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PREVALENCE AND THE OUTCOME OF PEPTIC ULCER DISEASE- A RETROSPECTIVE STUDY

Md. Ahsanul Haque[1], Raj Mohon Hira[2], Sharna Moin[3], Syed Didarul Haque[4], Md. Jahangir Hossain[5], Md. Jasim Uddin[6], Alomgir Kabir[7]

1. Lecturer, Department of Anatomy, MD, MSc (Gastroenterology), Army Medical College Jashore, Jashore Cantonment, Bangladesh
2. Professor and Head, Department of Anatomy, Army Medical College Jashore, Jashore Cantonment, Bangladesh
3. Associate professor, Department of Anatomy, Army Medical College Jashore, Jashore Cantonment, Bangladesh
4. Associate Professor, Department of Pharmacology, Gazi Medical College, Khulna, Bangladesh
5. Medicine Specialist, 250 Bed Hospital, Jashore, Bangladesh
6. Child Specialist, 250 Bed Hospital, Jashore, Bangladesh
7. Chest specialist, 250 Bed Sador Hospital, Jashore, Bangladesh

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ABSTRACT

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Introduction: Peptic ulcer disease (PUD) occurs due to an imbalance between stomach acid-pepsin and mucosal defense mechanisms. It affects 4 million people worldwide annually. About 10%-20% of patients with PUD will have complications and 2%-14% of the ulcers will perforate causing an acute illness. **Objective:** To assess the prevalence and the outcome of peptic ulcer disease. **Materials and Methods: A** retrospective study was conducted at the Department of Gastroenterology, Khulna Medical College, Khulna, Bangladesh from January to June 2022. In total, 120 patients who underwent emergency surgery for perforated peptic ulcer were included in this study. The clinical Data regarding age, gender, complaints, time elapsed between onset of symptoms and hospital admission, physical examination findings, co-morbid diseases, laboratory and imaging findings, operative methods, post-operative complications, length of hospital stay, morbidity and mortality were collected retrospectively. **Results:** Out of 87 (72.5%) patients were male and 33 (27.5%) were female patients and the mean age was 60 years. The mean time for presentation to the hospital was 32 hours. While 29 (24.4%) of the patients had shock at presentation, 49 of them (40.8%) were identified to have at least one comorbid disease. It was identified that perforation was most frequent in the pre-pyloric region (86 patients, 71.6%). The length of hospital stay was longer in patients who developed morbidities. In the

post-operative period, 46 patients (38.3%) developed morbidity. The most frequent morbidity was wound infection. 33 (27.5%) patients died. The most frequent reason for mortality was sepsis. In our study age over 60 years, presence of co-morbidities late time at presentation of more than 24 hrs. from the onset of symptoms, shock at presentation were noted as independent risk factors influencing morbidity and mortality. **Conclusion**: In spite of the developments in peptic ulcer disease treatment, peptic ulcer perforation remains a serious surgical problem. Patients above the age of 60, with a time to presentation longer than 24 hours, presence of shock at the time of presentation and concomitant diseases, are patients at high risk for post-operative morbidity and mortality, close monitoring of which can help reducing mortality and morbidity. Early diagnosis, prompt resuscitation and urgent surgical intervention are essential to improve outcomes.

Corresponding author
Md. Ahsanul Haque*

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INTRODUCTION

Peptic ulcer disease (PUD) occurs due to an imbalance between stomach acid-pepsin and mucosal defense mechanisms. It affects 4 million people worldwide annually [1]. About 10%-20% of patients with PUD will have complications and 2%-14% of the ulcers will perforate causing an acute illness [2,3,4]. Perforation is a serious complication of PUD and patients with perforated peptic ulcer (PPU) often present with acute abdomen that carries high risk for morbidity and mortality [5]. Peptic ulcer disease (PUD) results from an inequality of acid secretion and mucosal defenses that resist acid digestion. Moreover, studies have confirmed the strong relationship between gastric antral infection with H. pylori and peptic ulceration. More than 90% of patients with peptic ulcer disease are infected with H. pylori and eradication of this infection not only heals most simple ulcers but also significantly decreases the likelihood of recurrent ulceration [6]. The lifetime prevalence of perforation in patients with PUD is about 5% [7]. PPU carries a mortality ranging from 1.3% to 20% [7,8,9,10]. Thirty-day mortality rates reaching 20% and 90-d mortality rate of up to 30% have been reported [11,12]. In this study, determine relations between postoperative morbidity and perioperative risk factors in perforated peptic ulcer. Other causes include Behcet disease, Zollinger Ellison syndrome, Crohn disease and liver cirrhosis, and similar symptoms stomach cancer, coronary heart disease, and inflammation of the stomach lining or gallbladder [13]. Symptoms of PUD are nonspecific and diagnosis unreliable on history, frequent symptoms include, epigastric pain, nausea, flatulence and bloating, heartburn, a posterior ulcer may cause pain radiating to the back, and symptoms are relieved by antacid [14]. Diagnosis is mainly established based on the characteristic symptoms, endoscopies or barium contrast and tests for H. pylori infection [15]. Prognosis of PUD is excellent if the underlying cause such as H. pylori infection or drugs can be addressed [16].

MATERIALS AND METHODS

A retrospective study was conducted at Department of Gastroenterology, Khulna Medical College, Khulna, Bangladesh from January to June 2022. In total, 120 patients who underwent emergency surgery for perforated peptic ulcer were included in this study. The clinical Data regarding age, gender, complaints, time elapsed between onset of symptoms and hospital admission, physical examination findings, co-morbid diseases,

laboratory and imaging findings, operative methods, postoperative complications, length of hospital stay, morbidity, and mortality were collected retrospectively.

Inclusion criteria:

- Patients >18 years of age admitted to the Surgical ICU with a critical illness.

Exclusion criteria:

- Patient with a known history of thyroid disorders.
- Patient with the intake of drugs altering thyroid hormone levels.
- Pregnant patients.

Patients who present with bleeding manifestations in the causality were admitted, vitals are checked, blood is drawn for grouping, cross matching, hemoglobin %, fluids are administered, PPI injection drip, antibiotics, sucralfate syrup are given and if no further vomiting oral feeds are allowed. Gastroscopy is done after patient general conditions improve. Patients who come directly to endoscopy room on fasting and are hemodynamically stable are taken for the procedure on the same day. Corrosive intake patients who attend op oare admitted in the ward are assessed for gastroscopy's feasibilitypy. oral cavity examined for ulceration of tongue, buccal mucosa and lip charring. Extent of damage can be assessed by history of dysphagia/ odynophagia, pain abdomen, hematemesis. If patient is able to swallow fluids and in stable condition posted for gastroscopy.

All patients were kept nil by mouth after diagnosis and NG tube and urinary Foleys catheter were inserted. After Adequate fluid resuscitation and pre-operative. Ceftriaxone 1mg and metronidazole 500 mg IV injections patients were taken for emergency open laparotomy with primary closure of perforation with mental patch repair with aspiration of the free gastrointestinal content in the abdomen, irrigation using at least 1000 cc normal saline 0.9% with drain placed in Morrison pouch in all the patients and in the pelvic site if necessary. Their nasogastric tubes were withdrawn on postoperative days 3-4. On a post-operative day 4, the patients were started on liquid diet. Post-operative antibiotic treatment was maintained for 7-10 days.

Causes of peptic ulcers:

1. H. Pylori infection Drugs

- NSAID
- Antibiotics
- Therapeutic dose of ecosprin
- Concomitant steroids
- Chemotherapy drugs

2. Tobacco smoking Systemic diseases

- COPD
- Cirrhosis of Liver
- Collagen vascular diseases
- Endocrine disorders
- CNS – Stroke, head injury
- Burns
- GERD

RESULTS

Out of 87 (72.5%) patients were male and 33 (27.5%) were female patients and the mean age was 60 years. The mean time for presentation to the hospital was 32 hours. While 29 (24.4%) of the patients had shock at presentation, 49 of them (40.8%) were identified to have at least one comorbid disease. It was identified that perforation was most frequent in the pre-pyloric region (86 patients, 71.6%). The length of hospital stay was longer in patients who developed morbidities. In the post-operative period, 46 patients (38.3%) developed morbidity. The most frequent morbidity was wound infection. 33 (27.5%) patients died. The most frequent reason for mortality was sepsis. In our study age over 60 years, presence of co-morbidities, late time at presentation of more than 24 hrs. from the onset of symptoms, shock at presentation were noted as independent risk factors influencing morbidity and mortality.

Table-1: Demographic and characteristic clinical findings of the patients (N=120)

Age	60 years	Percentage
Sex		
Male	87	72.5
Female	33	27.5
Time elapsed between onset of symptoms and presentation	32 hours	-----
Symptoms at presentation		
Abdominal pain	120	100
Nausea-vomiting	111	92.5
Physical examination findings		
Tenderness	120	100
Guarding	115	95.8
Rebound tenderness	115	95.8
Co-morbid diseases		
Cardiovascular disease	12	10
Pulmonary disease	10	8.3
Diabetes mellitus	14	11.6
Urinary system disease	5	4.16
Malignancy	0	0.0
Other	8	6.6
Signs Of Shock	11	9.1
Organ Failure	2	1.6
Imaging Studies, Free Air On AXR	118	98.3
Perforation sites		
Pre pyloric	86	71.6
Gastric	34	28.4
Length Of Hospital Stay	10±4 days	---
Morbidity	46	38.3
Mortality	33	27.5

AXR: upright abdominal X-ray

Table-2: The reasons for morbidity and mortality in the post-operative period (N=79)

Morbidity And Mortality Causes	N	%
Morbidity (N=46)		
Wound infection	18	39.1
Pleural effusion	12	26.0
Atelectasis	6	13.0
Pneumonia	5	10.8
Acute renal failure	3	6.5
Fistula	1	2.1
Urinary tract infection	1	2.1

Mortality (N=33)		
Sepsis	25	75.7
Myocardial infarction	1	3.0
Pulmonary etiology	7	21.2

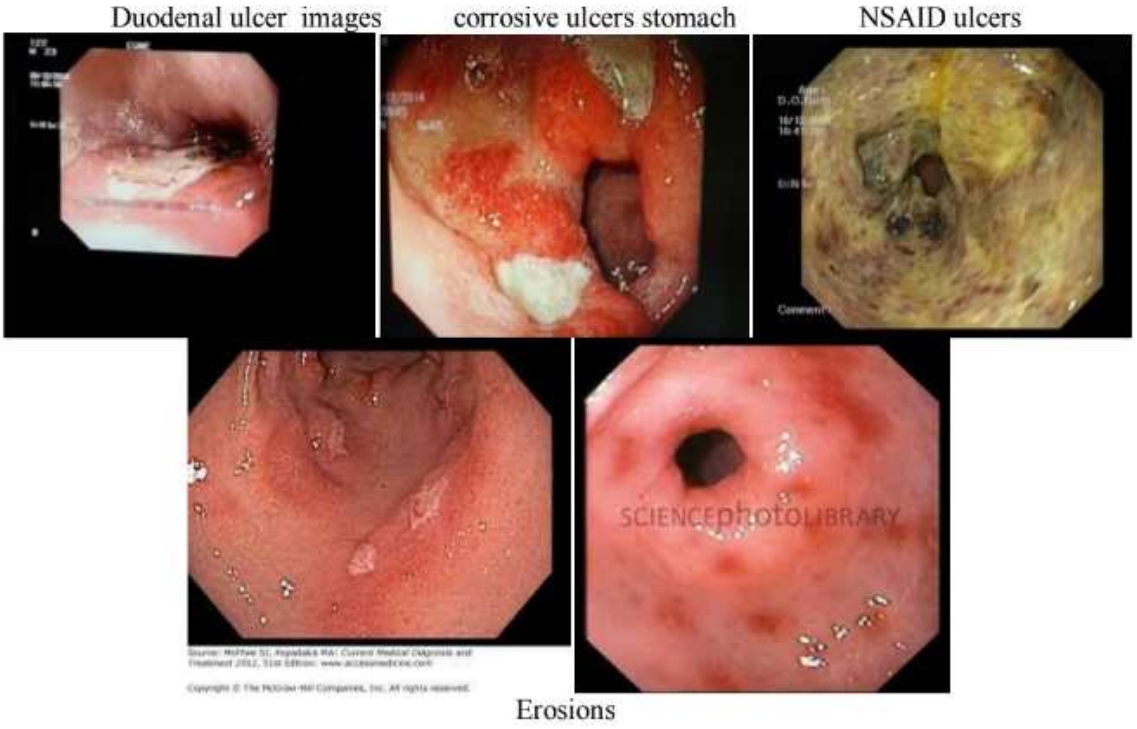

Fig-1: Images of Peptic ulcers.

DISCUSSION

Gastroduodenal peptic ulcer disease (PUD) is a common problem with significant geographic variation in prevalence. In Western countries, the incidence of PUD has steadily declined and the prevalence is much higher in developing countries. Such variations are likely related to the prevalence of Helicobacter pylori, smoking, and the use of ulcer-genic drugs, such as no steroidal anti-inflammatory drugs. The advent of histamine H2-receptor antagonists (H2 blockers) in the 1970s and the development of proton pump inhibitors (PPIs) in the late 1980s led to further acid reduction and faster, more efficient healing of active ulcer disease. PUD complications include bleeding, perforation, and gastric outlet obstruction. Perforation is the second most common with an annual incidence of 11 operations per 100,000 populations. PPU carries a mortality ranging from 1.3% to 20% [8-10]. Thirty-day mortality rate reaching 20% and 90-day mortality rate of up to 30% have been reported [11,12]. Most common age at presentation of perforated peptic ulcer is 4th and 5th decades and incidence among males is more than in females 9 ratio of MALE: FEMALE is 2-8:1 in literatures [14, 15-18]. While the mean age of our patients was 60years, the male/female ratio was 2.5:1. It was reported that free sub-diaphragmatic air was identified in the direct X-ray images of 47.2-80% of patients with PUP [14, 15,19]. Parallel with these data, 98.3% of the patients in our study were identified to have free air in their X-ray images. The post-operative morbidity rate in peptic ulcer perforation ranges between 21-42% [14, 20, 21].

Pulmonary and wound site infections are the most common causes. In our study, the morbidity rate was 38.3%. Similar to the literatures, our patients were identified to have wound site infections and pulmonary complications as the most common causes. We found in our study that age above 60, presence of a co morbid disease, late time at presentation, shock at presentation were factors that significantly influenced morbidity. Kim et al [22] stated that age above 60 and female sex constituted the risk factors that influenced post-operative morbidity. In our study, PUP was often seen among men whereas sex was not a significantly influencing factor for morbidity. In our study, 52% of our patients were above the age of 60. Many studies have reported that the time to presentation at the hospital being over 24 hours had a significant increase in mortality and morbidity [14, 16, 18]. In our study, the average time to presentation was calculated to be 32 hours and similar correlation was identified between the time to presentation and morbidity. There are studies indicating that morbidity rates increase depending on the presence of concomitant diseases in patients with peptic ulcer perforation [14, 22-24]. The presence of shock on presentation associated with increasing mortality has been reported in some studies. (25, 26) and similar finding was noted in our study. Similarly, we identified that our patients who had concomitant diseases had higher morbidity rates. The post-operative mortality rate in peptic ulcer perforation ranges between 4-30% [14, 27, 28, 22, 29, 30]. Mortality has been reported to be due to multiple organ failure and pneumonia. In our study, our mortality rate was 27.5%. The most frequent reasons for mortality in our patients were sepsis and pulmonary problems. The higher mortality in our local study could be due to older age, concomitant co-morbidity and patients with pre-operative shock. The factors influencing mortality in our patients were as follows: age above 60, time to presentation longer than 24 hours, shock at the time of presentation, co morbid diseases Arica et al. [28] reported that mortality significantly increased in PUP patients above the age of 60. Koçer et al. [14] stated that mortality was 1.4% below the age of 65, while it was 37.3% above 65 years of age. In our study, being above the age of 60 was found to have a significant influence on mortality. However, in our study sex did not have any influence on mortality. Parallel with studies indicating that time to presentation longer than 24 hours influenced the development of mortality, we also noted that mortality was significantly increased in patients those patients whose time to presentation was longer than 24 hours [14, 16, 18]. There are publications reporting that the presence of shock at the time of presentation increased mortality, we noted that our patients who had shock on presentation had a significantly increased mortality [14, 18, 31]. Hence patients presenting with PUP in the presence of a shock, have to be taken into the operating room immediately after the correction of fluid-electrolyte imbalance. The presence of concomitant diseases in PUP patients influenced mortality rates [14, 22-24]. We also found that the presence of a concomitant disease had a significant influence on mortality. The length of hospital stay following surgery in patients with PUP ranges between 7-12.5 days [16, 17]. In our study, the mean length of hospital stay was 10±4 days. Excluding patients who developed mortality from the assessment, length of hospital stay was found to be significantly higher in the group that developed morbidity which could be because of the complications that developed in the post-operative period.

CONCLUSION

In spite of the developments in peptic ulcer disease treatment, peptic ulcer perforation remains a serious surgical problem. Patients above the age of 60, with a time to presentation longer than 24 hours, presence of shock at the time of presentation

and concomitant diseases, are patients at high risk for post-operative morbidity and mortality, close monitoring of which can help reducing mortality and morbidity. Early diagnosis, prompt resuscitation and urgent surgical intervention are essential to improve outcomes.

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