



## To evaluate the clinico demographic analysis of peptic perforation

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### ABSTRACT

**Aim:** The purpose of this study is to conduct a clinico demographic analysis of peptic perforation.

**Materials and Methods:** Patients with peptic ulcer perforation (either diffuse or localized) who presented to the surgical emergency department and were treated with emergency exploratory laparotomy made up the population of the research. Only patients who had exploratory laparotomy as part of their treatment for perforation were considered for inclusion in the study. The clinical characteristics, comorbid conditions, radiological examinations, operational results, and postoperative outcomes of the cases were analyzed in this study.

**Results:** Our research found that participants' ages varied anywhere from 20 to 77 years old, with a mean age of 50.11 years. 15 people presented themselves to the hospital during the first 24 hours following the beginning of symptoms, and 35 patients did so 24 hours later. All of the patients whose systolic blood pressure was less than 90 mm Hg arrived at the hospital more than 24 hours after the commencement of their symptoms. All of the patients exhibited signs of having soreness in their abdominal region. 34 patients had a hole in the pre-pyloric area, 5 patients had a breach in the pyloric region, 5 patients had a perforation in the body of the stomach, and 6 patients had a perforation in the duodenal anterior wall. Perforations ranged in size, with 22 patients having one less than 5 millimeters in diameter. Perforations ranging from 5mm to 10mm were found in 21 individuals, whereas perforations larger than 10mm were found in 7 patients. The quantity of peritoneal fluid ranged from fifty milliliters to four thousand milliliters. According to our research, abdominal discomfort was the most prevalent symptom, which is consistent with the findings of previous studies, as shown in table 02. The length of time spent in the hospital after surgery varied from 6 to 14 days on average. 36 out of the total 50 patients ended up developing problems, with the most prevalent one being an infection at the surgical site.

**Conclusion:** In contrast to the western nations, the condition known as peptic perforation presents itself very differently in India. In order to achieve an excellent prognosis, early surgical treatment that includes adequate aggressive resuscitation as well as the correction of electrolyte imbalances under the cover of broad-spectrum antibiotics is required.

**Keywords:** Clinico, demographic, peptic perforation, Surgical site infection

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## **Introduction**

Peptic ulcer is one of the illnesses that affects a significant portion of the Indian population and is highly frequent. Although though it has a typically benign course, it may lead to potentially fatal consequences such as bleeding and perforation (the most frequent of which). 2–10% of people who suffer from peptic ulcer disease will have a perforation at some point.<sup>1,2</sup> A perforation is a potentially fatal consequence of a peptic ulcer, with morbidity rates ranging from 20–50% and death rates ranging from 3%–40% in patients who have had surgical treatment for a perforated peptic ulcer (PPU).<sup>3</sup> Delay in seeking medical treatment or a delay in diagnosis owing to unusual presentation might cause abrupt worsening in patients' health. A patient's projected postoperative course may be easier to evaluate with the use of severity grading, which also helps with being better prepared to meet the patient's demands. For the purpose of determining the morbidity and mortality associated with peptic ulcer perforations, several prognostic variables have been documented (PULPs). Among these are the Boey score, the ASA score from the American Society of Anesthesiologists, the APACHE II score from the Acute Physiology and Chronic Health Evaluation, the sepsis score, and Mannheim's peritoneal index (MPI).<sup>4</sup> Yet, when applied to PULPs, these ratings do not perform very well for assessing morbidity and mortality. The purpose of the research was to assess the clinical presentation of patients with perforated peptic ulcer disease, as well as therapeutic strategies and postoperative consequences. It has been stated that the pattern of perforated peptic ulcer disease differs from one geographical location to another based on the socio-demographic and environmental variables that are prevalent in that particular region. In the developing world, the patient population tends to be young, with a preponderance of males; patients tend to appear late; and there is a significant relationship between smoking and lung cancer. Patients in the west are often of advanced age, and there is a significant amount of ulcerogenic medication use in this region.<sup>3,4</sup> It is now generally acknowledged that infection with the *H. pylori* bacteria and the use of nonsteroidal anti-inflammatory drugs (NSAIDs) are the two primary contributors to the formation of peptic ulcers.<sup>5,6</sup>

## **Materials and Methods**

The Department of General Surgery was the site of the observational and retrospective research that was carried out. Patients with peptic ulcer perforation (either diffuse or localized) who presented to the surgical emergency department and were treated with emergency exploratory laparotomy made up the population of the research. Only patients who had exploratory laparotomy as part of their treatment for perforation were considered for inclusion in the study. Individuals who have cancer perforations were not allowed to participate in the trial. Medical records of individual patients were looked at in order to

extract data, and that data was then retrospectively entered into a computerized database. The clinical characteristics, comorbid conditions, radiological examinations, operational results, and postoperative outcomes of the cases were analyzed in this study. Before surgery, every patient received antibiotics via an intravenous line, and these treatments continued after surgery. Every patient began their preoperative medical therapy with proton-pump inhibitors, and this medication was maintained for at least 14 days after the surgery. When a clinical diagnosis of perforation peritonitis had been established, the patients were made ready for an emergency exploratory laparotomy. After conducting an emergency exploratory laparotomy, the operative findings were reported, and the patient was treated appropriately using a modified version of Graham's Live Omentopexy.

A portion of the perforation margin was removed and sent for histological analysis in order to rule out the possibility of cancer. All of the patients were given initial treatment in the postoperative ward, which consisted of parenteral administration of broad-spectrum antibiotics and fluids. Oral treatment was started as soon as bowel noises were heard in the patients. Patients were allowed to go home after they had finished their prescribed food, were able to walk without assistance, and had passed stool.

## Results

Out of a total of fifty individuals that were evaluated for peptic perforation. The third and seventh decades of life were the ones that showed the highest incidence rates. In our research, there were a total of 35 male patients, which accounts for 70% of the sample, and there were 15 female patients, which accounts for 30%. The ratio of males to females was 2.33 to 1.

Table 1 Gender and age of the patients

Gender	Number	%
Male	35	70
Female	15	30
Age		
below 20	4	8
20-30	5	10
30-40	12	24
40-50	18	36
50-60	8	16
60-70	2	4
Above 70	1	2

The average age of participants in our research was 50. The ages varied from 20 to 77 years during the course of 11 years. 15 people presented themselves to the hospital during the first 24 hours following the beginning of symptoms, and 35 patients did so 24 hours later. All of the patients whose systolic blood pressure was less than 90 mm Hg arrived at the hospital more than 24 hours after the commencement of their symptoms. All of the patients exhibited

signs of having soreness in their abdominal region. 34 patients had a hole in the pre-pyloric area, 5 patients had a breach in the pyloric region, 5 patients had a perforation in the body of the stomach, and 6 patients had a perforation in the duodenal anterior wall. Perforations ranged in size, with 22 patients having one less than 5 millimeters in diameter. Perforations ranging from 5mm to 10mm were found in 21 individuals, whereas perforations larger than 10mm were found in 7 patients. The quantity of peritoneal fluid ranged from fifty milliliters to four thousand milliliters.

Table 2: Symptomatology

Symptomatology	Number	%
Abdominal Pain	50	100
Altered Bowel habit	9	18
Nausea & Vomiting	21	42
Abdominal distension	15	30
Tachycardia(>100/minute)	28	58

According to our research, abdominal discomfort was the most prevalent symptom, which is consistent with the findings of previous studies, as shown in table 02. The length of time spent in the hospital after surgery varied from 6 to 14 days on average. 36 out of the total 50 patients ended up developing problems, with the most prevalent one being an infection at the surgical site. The patient also had postoperative collections, failure at the repair site, wound dehiscence, and hospital-acquired pneumonia among additional consequences. The mortality rate was found to be 18% in this investigation. The patient's advanced age, septicemia, respiratory failure, and late presentation were all contributors to their untimely death.

Table 3: Risk factors

Risk factors	Number	%
Tobacco Chewing	23	46
Dyspepsia	15	30
Smoking	17	34
History of NSAIDS	5	10
Alcohol Abuse	13	26

Table 4: Complications

Complications	Number	%
Pneumonia	5	10
Respiratory failure	6	12
Wound Infection	7	14
Wound Dehiscence	3	6
Cardiac Problems	5	10
Repair Site failure	5	10
Intra-abdominal collection	5	10
Total patients	36	72

### Discussion

It was shown that males were influenced more than females, which is consistent with the findings of earlier research, such as the ones by Mekbib B. and R. S. Bali et al.<sup>6,7</sup> In the past, the majority of patients were people in their middle years, and the male to female ratio was 2.33 to 1. As time has progressed, there has been a consistent rise in the age of the patients who are suffering from this problem. Moreover, the number of patients who are female has increased, to the point that perforations now occur most often in older female patients.<sup>5-9</sup>

Table 5: Risk factors comparison with others study

	Current Study(%)	Mekbib B. et al <sup>6</sup> (136 patients)	Etoneyeaku et al <sup>10</sup> (45 patients)	A.I.Ugochukwu et al <sup>9</sup> (76 patients)
Smoking	34	11.8%	-	55.3%
History of NSAIDS	10	1.5%	24.4%	9.2%
Alcohol Abuse	26	17.6%	-	72.4%
Tobacco Chewing	46	8.8%	-	-
Dyspepsia	30	60.3%	37.8%	31.6%

At the current time, emergency surgery for a perforated ulcer involves a mortality risk of up to thirty percent.<sup>2,11</sup> In the past ten years, a number of studies, both retrospective and prospective, have helped researchers identify risk factors that are predictive of mortality. These risk factors include age, delay in surgery, shock upon admission, low albumin concentration, concurrent medical illness, ulcer location, renal failure, liver cirrhosis, and immunosuppression.<sup>2,11-19</sup> According to the findings of our research, delayed presentation has a substantial impact on the results of surgical procedures, similar to what was shown in John

boey et al. and Etonyeaku et al.<sup>8,10</sup> There is a significant risk of postoperative morbidity, which may impact up to two-thirds of patients and includes complications such as pneumonia, wound infection, and intraabdominal abscess. Due to the fact that older patients have surgery for perforated ulcers rather often, the postoperative course is typically made more difficult by morbidity that is directly connected with cardiovascular or metabolic disease.<sup>2,11,20,21</sup> This study's participants had a co-morbid disease at a rate of 46%, which is equivalent to the 38.5% rate seen in R S Bali et al.<sup>7</sup> Patients who are younger, in better health, and who come early with perforation have a better prognosis than those who are older, have concomitant diseases, and have ignored perforation. Tobacco chewing carries the largest number of patients in our research (46%), whereas alcohol addiction has the highest number of patients in the study by A.I.Ugochukwu et al (72.4%) and the study by Mekbib B.et al (17.6%), as indicated in table 5.<sup>6,9</sup>

Table 6: Symptomatology comparison with others study

	Current Study(%)	Mekbib B. et al <sup>6</sup> (136 patients)	A.I.Ugochukwu et al <sup>9</sup> (76 patients)	R S Bali et al <sup>7</sup> (400 patients)
Abdominal Pain	100	100%	90.8%	98%
Altered Bowel habit	18	-	-	62.5%
Nausea & Vomiting	42	100%	69%	41.5%
Abdominal distension	30	-	86.80%	28%
Tachycardia(>100/minute)	58	63.97%	75%	30.5%

Table 7: Complications comparison with others study

	Current Study(%)	John Boey et al <sup>8</sup>	Mekbib B. et al <sup>6</sup>	Etonyeaku et al <sup>10</sup>	A.I. Ugochukwu et al <sup>9</sup>	R S Bali et al <sup>7</sup>
Wound Infection	14	5.01%	27.4%	17.8%	39.5%	31.25%
Wound Dehiscence	6	1.1%	13.7%	-	5.3%	13.7%
Pneumonia	10	3.86%	21.9%	2.2%	13.2%	15%
Respiratory failure	12	5.01%	-	8.9%	7.9%	16.7 %
Intra-abdominal collection	10	3.08%	16.4%	8.9%	9.2 %	20 %
Cardiac Problems	10	5.01%	-	-	-	-
Repair Site failure	10	-	10.9%	2.2%	-	1.5%
Total patients	72	60	56	18	57	393

The overall complication rate in this series was 72%, which is high in comparison to other studies (23% in John Boey et al. and 40% in Etonyeaku et al.). This is likely due to the fact that patients from low socioeconomic strata had delayed presentation to the hospital, were older, and had multiple co-morbid conditions. It has been shown that the risk of complications in various western series is far greater than this (one German research put it at about 35%). This may be attributable to the fact that the majority of patients in western countries with perforated peptic ulcers were of an advanced age and that final ulcer procedures were performed more often. None of the patients who participated in either our trial or any of the other African investigations received definitive ulcer surgery.<sup>22</sup> Patients who visit within the first 24 hours following the beginning of symptoms have a lower risk of problems than individuals who present beyond the first 24 hours. Presentation more than twenty-four hours after the beginning of symptoms was shown to increase the risk of post-operative complications as well as death in studies that were carried out in Turkey, Singapore, and the Ivory Coast.<sup>23</sup> The size of the holes varied among the patients in our research; 22 of them were less than 5 millimeters. Whereas in Mekbib B et al, 88 (64.7%) of the holes were 5 mm and 8(5.9%) were >10 mm, the remaining 35 (25.7%) were between 5 and 10mm in size. 21 patients had a perforation that was between 5mm and 10mm in size, and 7 patients had a perforation that was more than 10mm in size.<sup>6</sup> The quantity of peritoneal fluid that was measured in our research ranged from 50 milliliters to 4000 milliliters, but the amount that was measured in the study by Mekbib B. et al ranged from 100 milliliters to 6000 milliliters.<sup>6</sup> Our research found that the death rate was 18%, which is greater than the rates seen in studies like as Because to delayed presentation, elderly age, and comorbidities, R S Bali et al. had 7%, John Boey et al. had 6.2%, and Mekbib et al. had 6.6% in their study.<sup>6-8</sup> Comparatively, only 3.7% of patients in Mekbib B. et al's research and 15% of patients in R S Bali et al's study had a concomitant disease; whereas, 46% of participants in our study had.<sup>6,7</sup> In poor socioeconomic strata, increased co-morbidity is caused by factors such as old age and inconsistent medicine use.

## **Conclusion**

In contrast to the western nations, the condition known as peptic perforation presents itself very differently in India. In order to achieve an excellent prognosis, early surgical treatment that includes adequate aggressive resuscitation as well as the correction of electrolyte imbalances under the cover of broad-spectrum antibiotics is required.

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