

# A Clinical Study of Peptic Ulcer Perforation

Usha Prakash Vaswani<sup>1</sup>, Sudhir Bhamre<sup>2\*</sup>

<sup>1</sup>PG Resident, Department of General Surgery, Dr. Vasant Rao Pawar Medical College Hospital & RC, Nashik - 422003, India; vaswani\_usha@yahoo.com

<sup>2</sup>Professor and Head, Department of General Surgery, Dr. Vasant Rao Pawar Medical College Hospital & RC, Nashik - 422003, India; sudhir\_bhamre@yahoo.com

## Abstract

**Background:** Perforation is one of the most important complications of a peptic ulcer. In spite of modern management, it is still a life threatening emergency. Operative method is still the treatment of choice and simple closure of perforation with Graham's patch is an established procedure of choice in our institution. **Material and Methods:** A prospective study was conducted on 30 diagnosed patients of perforated peptic ulcer at Dr. Vasant Rao Pawar Medical College, Nashik to study the clinical profile and clinical outcome of peptic ulcer perforation patients post operatively from August 2014 to December 2016. **Results:** A total of 30 patients were included, majority of patients presented in the 4<sup>th</sup> decade of life and 88.67% were males, 76.67% of the total patients had positive history suggestive of peptic ulcer disease and 36.66% patients had associated co morbidities, (36.67%) had severe dehydration, 10% patients presented with hypotension, with a systolic blood pressure of less than 90mmHg. In 23.33% of patients surgery was performed within 5 days of onset of acute abdominal pain and 16.67% presented with severe contamination of the peritoneal cavity, 33.33% presented with gastric perforation and 66.67% presented with duodenal perforation. 30% patients suffered from post operative wound infection and 30% patients suffered from post-operative respiratory infections. 16.67% patients presented with post operative sepsis. The mortality rate in this study was 10%. **Conclusion:** Perforated peptic ulcer is one of the most commonest acute abdominal emergencies. The outcome of the patient depends on the age of the patient, associated co morbidities, time interval between acute abdominal pain and surgery, timely resuscitation, contamination of the abdomen and post operative sepsis.

**Keywords:** Outcome, Peptic Ulcer, Perforation, Time Interval between Onset of Acute Abdominal Pain and Surgery

## 1. Introduction

Perforation is one of the most important complications of a peptic ulcer. In spite of modern management, it is still a life threatening emergency. The knowledge of perforation dates over 2000 years back when the great Indian surgeon "Sushruta" described it as "Parinamashula". King Charles first daughter, Henriette-Anne, died in 1670 after a day of abdominal pain and tenderness. Since poisoning was suspected autopsy was performed revealing peritonitis and a small hole in the anterior wall of stomach<sup>1,2</sup>. Every year peptic ulcer disease affects 4 million people around the world and 2%-14% of these ulcers perforate<sup>3,4</sup>.

Perforated peptic ulcer occurs in 2-10 % of the patients with peptic ulcer disease and account for more than 70% deaths<sup>5</sup>. Overall mortality rate of perforated peptic ulcer in recent studies varies from 6%-14% and remains at approximately 30-60 % in patients with a Boey score of 2 or more<sup>6,7</sup>. Elective surgery leads to 5-10 % of mortality while in emergency situation it goes to 20-30 % and may be as high as 30% to 50% particularly in elderly elective surgery leads to 5-10 % of mortality while in emergency situation it goes to 20-30 % and may be as high as 30% to 50% particularly in elderly. Acute perforation is one of the complications of chronic Duodenal Ulcer (DC) and occurs in about 10-15 % of all recognized chronic peptic

\*Author for correspondence

ulcers<sup>3</sup>. A detailed history with regard to the symptoms of the patient, a thorough examination of the patient, radiological and biochemical investigations help to arrive at a correct preoperative diagnosis. Operative method is still the treatment of choice and simple closure of perforation is an established procedure of choice. The chances of mortality increases with delay in surgical management. The mortality rate when operation is performed within 6 hours of onset of pain approaches zero, within 6-12 hours the rate is 5-10 %, within 12-24 hours it is 25% or higher and after 72 hours, operations are seldom successful<sup>8</sup>. A successful outcome depends upon early diagnosis and timely surgical intervention. Simple closure with mental patch repair is the mainstay of treatment of perforated peptic ulcer.

## 2. Methods

A Prospective study was under taken on 30 patients to predict the mortality and morbidity of perforated peptic ulcer at department of surgery, Dr. Vasant Rao Pawar Medical College, Nashik between 2014 and 2016. All patients who presented to emergency department as perforated peptic ulcer were taken into the study but patients in whom perforations in areas of the gastrointestinal tract other than Gastroduodenal region, Perforations caused due to any trauma to abdomen, Perforations caused due to any malignancy were excluded.

A detailed history of dyspepsia, NSAID's intake, waxing and waning of symptoms with smoking and alcohol intake, epigastric pain were all taken into consideration. Any existing co-morbid conditions were noted. Detailed physical examination and hydration status were given due consideration and per abdominal condition including tenderness guarding rigidity were recorded at the time of admission. Emergency investigations included complete haemogram, random blood sugar, PT-INR, serum electrolytes, blood urea and serum creatinine, HIV&HBsAg, ECG and radiological investigations of Xray abdomen standing, Xray chest and USG Abdomen.

Duration of perforation was determined by time interval between onset of symptoms of severe acute abdominal pain and arrival time to the hospital. Shock was defined as persistent hypotension with systolic BP less than 90mmHg. All patients were operated for emergency exploratory laprotomy on the same day of admission with thorough peritoneal lavage and Grahams patch and placement of drains under general anaesthesia.

Antibiotics were given to all patients post operatively. All patients were followed up for 6 months and assessed for their morbidity and recurrence of symptoms. Morbidity was assessed in terms of length of hospital stay and post operative complications. The data thus collected was analyzed for predicting outcome of the patients. Mortality was defined as death during the hospital stay.

## 3. Results

In this study conducted on 30 patients, maximum patients belonged in the age group 31-40 years (Table 1) showing a male preponderance with 86.67% males and 13.33% females. In our study 26.67% of the patients had previous history of NSAID intake. 40% of patients were chronic alcoholic and 26.67% were both alcoholic and smokers and 10% were only smokers. In this study 76.67% of the patients had previous history of peptic ulcer disease (Table 2).

Age distribution in years:

**Table 1.** Age distribution in years

History suggestive of Peptic Ulcer Disease	No. of Patients	Percentage
Positive	23	76.67%
Negative	7	23.33%
Total	30	100.00%

**Table 2.** History suggestive of peptic ulcer disease

Age Group	No. of Patients	Percentage
21-30	5	16.67%
31-40	8	26.67%
41-50	3	10.00%
51-60	5	16.67%
61-70	6	20.00%
71-80	3	10.00%
Total	30	100.00%

Co-morbid conditions were present in 36.66% patients. Out of 30 patients 3 had cardiac illness, 1 patient was a known case of asthma, five patients were known diabetics and 2 patients had hypertension. Pre-operative shock was present in 3 patients (10%). The most common site for perforation was duodenum in 66.67% of the

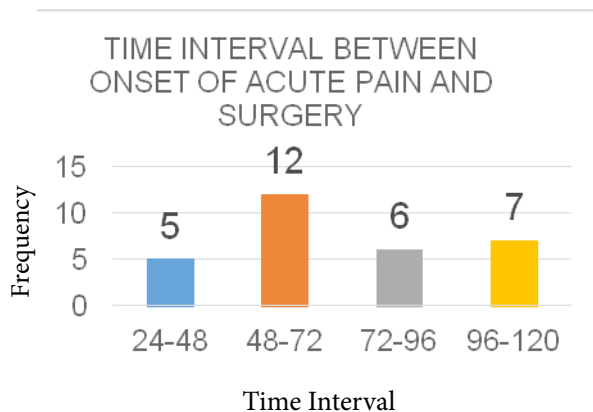
patients and gastric perforation to be present in 33.33% of the patients. In this study mild dehydration was present in 14 patients (46.67%) and 11 patients (36.67%) had severe dehydration.

Time interval between onset of acute abdomen pain and surgery was less than 48 hours in 5 patients (16.67%), 48-72 hours in 40% of patients and more than 96 hours in 23.33% of the patients (Figure 1). Single perforation was found in all the patients.

Time interval between onset of acute pain and Surgery:

**Table 3.** Outcome

Outcome	No. of Patients	Percentage
Cured	27	90.00%
Expired	3	10.00%
Total	30	100.00%



**Figure 1.** Time interval between onset of acute pain and Surgery.

Exploratory laparotomy with thorough peritoneal lavage and repair of peptic ulcer was done using modified Grahams patch and placement of drains formed the mainstay of treatment in all patients. In our study 29 patients had perforation of the size 0.5-1 cm which was amendable for grahams patch repair. One patient had an anterior gastric perforation 3 cms in size for which gastrojejunostomy was done after refreshing the edges.

In this study 30% of patients developed pulmonary complications, 30% patients had post operative wound infections and 16.67% of the patients developed post operative sepsis. The overall length of hospital stay ranged from 2 days to 27 days. This study showed a mortality rate of 10% (Table 3). In this study various factors affect the outcome of the patient like age of the patient, postop-

erative sepsis and time interval between onset of acute abdominal pain and surgery. In this study 9 patients were above 60 years of age and 66.7% of these patients cured while 3.3% of these 9 patients expired (p value = 0.005), this is significant hence as the age of the patient increases the risk of mortality significantly increases. In our study 5 patients presented with postoperative sepsis, out of these 5 patients 3 expired (p value<0.001), this is significant hence the outcome of the patient is affected by post operative sepsis. To evaluate the relation of time interval between onset of acute abdominal pain and surgery 7 patients out of 30 had a time interval of more than 96 hours and out of these 3 patients expired (p value = 0.001), this is significant hence as the time interval between the onset of acute abdominal pain and surgery increases the risk of mortality increases.

## 4. Discussion

Perforated peptic ulcer is a common surgical emergency affecting 2-14 % of the patients with peptic ulcer disease and accounts for more than 70% deaths associated with peptic ulcer disease. Patients profile along with risk factors like age of the patient, duration of perforation, time interval between the onset of acute pain and surgery, co morbid conditions, post operative sepsis and operative details, postoperative complications, length of hospital stay and mortality were analyzed among patients with peptic ulcer. It was observed that perforated peptic ulcer was more common in males. A possible explanation for these findings may be that some behaviour such as smoking and drinking alcohol beverages are more frequent among men thus increasing the risk of peptic ulcer disease and perforation. Perforation usually involves the anterior wall of the duodenum (60%), although it may involve the antrum (20%) and lesser curvature (20%). In our study duodenal perforation was the commonest. In our study simple closure with Graham's patch repair was done.

The mortality rate in this study was 10%. Factors such as advanced age, pre operative shock, post operative sepsis and delay in presentation and operation have been identified as risk factors<sup>9</sup>. There is a significant association between age of the patients and outcome<sup>10</sup>. As the age of the patient increases the risk of mortality significantly increases. However the presence of pre operative shock was not found to be significantly associated with mortality. Patients presenting with Preoperative shock can be resusci-

tated with recent advances in critical care and hence has no significance over outcome of the patient today.

If the patients has gross contamination of the abdomen and develops post operative sepsis the mortality risks in such patients increases. Old age and delay in treatment and definitive operation and preoperative shock and associated co-morbidities add to mortality risks<sup>11</sup>. Improved outcome by risk stratification dividing patients into high and low risk groups with improving critical care management are contributory factors for better outcome. Dakubo and colleagues examined 326 cases for perforated peptic ulcers and reported a mortality of 11%<sup>12</sup>. Lohsiriwat and colleagues presented a series of 152 patients of peptic ulcer perforation and reported a mortality rate of 9%<sup>13</sup>. Menekse and colleagues in their study conducted in 2015 on 227 patients reported a mortality rate of 10%<sup>14</sup>.

## 5. Conclusion

Peptic ulcer perforation is one of the most commonest acute abdominal emergencies. Early presentation holds a good prognosis, unfortunately in developing countries like India patients usually present late to the hospital with full blown peritonitis, septic shock and multi organ failure. The peak incidence lies between 30-40 years of age and amongst peptic ulcer perforations duodenal ulcer perforation is the most commonest of the two. Peptic ulcer perforations are more common in males. The mortality rate in this study is 10%. The outcome of the patient depends on the following factors Age of the patient, associated co-morbidities, Time interval between onset of acute abdominal pain and surgery, Condition of the patient at the time of surgery like dehydration, contamination and septicaemia. The risk of mortality increases with increase in age, severe contamination of the abdomen observed during surgery leading to post operative sepsis and increase in time interval between onset of acute pain and surgery.

## 6. Reference

1. Baron JH. Paintress, Princess and Physician's Paramour: Poison or perforation? *J R Soc Med*. 1998; 91(4):213-6. <https://doi.org/10.1177/014107689809100413> PMID : 9659312 PMCid : PMC1296646
2. Baron JH. Peptic ulcer. *The Mount Sinai Journal of Medicine*. 2000; 67(1):58-62. PMID:10677783
3. Khuroo MS, Mahajan R, Zargar SA, Javid G, Munshi S. Prevalance of peptic ulcer in India: An endoscopic and epidemiological study in urban Kashmir. *GUT*. 1989; 30:930-4. <https://doi.org/10.1136/gut.30.7.930> PMID:2788113 PMCid:PMC1434311
4. Thorsen K, Soreide JA, Kvaloy JT, Glomsaker T, Soreide K. Epidemiology of perforated peptic ulcer. *World J Gastroenterol*. 2013 Jan; 19(3):347-54. <https://doi.org/10.3748/wjg.v19.i3.347> PMID:23372356 PMCid:PMC3554818
5. Druart ML, Van Hee R, Etienne J, et al. Laproscopic repair of perforated duodenal ulcer: A prospective multicentre clinical trial. *Surg Endos*. 1997; 11:1017-20. <https://doi.org/10.1007/s004649900515>
6. Kocer B, Surmeli S, Solak C, Unal B, Bozkurt B, Yildirim O, et al. Factors affecting mortality and morbidity in patients with peptic ulcer perforation. *J Gastroenterol Hepatol*. 2007; 22:565-70. <https://doi.org/10.1111/j.1440-1746.2006.04500.x> PMID:17376052
7. Rajesh V, Chandra SS, Smile SR. Risk factors predicting operative mortality in perforated peptic ulcer disease. *Trop Gastroenterol*. 2003; 2:148-50.
8. Hannan ABMA, Islam B, Hussain M, Haque MM, Kudrat-E-Khuda MI. Early complications of suture closure of perforated duodenal ulcer. *The Journal of Teachers Association*. 2005 Dec; 18(2).
9. Gulzar J, Paruthy S, Satya A. Improving outcome in perforated peptic ulcer emergency surgery by Boey scoring. *Int Surg J*. 2016 Nov; 3(4):2120-8. <https://doi.org/10.18203/2349-2902.isj20163585>
10. Thorsen K, Soreide JA, Soreide K. Scoring systems for outcome prediction in patients with perforated peptic ulcer. *Scand J Trauma Resusc Emerg Med*. 2013; 21:25. <https://doi.org/10.1186/1757-7241-21-25> PMID:23574922 PMCid:PMC3626602
11. Suprapaneni S, Rajkumar S, Bhaskar V. The perforation operation time interval: An important mortality indicator in peptic ulcer perforation. *JCDR*. 2013; 7(5):880-2.
12. Dakubo JC, Naaeder SB, Clegg-Lamprey JN. Gastro duodenal peptic ulcer perforation. *East Afr Med J*. 2009; 86(3):100-9. PMID:19702096
13. Lohsiriwat V, Prapasrivorakul S, Lohsiriwat D. Perforated peptic ulcer; clinical presentation, surgical outcomes and the accuracy of the boey scoring system in predicting post operative morbidity and mortality. *World J Surg*. 200; 33(1):80-5.
14. Menekse E, Kocer B, Topcu R, Olmez A, Tez M. A practical scoring system to predict mortality in patients with perforated peptic ulcer. *World Journal of Emergency Surgery*. 2015; 10:7. <https://doi.org/10.1186/s13017-015-0008-7> PMID:25722739 PMCid:PMC4341864

**Cite this article as:** Vaswani UP, Bhamre S. A Clinical study of peptic ulcer perforation. *MVP Journal of Medical Sciences* 2018; 5 (1):1-4.