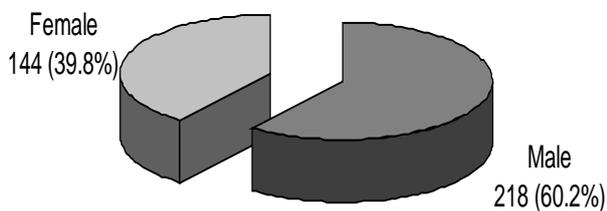
### 2. Methodology

This study was carried out at the department of emergency medicine, Ziauddin University Hospital, Karachi, Pakistan. All patient with age greater than 18 with either sex, with symptoms of dyspepsia who are non smoker and non alcoholic were included in this study, while patient with previous gastric and duodenal surgery, injection of any antibiotic (including Metronidazole) within 4 weeks, smoker, alcoholics, on steroids therapy due to any cause, unfit for endoscopy or recent myocardial infarction, known case of Zollinger-Ellison syndrome, cholecystitis, cholelithiasis, and chronic liver disease were excluded. A total of 362 patients with dyspeptic symptoms were underwent an upper gastrointestinal endoscopy and H. Pylori infection would be defined by the presence of dyspeptic symptoms with detection of the bacterium on histopathology.

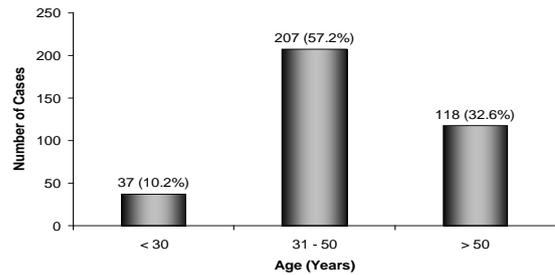
A database was complete using inpatients and outpatients medical records by an independent observer who was not the part of research team and/or inpatient care. Data collection include variable such as frequency of H. Pylori infection with dyspepsia with respect to age, gender, site of biopsy and duration of dyspepsia. All the patients were follow-up for the minimum period of one month. Data was analyzed by descriptive statistics in term of frequencies, percentage and mean (+/-) standard deviation using statistical package for social science (SPSS) software version 19. The P value was collected by independent-sample T-Test and statistical significance was defined as  $p < 0.05$ . An informed consent was taken from all patient and ethical procedures were followed. Data was delinked for patient identity and due care was taken for confidentiality of the records.

### 3. Result

A total of 362 cases of dyspepsia were included in the study. There were 218 (60.2%) males and 144 (39.8%) females.



The mean age was 49.19 ( $\pm 13.75$ ) years. The age ranged from 20 to 65 years. Majority of cases had age between 31 – 50 years, 207 (57.2%).



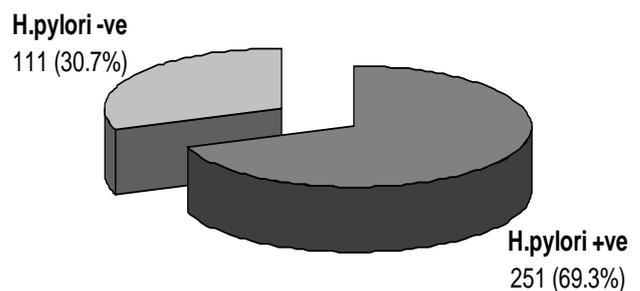
Most of the dyspeptic patients presented with epigastric pain 272(75.1%) followed by nausea & vomiting 66 (18.2%), with heart burn 51 (14.1%) and 44 (12.2%) cases were presented with bloating.

SYMPTOMS OF DYSPEPSIA		
Symptoms	# of Cases	%
Epigastric Pain	272	75.10%
Nausea & vomiting	66	18.20%
Heart Burn	51	14.10%
Bloating	44	12.20%

Sites of biopsy presented in below table. Out of 362 biopsies; 229 (63.3%) biopsies taken from gastric antrum and 133 (36.7%) from Duodenal Mucosa.

SITE OF BIOPSY		
Sites	# of Cases	%
Gastric antrum	229	63.30%
Duodenal Mucosa	133	36.70%

Patients were considered infected with H. Pylori when bacterium was detected on histopathology. Two fifty one (69.3%) patients with dyspepsia were H. Pylori positive on histopathology (Figure below).



Stratification was done with regards to age, gender and duration of dyspepsia to see effects of these on outcomes. 165 (75.7%) male while 86 (59.7%) female had Helicobacter Pylori infection on histopathology. High percentage was found in the age between 31 – 50 years, 160 (77.3%).

WITH RESPECT TO GENDER			
Gender	Total	H. Pylori +ve	%
Male	218	165	75.70%
Female	144	86	59.70%

WITH RESPECT TO AGE			
Age (Years)	Total	H.Pylori +ve	%
< 30	37	10	27.00%
31 - 50	207	160	77.30%
> 50	118	81	68.60%

High percentage of positive *Helicobacter Pylori* was seen in patients with dyspeptic symptoms for more than one year, 115 (70.1%).

WITH RESPECT TO DURATION			
Duration	Total	H. Pylori +ve	%
≤ 1 (Year)	198	136	68.70%
> 1 (Year)	164	115	70.10%

## 4. Discussion

Dyspepsia is a common symptoms vertain by 25 to 40% of the general year. Dyspepsia comprise a number of upper abdominal complaint like pain and nausea, fullness, discomfort, early satiety, regurgitation, anorexia, blotting, heart burn and bleeding, but is mostly defined as conform or pain in upper abdomen (centered). *Helicobacter pylori* infection is most likely a cause of dyspepsia, other causes includes microscopic inflammation, motor abnormalities and psychiatric illness.

*Helicobacter pylori* (H-Pylori) is a gram negative bacilli, spiral in shape and it is one of the most common chronic infection which is associated with preponderance causes of gastric including 90% of duodenal ulcer and 75% of gastric ulcer. Studies has shown high incidence of H-pylori infection associated with dyspepsia in patients who have gastric mucosal abnormalities. Without any endoscopic findings H-pylori have been seen on biopsy specimen. In this stare different studies have been done specially in pediatric group, which shows normal mucosa on endoscopy but the H-pylori was present on biopsy specimen.

Multiple studies on adult conclude that, amongst non ulcer patient's there are high dominance of H-pylori infection. In a persistent long term condition H-pylori infection is correlated with incident and relapse of the peptic ulcer disease which lead to high risk of developing gastric carcinoma. In this study 362 cases of dyspepsia were included. 44(12.2%) cases were obtained with bloating. This is consistent with results of previous studies conducted in Karachi [12].

In this study 69.3% of the patients examined were H. Pylori positive on histopathology. This is in agreement with earlier reports from developing countries regarding the prevalence of H. pylori [24,25,26,27,28]. In Kuwait, a study was conducted which shoes 81% infection rate [24]. 86% was detected in one study in Jordan [25] and in another study, 82% infection rate was reported [26]. 145 (74%) of 196 dyspeptic patients were found infected with H. Pylori, in the Kingdom of Saudi Arabia (KSA) [27]. The prevalence of H. Pylori in Sudanese subjects with gastro duodenal inflammation was 80% in patients with gastritis and 56% in patients with duodenal ulcers (DU) [28].

In a prospective survey from south of Iran was reported H. Pylori infection in 67.1% of 1000 enrolled dyspeptic

patients [29]. In Yemen, 82.2% of 275 dyspeptic patients are H. Pylori-infected [30]. In United Arab Emirates [31] and in Kuwait [32], 90.39% of 437 and 96.6% of 204 studied subjects are infected with H. Pylori, respectively. A local study reported that the prevalence of *Helicobacter Pylori* infection is 62.07% in dyspepsia histological [12]. In another local study from CMH Rawalpindi the antral-biopsy histopathology of 51% patients was positive for *Helicobacter Pylori* infection [33]. Abu Talib et al reported the incidence of H. Pylori in patients with dyspepsia was 82% [34] while another local study reported the incidence of H Pylori was 64% [35]. In this study 165 (75.7%) male while 86 (59.7%) female had *Helicobacter Pylori* infection on histology. High percentage was found in the age between 31 – 50 years, 160 (77.3%). During a study in Rawalpindi, it is reported that 54% males (n = 67) while 41% female (n= 33) had *Helicobacter Pylori* gastritis on histology [33].

Although, culture is the gold standard to show the presence or absence of *Helicobacter Pylori* infection but in this study the diagnostic method used was finding of H-Pylori on histopathology of gastric antrum and duodenal mucosa. The results of this study depict the strong association of *Helicobacter Pylori* infection and dyspepsia.

## 5. Conclusion

In this study 69.3% of the patients examined were H. Pylori positive on histopathology. Male sex, older age (> 30 years) and duration of dyspepsia (> 1 year) are independent risk factor of H. Pylori infection in dyspeptic patients.

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