

ASSOCIATION OF HELICOBACTER PYLORI IN PATIENTS WITH PEPTIC RELATED DISORDERS - A RETROSPECTIVE ANALYSIS FROM NORTH EAST INDIA

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ABSTRACT

Dyspepsia is one of the common gastrointestinal disorders worldwide and the diseases associated with dyspepsia can range from asymptomatic *H. pylori* infection to benign and malignant disorders. *Helicobacter pylori* (*H. pylori*) infection affects approximately half of the world's population, is a common infection known to cause various gastrointestinal disorders like gastritis, peptic ulcers, and malignant condition like gastric cancers and mucosa-associated lymphoid tissue (MALT) lymphoma. *H. pylori* infection is more commonly seen in developing world as it is associated with poor sanitation as the bacteria gains entry mostly through the fecal-oral route. The prevalence of *H. pylori* have decreased to a great extend due to improved sanitation and hygiene and supply of safe drinking water. As the infection can be diagnosed, through the various noninvasive and invasive tests, it is therefore encourage that detection of *H. pylori* infection should be carried out so as to prevent or treat the common peptic disorders but specially so for the prevention of gastric cancer and treatment of mucosa-associated lymphoid tissue (MALT) lymphoma.

KEYWORDS: *Helicobacter pylori*; Gastritis; Peptic gastric ulcers; Duodenal ulcers; Gastric malignancy; Endoscopy.

INTRODUCTION

Dyspepsia is one of the common gastrointestinal disorders worldwide and the diseases associated with dyspepsia can range from asymptomatic *H. pylori* infection to benign and malignant disorders. The discovery of *Helicobacter pylori* in 1983,^[1] have changed the approach to the diagnosis and treatment of patients with dyspepsia. *H. pylori* is a gram-negative bacillus with a helical, S-shaped or curved morphology that belongs to the family Campylobacteriaceae.^[2] The bacteria colonize the gastric mucosa and persist over time^[3] and the relationship of *H. pylori* with humans is not symbiotic in nature but more of a pathobiont.^[4]

The bacteria are known to be associated with various gastrointestinal disorders like gastritis, peptic ulcers, and malignant condition like gastric cancers and mucosa-associated lymphoid tissue (MALT) lymphoma.^[5] *H. pylori* is prevalent worldwide, infecting nearly 50% of the world's population and more so in the developing world as it is associated with poor sanitation as the bacteria gains entry mostly through the fecal-oral route.^[6,7, 8, 9,10]

There are various diagnostic methods available for diagnosis of *H. pylori* which includes invasive and non invasive methods. Non invasive tests for active infection are urea breath test or stool antigen test, Invasive methods through endoscopy are the rapid urease testing, biopsy, or culture.^[9] Blood Serologic testing for *H. pylori* antibodies has > 80 per cent sensitivity and > 90 per cent specificity. The limitation of the test is that even after successful eradication of *H. pylori*, it can remain positive for many years.^[11] All the recommendations do not advocate serologic testing for diagnosing this infection. Endoscopy is the most accurate gold standard for the diagnosis of *H. pylori*, with a sensitivity and specificity of 91–93% and 100%, respectively.^[12,13]

MATERIAL AND METHOD

This is a hospital based retrospective observational study carried out over a period of five years in a tertiary teaching Institute from January 2021 to December 2025. All patients who were referred for upper GI endoscopy for evaluation of dyspepsia, diagnosed with peptic related disorders i.e. Gastritis and peptic ulcers were included in the study. All patients who had erythematous gastric mucosa, gastric and duodenal ulcers were subjected to biopsy for HPE and *H. pylori* staining.

RESULTS

All together 12,381 number of Upper GI endoscopy was carried over a period of 5 years from January 2021 to December 2025. The number of male was 8429 while the number of females was 3952 in numbers which constituted about 68.08% and 29.01% respectively with a male to female ratio of 2.3:1. Patient age ranged between 7 and 89 years, with mean age of 32.62 ± 12.01 . Out of these patients, 5487 of them were referred for evaluation of dyspepsia, and out of them, 3220 patients had gastritis, 361 had peptic gastric ulcers 222 had duodenal ulcers and 143 of them had gastric malignancy and normal Endoscopy in 1541 patients (Table 1). In patients with gastritis, male consist of 1860 and females 1360 patients with a male to female ratio of 1.37:1, patients with peptic gastric ulcers, male consist of 248 and females of 113 patients with a male to female ratio of 2.19:1 and in patients with duodenal ulcers, male consist of 180 and females 42 patients with a male to female ratio of 4.29:1.

Patient with gastritis, age ranged for males between 7 - 89 years and for females between 10 - 80 years, the mean age among males, was 40.23 ± 13.57 years, while among females it was 41.69 ± 13.89 years with *H. pylori* positive detected in 1041 males and 571 females with a percentage positivity for males and females of 55.96% and 41.98%

respectively (Table 2), patient with peptic gastric ulcers, age ranged for males between 17 - 86 years and for females between 17 - 81 years, the mean age among males, was 46.88 ± 14.37 years, while among females it was 47.85 ± 17.26 years with *H. pylori* positive detected in 89 males and 32 females with a percentage positivity for males and females of 35.88% and 28.31% respectively (Table 3). and for patient with duodenal ulcers, age ranged for males between 12 - 89 years and for females between 13 - 74 years, the mean age among males, was 44.94 ± 16.53 years, while among females it was 44.62 ± 15.98 years with *H. pylori* positive detected in 161 males and 31 females with a percentage positivity for males and females of 89.44% and 73.80% respectively (Table 4).

Table 1: Number of patients and sex distribution.

Domains	Male (N)	Female (N)	Total (N)	Male (%)	Female (%)	M:F ratio
Gastritis	1860	1360	3220	57.8%	42.2%	1.37:1
Gastric ulcers	248	113	361	68.7%	31.3%	2.19:1
Duodenal ulcers	180	42	222	81.1%	18.9%	4.29:1
Carcinoma stomach	82	61	143	57.3%	42.7%	1.34:1
Total	2370	1576	3946	60.1%	39.9%	1.50:1

Table 2: Gastritis - Statistical Profile and *H. pylori* status.

Clinical metric	Male	Female
Number of patients	1860	1360
Mean Age (Years)	40.23	41.69
Standard Deviation	13.57	13.89
Age Range (Min - Max)	7 - 89	10 - 80
<i>H. pylori</i> positive (N)/%	1041/55.96%	571/41.98%

Table 3: Gastric Ulcer - Statistical Profile and *H. pylori* status

Clinical metric	Male	Female
Number of patients	248	113
Mean Age (Years)	46.88	47.85
Standard Deviation	14.37	17.26
Age Range (Min - Max)	17 - 86	17 - 81
<i>H. pylori</i> positive (N)/%	89/35.88%	32/28.31%

Table 4: Duodenal Ulcer - Statistical Profile and *H. pylori* status.

Clinical metric	Male	Female
Number of patients	180	42
Mean Age (Years)	44.94	44.62
Standard Deviation	16.53	15.98
Age Range (Min - Max)	12 - 89	13 - 74
<i>H. pylori</i> positive (N)/%	161/89.44%	31/73.80%

DISCUSSION

Dyspepsia is the common presenting symptoms of common gastrointestinal disorders worldwide. It is also one of the common neglected symptoms as it is commonly associated with usually benign peptic disorders, but at the same time it is also the symptom of common malignant disorders of the gastrointestinal tract. *H. pylori* are gram-negative bacillus that colonize the gastric mucosa and persist over time. The bacteria is known to be associated with various gastrointestinal disorders like gastritis, peptic ulcers, and malignant condition like gastric cancers and mucosa-associated lymphoid tissue (MALT) lymphoma.^[5] Effort is to be made for its detection so that the treatment can be offered for its eradication to prevent long term risk not only of peptic disorders but that specially for prevention and treatment of *H. pylori* associated gastric malignancy.

There are various tests available for the diagnosis of *H. pylori* which include both non invasive and invasive test like endoscopy. Endoscopy is the most accurate gold standard for the diagnosis of *H. pylori*, with a sensitivity and specificity of 91–93% and 100%, respectively.^[12,13] In addition to taking sample from the stomach for *H. Pylori* testing, the added advantage is the direct inspection of the gastric mucosa as well that of the esophagus and duodenum.

In this study, *H. pylori* were detected in 48.97% of our patients with gastritis, 32.09% with peptic gastric ulcers and 81.62% of patients with duodenal ulcers. This findings is comparable to previous studies.^[14,15]

CONCLUSION

Endoscopy is an important diagnostic tool available for the diagnosis of patients suffering from dyspepsia. Through Endoscopy, pathology can be diagnosed with greater precision as direct visualization of the site of the lesion as well as the ability for collection of biopsy specimen could be made. In addition to diagnosis, various endoscopic therapeutic modalities are available which further add to its popularity, a must have procedure in any medical set up. Dyspepsia is a common clinical presentation and endoscopy should not be delayed in patients with red flag signs like in male patients aged more than 40 years old with associated dysphagia/odynophagia, weight loss, hematemesis, hemoptysis and cervical lymphadenopathy.

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