

PATTERN OF CHANGE IN THE FREQUENCY OF HELICOBACTER PYLORI WITH PERFORATED DUODENAL ULCER

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Background: Peptic ulcers were believed to be caused by stress, dietary factors, and gastric acid, but the link between *H. pylori* and peptic ulcers was identified in 1983. To see the frequency of *Helicobacter pylori* infection in patients with perforated duodenal ulcer and advise eradication therapy in these patients. This cross sectional study was conducted in Surgical Unit Hayatabad Medical Complex, Peshawar, during January 2007–June 2008. **Methods:** A total of 50 cases were included in the study. All cases presenting to our unit with acute perforated duodenal ulcer were recruited. After resuscitation and baseline investigations, all underwent emergency laparotomy via upper midline incision, after thorough peritoneal lavage, the perforation margins were freshened and closed over an omental patch. Serum from every patient was tested for *H. pylori* and accordingly managed. **Results:** Out of the 50 cases, 45 were males, and 5 were females. Age ranged from 20–80 years old. All patients underwent emergency laparotomy. Postoperatively, all were started on PPI treatment and serum testing for *H. pylori* was done. Thirty-four (68%) turned out positive and 16 (32%) were found to be negative for *H. pylori*. **Conclusion:** There is still a high frequency of *H. pylori* infection in patients with perforated duodenal ulcer. But comparing these results with the various data available, there is a significant decline in *H. pylori* positive perforated duodenal ulcer patients.

Keywords: Peptic ulcer, *Helicobacter pylori* infection, Proton pump inhibitors

INTRODUCTION

Peptic ulcers were believed to be caused by stress, dietary factors, and gastric acid, but in 1983 Warren/Marshall identified the link between *H. pylori* and peptic ulcers.¹ It is now well established that most instances of peptic ulcers occur as a result of *H. pylori* infection² and approximately fifty percent (50%) of the world population is infected with *H. pylori*.³ Prevalence varies with geography, age, race, ethnicity, socioeconomic status and seem to decrease with improved hygiene.⁴ In developing countries, *H. pylori* infection is usually acquired during childhood, with infection rates ranging from 13.4–24%. This rate increases with age.^{5,6} However there has been recent reports of declining *H. pylori* infections in developed countries.^{7,8}

As the proportion of *H. pylori* negative ulcers increases, the clinical management of patients will undoubtedly change for example, an *H. pylori* test-and-treat strategy has been proposed as a cost effective method to manage patients with dyspepsia.⁹

A cost analysis of such a management strategy assumes that the number of endoscopic procedures will be reduced since eradicating *H. pylori* should improve the outcome in some individuals.

The most common complication of peptic ulcer disease is bleeding and this carries a mortality rate of 8–14%.¹⁰ This is followed by perforation which was initially excised and sutured by Mickuliz in 1805. This was later on modified with vagotomy

procedures.^{11,12} Presently, as a result of the identification of *H. pylori*, the standard treatment has changed to simple ulcer excision and suturing and subsequent *H. pylori* eradication.¹³ This method has reduced the incidence of residual and recurrent ulcers.¹⁴ In patients with anterior perforations, studies are ongoing on the use of endoluminal endoscopy with concomitant laparoscopy and closure of the perforation by omental plug.¹⁵

PATIENTS AND METHODS

This cross sectional study was carried out from January 2007 to June 2008 in patients with acute perforated duodenal ulcers who were admitted in the surgical unit of HMC. A proforma was designed which included demographic data, signs/symptoms, confirmatory investigations, diagnosis, and treatment. Postoperatively, serum testing for *H. pylori* was done. Patients found positive were started on eradication therapy for *H. pylori* with a triple drug regimen. They were followed up and outcome measures noted. All the data collected were compiled and systematically analyzed.

RESULTS

A total of 50 patients were included in this study. Out of these 50 patients, 45 were males and 5 were females (Figure-1), thus the males outnumbered females. Their ages ranged from 20–80 years, mean age being 43.44 years (Figure-2).

The serological test for *H. pylori* turned out

positive in 34 patients and negative in 16 patients (Figure-3). Amongst these 50 patients, 20 were found to be using NSAIDs, 4 were using steroids, 14 were chain smokers, 46 were strong tea consumers, and 22 were chronic snuff users. More than 75% (38) of patients were having more than one risk factors.

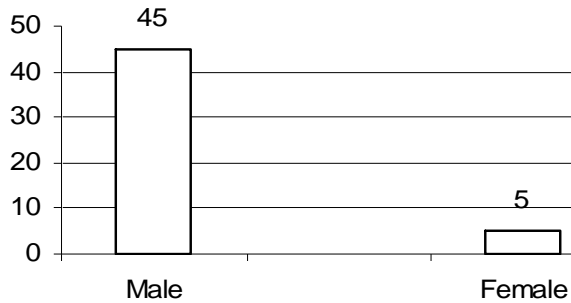


Figure-1: Gender of the Patients

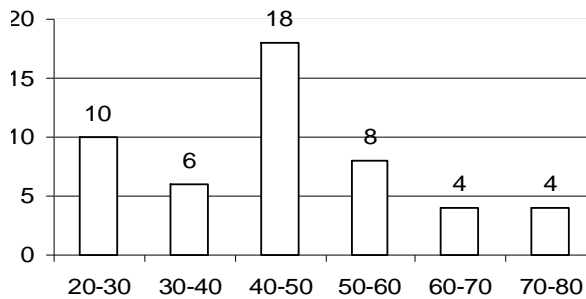


Figure-2: Age group of Patients

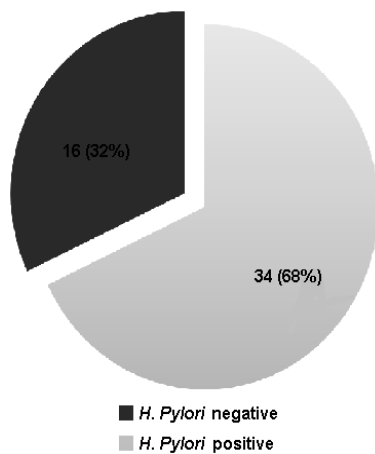


Figure-3: Status of Serological test for H. pylori

People from all walks of life were present in the study. But it was significant to note that out of 16 H Pylori negative patients eight (50%) come from poor class of the society, while 28 (82%) among the 34 H Pylori positive patients came from low socioeconomic class (Table-1).

Table-1: Socioeconomic status in H pylori patients

Socioeconomic status	Positive	%	Negative	%
Poor Class	28	82.0	6	18.0
Rich Class	8	50.0	8	50.0

DISCUSSION

Data regarding H pylori infection in perforate peptic ulcer are conflicting. Indeed H pylori infection rates ranges from 0–92 percent.¹⁶ During the last decade a significant trend of decline is noted in the frequency of H pylori in patients with perforated peptic ulcer. Some reports show that eradication of H pylori can prevent recurrent ulcer diseases complications such as bleeding. This has been demonstrated by Ng *et al.*¹⁷ in perforated peptic ulcer. These authors showed in a randomized clinical trial that eradication of H pylori prevents ulcer recurrence in patients with H pylori associated perforated duodenal ulcer.

In this study, we discovered that the frequency of H. pylori was most common among middle aged patients. In our previous study Aman *et al*¹⁸ the frequency was noted at 85.1% while in our present study, it has been recorded at 68%. This significant change might be attributed to the widespread use of antibiotics, and awareness about H pylori. This is compatible with the US National Hospital discharge surveys of 1993 and 1998, a time period in which a 16% decrease in diagnosed gastric ulcers and a 29% decrease in duodenal ulcers were noted in the hospital population.^{19,20}

These findings signify the importance of H pylori screening of patients with peptic ulcer disease or chronic dyspepsia. Because by applying the eradication therapy regimen for H pylori in these patients will not only cure the disease but will also prevent its later sequel like perforation of duodenal ulcer.

In our study, 90% of patients were males and 10% were females. The high prevalence of perforation in males is partly explained by the fact that male members of the society are under more stress as compared to their female counterparts. This is compatible with studies conducted previously by Ng *et al*¹⁷ and Aman *et al*¹⁸ as well.

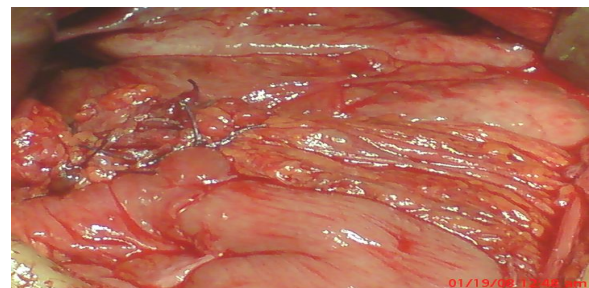


Figure-4: Per-operative photograph of patient with repaired perforated duodenal ulcer along with omental patch

CONCLUSION

There is a very high frequency of *H. pylori* infection in patients with perforated duodenal ulcers. An early and appropriate detection of *H. pylori* and potent eradication therapy post operatively will reduce the relapse rate after simple closure of the ulcer with omental patch. This study confirms a significant decline in the frequency of *H. pylori* positive perforated duodenal ulcers as compared to the previous study by Aman *et al.*¹⁸ But further studies and a long term follow up are required to further substantiate these findings.

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