



## ORIGINAL RESEARCH PAPER

Surgery

### EXPLORING THE RESULTS OF EMERGENCY SURGERY FOR PERFORATED PEPTIC ULCER: A COMPREHENSIVE DESCRIPTIVE STUDY

KEY WORDS:

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#### INTRODUCTION:

Due to its high rates of morbidity, mortality, and monetary loss, peptic ulcer disease (PUD) is considered a global health issue. The prevalence of peptic ulcer disease has decreased recently across the globe. (1,2) Despite this and recent improvements in endoscopic facilities, the elimination of *H. pylori*, and the introduction of proton pump inhibitors, complications such as peptic ulcer perforation continue to be a significant healthcare issue. This can be brought on by an increase in the risk factors for complications from peptic ulcers. A dangerous complication that typically affects between 2-10% of people with peptic ulcers is peptic ulcer perforation. The overall mortality rate for peptic ulcer perforation is 10%, while some writers estimate fatality rates ranging from 1.3% to 20%. If morbidity and death are to be prevented, this potentially fatal consequence of peptic ulcer disease requires special attention, early resuscitation, and proper surgical therapy.

According to the prevalent socio-demographic and environmental conditions, the pattern of perforated PUD varies from one geographic area to another. In the developing world, patients tend to be younger, more likely to be men, to arrive later, and to smoke more frequently. In the majority of instances, the diagnosis of perforated PUD presents a diagnostic problem. It is not too difficult to diagnose perforations when duodenal or stomach contents leak into the peritoneal cavity and cause abdominal discomfort, shock, peritonitis, significant soreness, and diminished liver dullness. In 75% of patients, a plain abdominal erect X-ray showing gas under the diaphragm is diagnostic. Numerous approaches have been suggested since the initial description of surgery for acute perforated peptic ulcer illness. Recent developments in antiulcer therapy have demonstrated that straightforward omental patch closure of perforation followed by *H. Pylori* eradication is a simple and safe choice in many locations, changing the previous pattern of truncal vagotomy and drainage procedures. Few surgeons conduct the ultimate procedure for perforated PUD. (3-5)

High morbidity and mortality following surgery for perforated PUD have been observed to be connected with delayed diagnosis and beginning of surgical treatment. If morbidity and death related to perforated PUD are to be avoided, early detection and fast surgical treatment of perforated PUD are essential. Prompt diagnosis, aggressive resuscitation, and early implementation of surgical therapy all contribute to a favourable outcome. (1,6)

Despite an increase in the number of admissions for this condition, little research has been done on the surgical care of perforated peptic ulcer disease in our local setting. The purpose of this study was to outline our experience treating patients with perforated peptic ulcer disease surgically in our local community. It did this by describing the prevalence, clinical presentation, treatment, and prognosis of patients with peptic ulcer perforation in our setting and by identifying factors that were predictive of these patients' prognoses.

#### MATERIALS AND METHODS:

Patients who had peptic ulcer perforations at the Dr.

Punjabrao Deshmukh Memorial Medical College in Amravati, Maharashtra, between March 2022 and December 2022 were studied in this ambispective study. After providing informed written consent for the trial, patients who visited the A&E department between April 2008 and March 2011 were prospectively enrolled in the study. A thorough physical examination and detailed history were conducted before tests such as a full blood count, blood grouping, serum urea, serum creatinine, and random blood sugar were run. Additionally, patients underwent an ELISA or quick test for HIV infection. Every patient who tested positive for HIV also had their CD4 level checked. All patients underwent radiological examinations, including chest and abdomen erect X-rays, on the suspicion of having perforated PUD. Hematological profile, serum urea and electrolytes, and urinalysis were among the other investigations. On the basis of the patient's medical history, per abdomen and chest radiographs, and laparotomy results, the diagnosis of perforated PUD was reached. Patients were given intravenous fluids, nasogastric suction, intravenous antibiotics, and intravenous anti-ulcer medications; an hourly urine output of 30 ml/hour indicated appropriate hydration. After sufficient resuscitation, the perforation site was discovered through a laparotomy through a midline incision. The perforation was simply closed, and Graham's omentopexy (pedicled omental patch strengthening) was carried out. An intraperitoneal drain was then inserted after a thorough peritoneal lavage with 3 to 4 litres of ordinary saline. Either a senior resident working under the direct supervision of a consultant surgeon, or a consultant surgeon, performed the surgeries.

#### Statistical Analysis Plan:

The statistical analysis was performed using statistical package for social sciences (SPSS) version 15.0 for Windows (SPSS, Chicago IL, U.S.A). The mean  $\pm$  standard deviation (SD), median and ranges were calculated for continuous variables whereas proportions and frequency tables were used to summarize categorical variables. Continuous variables were categorized. Chi-square ( $\chi^2$ ) test were used to test for the significance of association between the independent (predictor) and dependent (outcome) variables in the categorical variables.

#### RESULTS:

**Table 1: Demographic Particulars Of The Present Sample**

Age group	Frequency	Percentage
<20	2	6.67
21 to 30	7	23.33
31 to 40	8	26.67
41 to 50	5	16.67
>50	8	26.67
Gender		
Female	5	16.67
Male	25	83.33

The mean age of the cases was  $32.45 \pm 4.35$  years with male preponderance.

Abdominal pain (83.33%), abdominal distension (80.00%) and vomiting (70.00%) were the most common chief complaints.

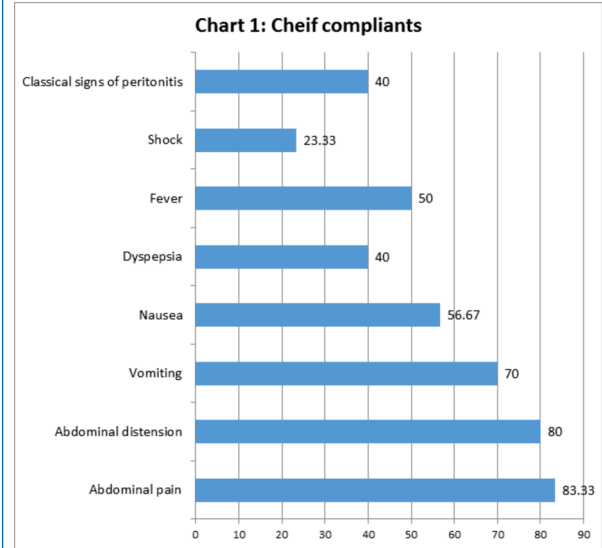


Table 3: Complications (n=30)

Complications	Frequency	Percentage
Surgical site infection	6	20.00
Post operative fever	2	6.67
Re-explored	2	6.67
Wound dehiscence	3	10.00
Fistula	2	6.67
Paralytic ileus	3	10.00
Pulmonary infection	2	6.67
Septic shock	3	10.00

Of the 30 cases studied, 6 cases had surgical site infection, 2 cases had post operative fever, 2 cases were re-explored and one case had peritonitis.

DISCUSSION:

Perforated ulcers, a severe complication of peptic ulcers, occur when erosions in the stomach or duodenal lining create a hole, allowing digestive juices to escape into the abdominal cavity. This breach can lead to severe abdominal pain, distension, and life-threatening complications such as peritonitis. Emergency surgery is often required to repair the perforation and prevent further complications. Common risk factors include *Helicobacter pylori* infection, non-steroidal anti-inflammatory drug use, and smoking. Timely diagnosis and intervention are crucial for favorable outcomes, emphasizing the significance of recognizing symptoms and prompt medical attention to address perforated ulcers.

The present study focuses on the clinical presentation, management, and outcomes of emergency surgery for perforated peptic ulcers. Among the 30 cases examined, abdominal pain (83.33%), abdominal distension (80.00%), and vomiting (70.00%) emerged as the most prevalent chief complaints. Surgical complications were observed in 6 cases with surgical site infection, 2 with postoperative fever, 2 requiring re-exploration, and one presenting with peritonitis. Chalya PL et al. conducted a broader investigation involving 84 cases, with a male predominance (1.3:1) and a modal age range of 21 to 30 years. The average sickness duration was 5.8 days, and 69.0% had no prior therapy for peptic ulcer disease. Alcohol use, smoking, and non-steroidal anti-inflammatory drug use were reported by 10.7%, 85.7%, and 64.3%, respectively. Notably, 9.5% of patients were HIV positive, with a median CD4 count of 220 cells/l. Duodenal perforations (90.4%) predominated, with a duodenal-to-stomach ulcer ratio of 12.7:1. Graham's omentopexy was the preferred repair method in 83.3% of cases. Complications and mortality rates were 29.8% and 10.7%, respectively. Premorbid conditions, HIV status, CD4 count below 200 cells/l, treatment delay, and acute perforation were significantly associated with complications ( $P < 0.001$ ). Mortality risk factors included

age over 40 years, delayed presentation ( $>24$  hrs), shock (systolic BP  $< 90$  mmHg), HIV positivity, low CD4 count ( $<200$  cells/l), stomach ulcers, concurrent disorders, and comorbidities ( $P < 0.001$ ). The average hospital stay was 14 days, and 82.6% of survivors achieved excellent results on Visick's grading system.

In a study by Testini M et al., the overall mortality rate was 4.0%, with factors such as age over 65, related disorders, delayed surgery, shock upon admission, postoperative abdominal issues, and wound infections significantly associated with increased mortality ( $P < 0.0001$ ,  $P < 0.03$ ). Ayyaz M et al. explored laparoscopic surgery outcomes in 31 patients with perforated peptic ulcers. The average age was  $37.25 \pm 7.80$  years, and 70.76% were men. Laparoscopic repair took an average of 109.35 minutes, with a hospital stay of  $5.10 \pm 0.87$  days. Postoperative pain, measured on the Visual Analogue Scale, averaged  $3.55 \pm 0.85$ , and there were no fatalities during the 30-day postoperative period.

While the present study on emergency surgery for perforated peptic ulcers provides valuable insights, it is essential to acknowledge certain limitations that may impact the generalization and interpretation of the findings:

1. The sample size of 30 cases might be considered relatively minor, potentially limiting the study's ability to capture the full spectrum of clinical presentation and outcome variations. The retrospective nature of the study design poses inherent challenges, including the reliance on medical records, potential data incompleteness, and the inability to control for confounding variables.
2. The study's single-center focus may introduce bias, as the findings might not represent broader populations with perforated peptic ulcers. A control group or comparative analysis with alternative treatment modalities is necessary to draw definitive conclusions about the effectiveness of specific surgical interventions.
3. The study's timeframe might not capture evolving trends in managing perforated peptic ulcers, and the absence of long-term follow-up data hinders the assessment of sustained outcomes and recurrence rates.

Recognizing these limitations is crucial for contextualizing the study's results and guiding future research efforts to address these constraints and enhance the robustness and applicability of findings in emergency surgery for perforated peptic ulcers.

CONCLUSIONS:

In contemporary society, peptic ulcer perforation is still a common clinical issue that primarily affects young males who are not known PUD sufferers. Despite patients' tardy arrival at our centre, simple omental patch closure followed by *Helicobacter pylori* eradication was successful in the majority of instances with outstanding results.

REFERENCES:

1. Hill AG. Management of perforated duodenal ulcer in a resource poor environment. *East Afr Med J*. 2001 Jul;78(7):346-8.
2. Kudva MV, Thein-Htut. Profile of peptic ulcer disease in Malaysia. *Singapore Med J*. 1988 Dec;29(6):544-7.
3. Gutiérrez de la Peña C, Márquez R, Fakh F, Domínguez-Adame E, Medina J. Simple closure or vagotomy and pyloroplasty for the treatment of a perforated duodenal ulcer: comparison of results. *Dig Surg*. 2000;17(3):225-8.
4. Boey J, Choi SK, Poon A, Alagaratnam TT. Risk stratification in perforated duodenal ulcers. A prospective validation of predictive factors. *Ann Surg*. 1987 Jan;205(1):22-6.
5. Testini M, Portincasa P, Piccinni G, Lissidini G, Pellegrini F, Greco L. Significant factors associated with fatal outcome in emergency open surgery for perforated peptic ulcer. *World J Gastroenterol*. 2003 Oct;9(10):2338-40.
6. Montalvo-Javé EE, Corres-Sillas O, Athié-Gutiérrez C. Factors associated with postoperative complications and mortality in perforated peptic ulcer. *Cir Cir*. 2011;79(2):141-8.
7. Chalya PL, Mabula JB, Koy M, Mchembe MD, Jaka HM, Kabangila R, et al. Clinical profile and outcome of surgical treatment of perforated peptic ulcers in Northwestern Tanzania: A tertiary hospital experience. *World J Emerg Surg*. 2011 Aug;6:31.
8. Ayyaz M, Shafiq A, Butt UI, Khan WH, Umar M, Abaid A. Outcome of Laparoscopic Repair for Perforated Peptic Ulcers in a Resource-Limited Setting. *Cureus*. 2022 Apr;14(4):e24159.