Original Article

Prevalence of Helicobacter Pylori Infection in Patients with Perforated Peptic Ulcer

Agha Ahmed Hussain, Arshad Hussain Abro, Faisal Ghani Siddiqui, Ahmer Akbar Memon

ABSTRACT

OBJECTIVES: To determine the prevalence of Helicobacter pylori infection in patients with perforated peptic ulcer.

PATIENTS AND METHODS: This prospective study was conducted in the Department of Surgery, (Surgical Unit-II), Liaquat University of Medical & Health Sciences, Jamshoro. All patients were evaluated by full history, clinical examination and relevant laboratory investigations including. X-ray chest and abdomen, ultrasound abdomen, serum anti H-Pylori, biopsy and histopathology for detection of helicobacter pylori infection and perforation. The data was collected through pre-designed proforma and analyzed by SPSS version 10.00.

RESULTS: During study period 75 patients were diagnosed as case of perforated peptic ulcer. Male (73%) outnumber female (27%). Majority of patients were more than 30 years of age with mean age of 44.6 years SD ± 9.89. The serological test for helicobacter pylori was positive in all 75 cases; however histopathology of biopsy yields H. pylori in 50 (66.6%) cases. On exploratory laparotomy perforated duodenal ulcer was found in 50 (67%) patients while 25(33%) patients had perforated gastric ulcer.

CONCLUSION: The biopsy proven prevalence of perforated peptic ulcer, one of the life-threatening complications of H. Pylori, was is 67% in this study,

KEYWORDS: Prevalence, Helicobacter pylori, perforated peptic ulcer.

INTRODUCTION

The incidence of gastric ulcer perforation, over the last few decades, has declined due to excellent medical treatment.[1] However when occurs, is a surgical emergency because ulcer erodes through the gastric wall allowing stomach content to spill out into the peritoneal cavity causing generalized peritonitis. A perforated peptic ulcer therefore has high mortality rate if untreated. Emergency surgical management of this dreaded complication is essential since longer the duration between the onset of symptoms and definitive treatment, higher is the morbidity and mortality.[2]

H. Pylori, a gram negative-negative, helix shaped organism infects up to 50 percent of the world population A few strains of H. Pylori have a strong association with gastritis, duodenitis, peptic ulcer and Stomach cancer. H. pylori infection was seen more frequently in patients with duodenal ulcer than gastric ulcer i.e. 88.9% vs. 60.5%.[4]In Pakistan, the prevalence of peptic ulcer disease caused by H. Pylori infection is 85.1%.[5]

The present study was conducted to assess the prevalence of H. Pylori in perforated peptic ulcer.

PATIENTS AND METHODS

The study was conducted in the department of surgery, Liaquat University of Medical & Health Sciences, Jamshoro from November 2007 to September 2009. Patients of either sex, aged greater than 12 years, diagnosed as having perforated peptic ulcer were enrolled for this study after taking informed consent in local languages. The findings of history, clinical examination, and demographic characteristic were noted for each patient. For all cases baseline investigations such as blood complete picture, blood sugar and urea, serum electrolytes and X-ray chest were performed; specific investigations such as X-ray abdomen (erect/supine) to detect free gas under right dome of diaphragm, ultrasound abdomen to detect free fluid in peritoneal cavity and serology (anti H. pylori antibodies) to detect the Helicobacter pylori infection were also done. For histopathological detection of H pylori, biopsy from the edge of ulcer was taken during exploratory laprotomy.

The exclusion criteria included patients already on Helicobacter pylori eradication therapy, patients with malignant ulcer with perforation, traumatic perforation and patients who refused to give consent to participate into study.

Statistical analysis:

The data presented as number and percent for qualitative variables, while quantitative variables presented as mean and SD ±. . SPSS version 10.00 used as statistical software.

RESULTS

During our study period total 75 cases of perforated peptic ulcer were identified. Of these 75 patients, 55 (73%) were males and 20 (27%) were females with mean age 44.6± ± 9.89 (SD). The commonest presenting features observed were epigastric / upper abdominal pain 40(53%), heartburn 35 (47%), nausea / vomiting 40(53%) and constipation 38 (51%). The precipitating factors like use of NSAIDS, cigerrett smoking, and alcoholism were found in 40%, 33%, and 7% respectively. On examination generalized tenderness was present in all cases especially marked in upper abdomen. Abdomen was distended in fifty seven (76%) patients. The abdomen of fifty five (73%) patients exhibited a board like rigidity and absent bowel sounds.

On exploratory laparotomy perforated duodenal ulcer (first part – anteriorly) was found in 50 (67%) patients and 25(33%) patients had perforated gastric ulcer (antrum anteriorly). The size of perorated duodenal ulcer was less than 1-cm but in four (5%) patients the size exceeded 1 cm. Gastric ulcer was also < 1-cm in size but in two (3%) patients it was 1.5 to 2cm in size. The results of diagnostic tests for H. pylori are shown in **Table I**.

TABLE I: DIAGNOSTIC TESTS FOR HP (n=75)

Test	Patients	Percentage
Serology	75	100%
Histology	50	67%

DISCUSSION

H. Pylori transmission occurs person to person. Therefore health care providers like gastroenterologists, paramedics, and those caring for mentally impaired are at higher risk.[6]

The results of this study showed that H. pylori infection is more prevalent in males (66%), finding is consistent with the study of Oladejo[7], where 73% male were infected. However Kaffes,[8] found it more common in females. The mean age estimated in our study was 44, though it ranged from 48-70 years in other studies.[9, 10]

Various clinical studies has implicated the role of both H pylori and smoking for precancerous condition of stomach, similarly both these factors are considered responsible to variable extent for complete or incomplete type of intestinal metaplasia[11] however the convincing evidence lacking regarding their role in intestinal metaplasia. Although both smoking and coffee drinking are considered to decrease efficacy of medical management of peptic ulcer disease[12] however smoking alone is an important risk factor for H. pylori treatment failure.[13] Smoking also increases likelyhood to infection with with H pylori as it has been shown that H pylori antibody test is positive in 41% smokers, however we found only 15% smokers with positive H pylori. Tobacco use in any form (smoking or chewing) enhances the risk of gastric ulcer and carcinoma.[15] Therefore both H. pylori infection and smoking are risk factors for acid peptic disorders.[16]

Both Helicobacter pylori infection and nonsteroidal anti-inflammatory drugs (NSAIDs) are independent risk factors for peptic ulcer disease, but the potential synergism between these factors is controversial.[17] In patients with history of ulcer disease, new ulcers are expected to develop irrespective of NSAID use; the histamine H2-receptor antagonist reduces the rate of recurrence of H. pylori–related ulcers but found completely ineffective for preventing NSAID-related ulcers.[18] Therefore, screening and treatment for H. pylori infection before initiating NSAID therapy may reduce risk for ulcers.[17]

It has been shown that that in the presence of H pylori infection, alcohol intake is an independent risk factor for development of gastric/duodenal ulcer in Turkish patients.[19] On the other hand Nybelen JK et al shown that regular but moderate consumption of alcohol may facilitate elimination of H. pylori infection.[20]

In Beninese population, H pylori infection is almost equally distributed in urban and rural population (75% in urban and 72% in rural residents). The important predictor found were, density of family members (more than 3 persons sharing a room), family contact with infected persons and crowded living. Therefore improvement in living conditions can reduce intrafamilial H. pylori transmission.[21]

Although Incidence of perforated gastroduodenal peptic ulcer has reduced to 50% over the last 6 years due to the increased use of proton pump inhibitors[22] yet peptic ulcer when perforate still carries high mortality, delay in surgical management is considered a major determinant.[23]

Though serology for detection of Helicobacter pylori is readily available however, positive serology does not distinguish between active and chronic infection and therefore less specific as compared to other methods. The sensitivity and specificity of serology assay varies from 52-94.5%, and 60-97.2% respectively.[24] The biopsy-based methods, on the other hand have a low sensitivity (83%), but a high specificity (100%). In this study, histological diagnosis of H. pylori was made in over 81%. Other similar studies report histological diagnosis varying from 60 and 87%. Such wide difference may be due either to different methods used for culture or to high false negative resulting from indiscriminate use of antibiotics hindering growth of this microorganism. Several studies have been under-

taken to define the association and possible etiological role of H. pylori in perforated peptic ulcer. We found 70% incidence of perforated peptic ulcer, slightly higher than that reported by Gisbert, et al.[25] The reason for variation in prevalence could be ethnic background, age of patients selected, and sensitivity of the tests done. Remaining of 33% with peptic ulcer perforation in this study were serum anti H Pylori positive but negative on histopathology.

CONCLUSION

There appears to be an association between H.pylori infection and subsequent perforation of peptic ulcer. Eradication of H-Pylori through antimicrobials and control of associated risk factors like intake of NSAIDS and steroids, smoking, ingestion of alcohol and control of stress through change in life pattern needs is highly recommended.

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AUTHOR AFFILIATION:

Dr. Agha Ahmed Hussain
Department of Surgery
Liaquat University Hospital Hyderabad, Sindh-Pakistan.

Dr. Arshad Hussain Abro *(Corresponding Author)*
Department of Surgery
Liaquat University of Medical & Health Sciences (LUMHS), Jamshoro/Hyderabad, Sindh-Pakistan.
Email: drahabro@hotmail.com

Dr. Faisal Ghani Siddiqui
Department of Surgery
LUMHS, Jamshoro/Hyderabad, Sindh-Pakistan.

Dr. Ahmer Akbar Memon
Department of Surgery
LUMHS, Jamshoro/Hyderabad, Sindh-Pakistan.