

## PREVALENCE OF H. PYLORI INFECTION IN PATIENTS PRESENTING WITH PERFORATED DUODENAL ULCER

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**Abstract:** A cross-sectional study was conducted at the Department of Gastroenterology Qazi Hussein Ahmad Medical Complex, Nowshera, from January 2020 to January 2022 to determine the prevalence of H-pylori infection in patients with a perforated duodenal ulcer. A total of 189 patients were enrolled in the study. The data was analyzed using SPSS version 19 statistical software. Categorical data was computed as frequency and percentages and mean  $\pm$  SD was used for all numerical variables. Out of the 189 patients, 115 (60.85%) were male and had an average age of  $43.70 \pm 7.38$ , and 74 (39.15%) were female and had an average age of  $45.72 \pm 8.85$ . The study revealed that 98 (51.85%) patients tested positive for H. Pylori stool antigen, while 91 (48.15%) tested negative. Based on the findings, patients with a perforated duodenal ulcer are more likely to have an infection with *Helicobacter pylori*. Therefore, it is crucial to conduct a thorough examination of such cases. Early diagnosis and treatment of H-pylori infection can prevent harmful consequences for the patient.

**Keywords:** Stool Antigen, Perforated Duodenal Ulcer, H-Pylori

### Introduction

*Helicobacter pylori* is a gram-negative spiral rod infecting approximately 50% of the world's population (Marshall and Warren, 1984). There is a significant variation in the prevalence of H. pylori infection globally. This variation depends on the socioeconomic status and race of the population. Certain races, like Hispanics and people living in undeveloped areas of the world, generally have a high prevalence of H. pylori infection (Malfertheiner and Schulz, 2020), and utilization of contaminated food and water are the most common sources of H. pylori infection in these areas (Abro et al., 2011; Brandi et al., 2006).

H. pylori infection is associated with gastric and multiple systemic illnesses. Peptic ulcer disease is the most common disease caused by H. pylori infection. Gastritis, gastroesophageal reflux disease, iron deficiency anemia, irritable bowel syndrome, and systemic illnesses are also associated with H. pylori infection. If left untreated, H. pylori infection can lead to gastric cancer like mucosa-associated lymphoid tissue lymphomas and death (Blaser et al., 1995).

As peptic ulcer is the most common illness caused by H. pylori, eliminating the infection can drastically change the course of ulcer illness, with little to no ulcer recurrence after a year (Gwee et al., 2009). However, despite the recent advances in the management of H. pylori infection, diseases and complications related to H. pylori infection haven't declined as expected. A study conducted by Khalifa et al. revealed that 56.46% of patients with a perforated peptic ulcer tested positive for H. pylori antibodies (Khalifa et al., 2010). The significant risk of reinfection, antimicrobial resistance, inadequate medication adherence, and improper drug selection may have contributed to the ineffective

eradication of H. pylori (Ogihara et al., 2000), particularly in developing countries (Ebrahim and Balqis, 2020).

Therefore, to better eliminate this bacteria and prevent its complications, the scientific literature needs to pay more attention to the association between H. pylori infection and perforated peptic ulcers, especially duodenal ulcers (Newton et al., 2006). To contribute to a more thorough knowledge of this link and to enable prompt diagnosis and appropriate treatment, this study aims to offer fundamental research on the prevalence of H. pylori in people with perforated duodenal ulcers within the community (Tanih et al., 2009).

### Methodology

The study was performed at the Qazi Hussain Ahmad Medical Complex in Nowshera at the Department of Gastroenterology from January 2020 to January 2022 (This study was conducted at the Emergency Departments of Lady Reading Hospital and Qazi Hussain Ahmed Medical Complex). The sample size was 189 individuals. Once the ethics committee approved the experiment, the patients submitted written permission to participate. Except for individuals with upper GI bleeds, septicemia, and severe cardiac or respiratory diseases, all patients with perforated duodenal ulcers were included in the research. Patients who had recently used immune suppressant drugs, steroids, bismuth, or PPIs were also excluded from the trial.

H. pylori infection was verified by testing for H. pylori antigens in the feces. The patient's first stool sample was obtained and analyzed for antigen.

The data was analyzed using SPSS version 19. The quantitative variables for which mean standard deviations

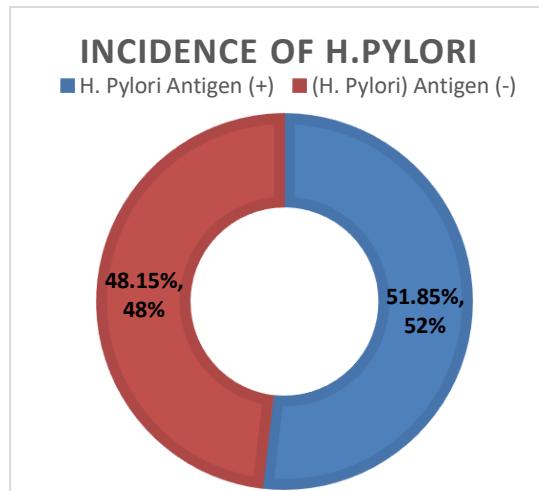
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were estimated were age and. Frequency and percentage were calculated for categorical parameters such as gender and the presence of the H-Pylori antigen.

## Results

According to our data, during this one-year study, 189 patients presented with perforated duodenal ulcers, of whom 115 (60.85%) were male and had an average age of  $43.70 \pm 7.38$ , and 74 (39.15%) were female and had an average age of  $45.72 \pm 8.85$ , which shows a high prevalence of the duodenal ulcer in male patients.

Among these 189 patients, 98 (51.85%) patients tested positive for H. pylori and 91 (48.15%) patients tested negative (Figure 1).



## Discussion

According to our study, 51.85% of patients with perforated duodenal ulcers tested positive for the H. pylori stool antigen, suggesting a noteworthy frequency of H. pylori infection. This finding is consistent with earlier research that linked H. pylori to the development of duodenal and stomach ulcers (BJ, 1983; Blaser et al., 1995). A significant percentage of patients with perforated ulcers have H. pylori infection, so it is critical to consider this infection while evaluating and treating these individuals. Notable is the age distribution of H. pylori infection in our investigation. Seventy percent of those in the younger age range (32–40 years) tested positive for the antigen, indicating a greater frequency of H. pylori infection in this age group. This result aligns with studies that indicate H. pylori colonization usually starts earlier in life and lasts into maturity (Malferteiner and Schulz, 2020). It highlights the importance of identifying and treating H. pylori-related disorders in younger people as soon as possible to avoid future complications (Hestvik et al., 2010; Ogihara et al., 2000).

Additionally, our research identifies specific risk factors linked to H. pylori infection. According to our study, lower socioeconomic status, poor sanitation, smoking, and a lack of formal education were significant risk factors. These findings are consistent with other studies that found that poor hygiene and socioeconomic circumstances are significant causes of H. pylori infection (Khalifa et al., 2010; Tanih et al., 2009). Reducing illnesses linked to H.

pylori may result from addressing these risk factors via public health campaigns. It is critical to recognize some of our study's shortcomings. Because of cross-reactions with the normal gut flora, stool antigen detection assays for H. pylori may provide false-positive findings (Hestvik et al., 2010). Furthermore, we did not evaluate the possible effect of antibiotic resistance on H. pylori eradication rates, which may affect how afflicted persons with duodenal ulcers are managed (Megraud et al., 2012).

## Conclusion

According to the findings, patients with a perforated duodenal ulcer are more likely to have an infection with Helicobacter pylori. Hence, these cases need to be looked at more thoroughly. A patient may avoid the harmful consequences of an H-pylori infection by receiving an early diagnosis.

## Declarations

### Data Availability statement

All data generated or analyzed during the study are included in the manuscript.

### Ethics approval and consent to participate

Approved by the department Concerned.

### Consent for publication

Approved

### Funding

Not applicable

## Conflict of interest

The authors declared absence of conflict of interest.

## Author Contribution

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Concept & Design of Study

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Data Analysis

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Final Approval of version.

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