



ASSOCIATION OF HELICOBACTER PYLORI WITH PEPTIC PERFORATION

General Surgery

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ABSTRACT

Background: Helicobacter pylori infections have been proved to be associated with peptic ulcer disease, gastritis, gastric adenocarcinoma, gastric lymphoma. The role of Helicobacter pylori is not well established in cases of peptic perforation. The objective of this study is to observe the presence or absence of Helicobacter pylori in cases of perforated peptic ulcer. **Methods:** We have done a cross sectional observational study with data from patients presenting to the emergency of a tertiary care hospital with perforated peptic ulcer and undergoing emergency exploratory laparotomy followed by omental patch repair. We collected mucosal biopsy samples from gastric/duodenal mucosa along margin of perforation site of these patients and performed rapid urease test using Rapid Urease Test kit. **Results:** Of the 50 participants in our study, 48 (96%) were males and 2 (4%) were females. 37 (74%) cases had perforation at pre pyloric region, and in 13 (26%) cases perforation was present at first part of duodenum. Rapid urease test by Rapid Urease Test kit was found to be positive in 6 (12%) cases and negative among 44 (88%) cases. **Conclusion:** In our study, frequency of Helicobacter pylori in perforated peptic ulcer cases was found to be only 12% which proves that there may be other contributing factors in perforated peptic ulcer cases, which need further evaluation. **Objective:** To assess the presence of Helicobacter pylori in mucosal surface of stomach and duodenum in patients undergoing emergency exploratory laparotomy followed by omental patch repair in patients of peptic perforation.

KEYWORDS

Peptic perforation, Helicobacter pylori, Rapid Urease Test

INTRODUCTION:

Peptic ulcer disease is a public health problem in modern society. Predominant duodenal ulcer occurs between 20 and 50 years of age, while the stomach is a more common site in patients over 50 years of age.[1]

Approximately 50% of the world population is infected with *Helicobacter pylori*. [2] Prevalence is more in well developed countries than developing nations. A systemic review of global prevalence showed figures as high as 48.5% having been infected with *Helicobacter Pylori*. African countries rank highest with the prevalence of as high as 70.1%.

Bleeding and perforation are the two major complications related to peptic ulcer disease. Bleeding is clinically observed in 15-20% of cases, and perforation occurs in 7% of cases.[3] The annual mortality related to peptic ulcer disease is low, being consequent of the surgical treatment or of complications in patients with comorbidities. Moreover, morbidity rates have been reported from 25% to 89%.[4] Among patients with duodenal ulcer, 6% to 11% present with perforation, and among those with gastric ulcer, 2% to 5%.

The clinical treatment of peptic ulcer disease include the use of H2 receptor antagonists, proton pump inhibitors, therapies for eradication of *Helicobacter pylori* and endoscopic approaches for the treatment of bleeding ulcers.

METHODS:

We have done a cross sectional observational study to detect the presence of *Helicobacter pylori* in mucosa of peptic ulcer, with data from patients presenting to the emergency department of Midnapore Medical College and Hospital with peptic perforation from 1st July 2021 to 30th June 2022. We collected mucosal biopsy samples from gastric/duodenal mucosa of these patients and performed rapid urease test using Rapid Urease Test kit.

Inclusion Criteria:

The study included all patients with intraoperative diagnosis of gastric/duodenal perforation undergoing emergency exploratory laparotomy.

Exclusion Criteria:

Patients who were on triple drug therapy for *Helicobacter pylori* for

acute gastritis or any other disease; and patients with traumatic perforations and perforations due to malignancy were excluded.

50 patients fulfilling the criteria framed were included in our study. The study was a non blinded study at every level.

The standardization of data collection was done as follows: during surgery, after examination of the cavity, we collected four mucosal biopsy samples from four quadrants along margin of perforation site. The samples were then put in sample site of Rapid Urease Test kit and two drops of distilled water was added. The result was read as change of colour of Rapid Urease Test kit after 30 minutes.

Postoperatively, before hospital discharge, we collected additional information including age, gender, history of smoking, history of alcohol use, prior long term use of non steroid anti-inflammatory drugs (NSAIDs), and history of dyspepsia.

RESULTS:

The present study was done as an observational non blinded study among 50 perforated peptic ulcer patients to find out the association of *Helicobacter Pylori* infection in perforated peptic ulcer patients undergoing emergency exploratory laparotomy.

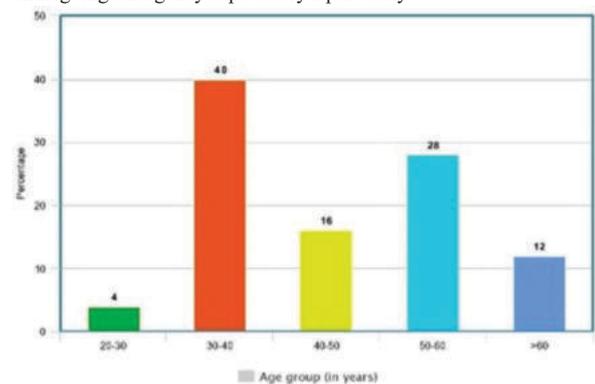


Figure 1: Age group of the participants

Among the total 50 participants in this study there were (n=2) 4% participants in the age group of 20-30 years, (n=20) 40% participants in the age group of 31-40 years, (n=8) 16% participants in the age group of 41- 50 years, (n=14) 28% participants in the age group of 51- 60 years, and (n=6) 12% participants above 70 years of age.

Of all the study participant (n=48) 96% patients were males and (n=2) 4% patients were females.

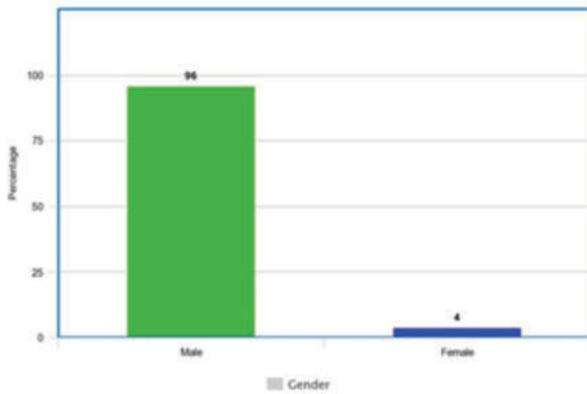


Figure 2: Gender of participants

Among all the study participants, (n=37) 74% of the site of peptic ulcer perforation was in pre pyloric region and for (n=13) 26% of patients the perforation was in the first part of duodenum.

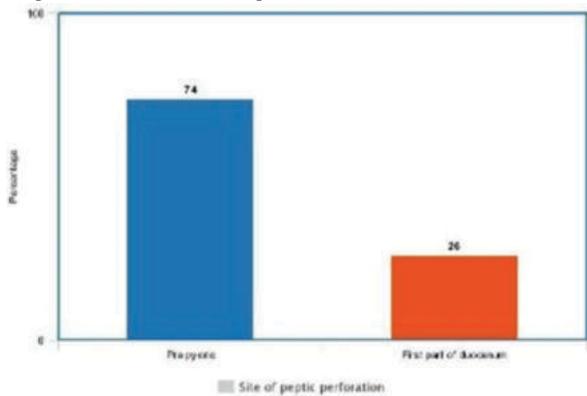


Figure 3: Site of peptic perforation

Rapid urease test by Rapid Urease Test kit was found to be positive in (n=6) 12% of the perforated peptic ulcer cases and negative among (n=44) 88% of the cases.

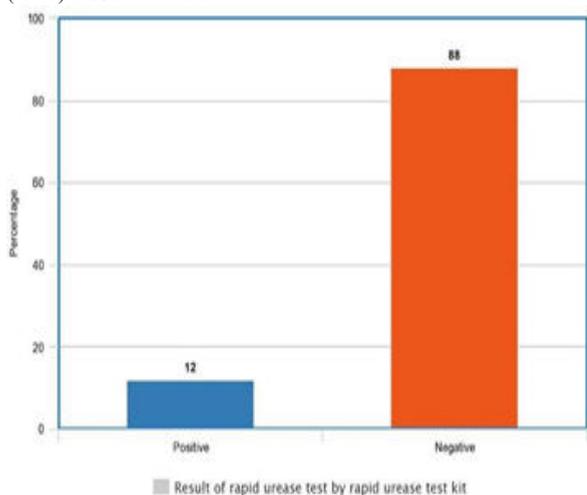


Figure 4: Result of rapid urease test by Rapid Urease Test kit

(n=28) 56% participants had history of smoking, (n=19) 38% participants had history of alcohol use, (n=22) 44% participants had history of prior long term use of NSAIDs.

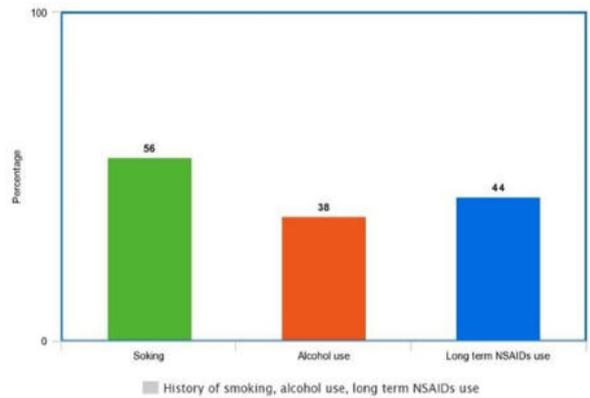


Figure 5: History of smoking, alcohol use, long term NSAIDs use

(n=39) 78% participants had history of dyspepsia.

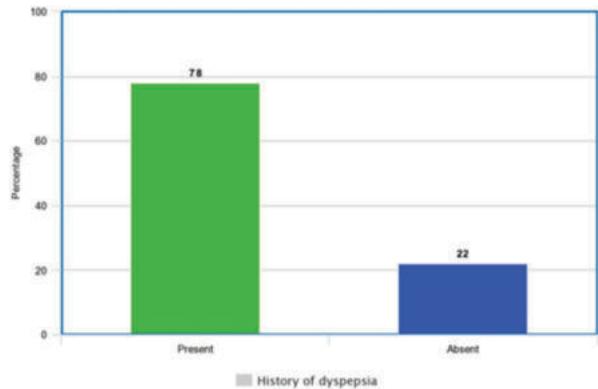


Figure 6: History of dyspepsia

DISCUSSION:

Perforated peptic ulcer still remains one of the major emergencies faced by general surgeons in day to day practice. The discovery of *Helicobacter pylori* in the pathogenesis of peptic ulcer disease has revolutionized the treatment of the same.

50 cases with perforated peptic ulcer were included in the study. Patient who received treatment for *Helicobacter pylori* eradication were excluded from the study. Most of the patients were in the middle age group (30-50 years) as consistent with the other studies done by Dogra et al with the highest incidence in the age group of 31-40 years.[5]

Perforation in peptic ulcer was more common in males and less common in females. Our study also had similar findings with male preponderance of 96% and females 4%. This corroborates with the other studies by Dogra et al, Reinbach et al, Khan et al.[2, 6, 7]

Most common presenting symptom among the cases in our study was epigastric/ upper abdominal pain, almost all (n=50)100% cases had it. Guarding/rigidity were present in all cases. Intraoperatively 74% patients had pre-pyloric perforation and 26% patients had in first part of duodenum.

All patients with perforated peptic ulcer included in our study underwent exploratory laparotomy with omental patch closure.

In our study, the frequency of *Helicobacter pylori* was found to be only 12%, showing low incidence of *Helicobacter pylori* infection in perforated peptic ulcer.

56% participants in our study had history of smoking, 38% participants had history of alcohol use, and 44% participants had history of prior use of NSAIDs. 78% participants had history of dyspepsia.

CONCLUSION:

According to our study the evidence of infection by *Helicobacter pylori* as shown by rapid urease test by using Rapid Urease Test kit was found to be 12%. Thus the frequency of *Helicobacter pylori* infection

seems to be very low in the studied patient population of perforated peptic ulcer which proves that there may be other contributing factors in perforated peptic ulcer cases, which need further evaluation.

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