

# Clinical Study and Management of Gastric Perforation

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## ABSTRACT

**Introduction:** Gastric perforation is one of the most serious and most overwhelming catastrophe. Perforations of peptic ulcer are third in frequencies, acute appendicitis and acute intestinal obstruction being more common. Prompt recognition of the condition is very important and only by early diagnosis and treatment it is possible to reduce the still relatively high mortality. The aim of this study was to study the factors influencing, the outcome of the gastric perforations.

**Material and methods:** The study was conducted in 2 years. 50 Cases admitted on emergency basis and diagnosed as gastric perforations age group of 20 to 70 years were included in the study.

**Results:** The perforation was common between age group of 40-70 years. Perforation was more common in male patients. It was 74 percent in males and 16 percent in females. Mortality rate in our study series was 6 percent. Gastric ulcer cases, perforation is seen in pre pyloric region and in stab injury cases, it was antrum and body. The duration of perforation more than 24 hours has increased morbidity and mortality. Most of the perforations were due to peptic ulcer with the 88 percent. Under the pre disposing factor, smoking stands at the first at 66 percent and alcohol at 60 percent.

**Conclusions:** Early diagnosis and prompt management of shock and septicemia is important for better prognosis of patients.

**Keywords:** Clinical Study, Management of Gastric Perforation

## INTRODUCTION

Gastric perforation is one of the most serious and most overwhelming catastrophic that is affecting human being (Lord Moinihan).

Among abdominal emergencies, perforations of peptic ulcer are third in frequencies, acute appendicitis and acute intestinal obstruction being more common. Prompt recognition of the condition is very important and only by early diagnosis and treatment it is possible to reduce the still relatively high mortality.<sup>1</sup>

Gastric ulcer is one of the most common maladies that affect the mankind in South India. Though lot of work had been done on the etiology of this condition, one specific etiological agent cannot be incriminated in the causation of this particular disease especially in our part of country. Since, stress forms the most important single feature in causing gastric ulcer and today's modern life is full of stress and strain, this condition on the increase. Perforations due to gastric carcinoma were more frequent in stage III and IV, usually occur in advantage stages. The ingestion of alkalis primarily damages oesophagus, ingestion of strong acids usually involves distal part of stomach.<sup>2</sup>

Perforations due to Blunt trauma is due to Road Traffic

Accidents, Penetrating trauma is due to stab injuries, Tricho bizzares rarely perforates and during endoscopy procedures which is rare in nature. The perforation and resultant peritonitis are immediate threats to the life. The therapeutic priorities thus are treatment of peritonitis and securing the closure of perforation, which may be achieved with surgical procedure.<sup>3,4</sup>

The effective resuscitation and prompt surgery under modern anesthesia techniques, there is high morbidity and mortality. Hence, attempt has been made to analyze the various factors, which are affecting the morbidity/mortality of patients with gastric perforations. The aim of this study was to review and study the factors influencing, the outcome of the gastric perforations.

## MATERIAL AND METHODS

The study was conducted in Gandhi Medical Hospital, Secunderabad, from October 2010 to October 2012. During this period the 50 cases admitted on emergency basis and diagnosed as gastric perforations were selected for analysis.

### Inclusion Criteria

- Cases admitted on emergency basis and diagnosed as gastric perforations were included in the study
- Patients in the age group of 20 to 70 years

### Exclusion criteria

- Patients having perforations involving gastro – jejunal stomal perforation, esophago gastric junction perforations were excluded from the study.
- Associated jejunal, ileal perforations in trauma cases were also excluded in the study

The diagnosis was made on clinical findings supported by investigations like plain x-ray abdomen erect posture. In cases managed surgically, confirmation was made on the operation table only.

A detailed history was taken when the condition of the patient is stable. In critically ill patients, the patients were resuscitated and history was taken after the patient was stabilized.

**Examination:** All the patients with suspected gastric perforation were examined thoroughly and base line findings

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were recorded, repeated examination of the patient was done during resuscitation and till the diagnosis is confirmed. Patient consent and ethical clearance was obtained.

Tachycardia associated with fever, tenderness in the epigastrium and abdominal rigidity pointed towards the diagnosis of peritonitis.

I examined all the patients as per the proforma. In the all patients, with perforation complete physical examination to rule out associated disease was done.

We never wasted valuable time for the detailed investigations. Relevant investigations were done like plain x-ray erect abdomen, blood grouping and typing, Hb%, BT, CT, blood urea, serum creatinine and urine routine.

**Paracentesis:** Diagnostic peritoneal tap was done. Fluid drawn was found to be turbid and bile stained indicating peptic ulcer perforation.

Prognostic scoring system to mention about the general condition of the patient

#### General Condition

##### 1) Good

- Patient is conscious and cooperative.
- Pulse rate < 90/min
- BP 120/80mmHg.
- Urine output good
- No associated medical problems like-hypertension, diabetes mellitus, tuberculosis or Myocardial infraction.

##### 2) Average

- Patient conscious
- Pulse rate 90-110/min.
- BP 120/80 mm Hg
- Urine- Oliguria
- No or any one associated medical illness.

##### 3) Poor

- Patient conscious and poor orientation
- Hippocratic facies
- Pulse rate- tachycardia > 120/min and low volume
- BP- systolic < 80mmHg or not recordable
- Urine- anuria
- Medical illness may or may not be present.

#### Outcome of the patient (recovery)

1. Good - Discharge at 7<sup>th</sup> – 9<sup>th</sup> postoperative day, without intra or postoperative complications.
2. Average- Intraoperative anesthesia complication - Postoperative complications like bronchopneumonia, wound gaping, wound infection, but recovery before discharge.
3. Death – In the postoperative period.

## RESULTS

The gastric perforations are one of the most common surgical emergencies, next to acute appendicitis and road traffic accidents.

Out of total 50 cases highest incidence of gastric perforations are occurred in the age group of 61 to 70 years of age with 30 percent (15 patients) (table-1).

Age Category	Number of Male (Percentage)	Number of Female (Percentage)
20 – 30 years	3(6%)	0
31 – 40 years	6(12%)	0
41 – 50 years	7(14%)	3(6%)
51 – 60 years	6(12%)	4(8%)
61 – 70 years	11(22%)	4(8%)
%71 – above	4(8%)	2(4%)

**Table-1:** Demographic distribution of Patients

Time Intervals	Patients	Percentage
< 12 hrs	13	26
12 to 24 hrs	16	32
24 to 48 hrs	7	14
> 48 hrs	14	28
Site of Perforation		
Pre Pyloric	35	70
Antrum	12	24
Body	2	4
Body - through and through	1	2

**Table-2:** Time interval from onset of pain to hospitalization

Pre disposing factors for Peptic Ulcer	Patients	Percentage
Smoking	33	66
Alcohol	30	60
NSAIDS	24	48

**Table-3:** Pre-Disposing Factors for Peptic Ulcer

Complications	Patients	Percentage
ARDS	4	8
Atelectasis	2	4
Wound	13	26
Mortality	3	6

**Table-4:** Complications in study

Type of trauma	Patients	Percentage
Stab	6	12
Peptic Ulcer	44	88
Malignancy	0	0
Corrosive Acids	0	0
Instrumentation	0	0
Foreign body	0	0

**Table-5:** Spectrum of Etiology

In the age group of 20 to 30 and 31 to 40 years, male percentage is 6 (3 patients) and 12 percentage (6 patients) respectively and female was 0. In the age group of 41 to 50 years, the male percentage was 14 (7) and female was 6 percent (3), 51 to 60 age groups the male percent was 12 (6) and female was 8 percent (4). The highest of percentage was observed in the age group of 61 to 70 years was 22 percent (11) among the males, whereas in female 8 percent (4). The last one is 71 and above, it was 8 percent (4) among male and female was 4 percent (2).

This section of table provides the details of the vitals at the time of presentation, it was observed that 68 percent (34

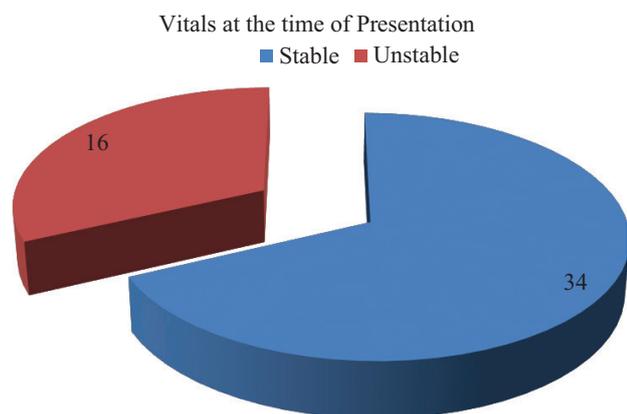


Figure-1: Showing vitals at the time of presentation

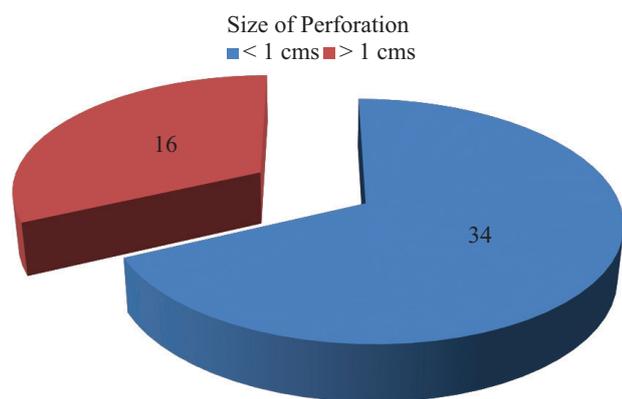


Figure-2: Size of perforation

patients) were stable out of total 50 patients and 32 percent (16 patients) were unstable (figure-1).

26 percent (13 patients) were hospitalized < 12 hrs., 32 percent (16 patients) between 12 to 24 hrs., 14 percent (7 patients) between 24 to 48 hrs. and lastly, 28 percent (14 patients) were admitted > 48 hrs. respectively (table-2).

Site of perforation was observed in the pre-pyloric is 70 percent (35), antrum was 24 percent (12 patients), 4 percent (2) in the body patients and 2 percent (1) at Body – through and through respectively.

68 percent (34 patients) of size was < 1 cm and 32 percent (16 patients) having > 1 cms of perforation size (figure-2).

66 percent (33 patients) was due to smoking, 60 percent (30 patients) was due to alcohol and 48 percent (24 patients) was due to NSAIDS (table-3).

This section helps us to derive the complications caused due to respiratory and it was observed that 26 percent (13 patients) having wound complication, 8 percent (4) having ARDS complication, 6 percent (3) having mortality and finally 4 percent (2) having atelectasis complication respectively (table-4). Cases admitted on emergency basis and diagnosed Under this section the table gives us the spectrum of etiology and it is derived that 88 percent (44 patients) were complained of peptic ulcer and 12 percent (6 patients) were stab complaints (table-5).

## DISCUSSION

The present study of gastric perforations was carried out between October 2010 and October 2012 with 50 patients

admitted in different surgical wards in Gandhi Hospital. This was a prospective study conducted in Gandhi Hospital.

### Age

Under the age category of patients, it was observed that highest incidence of gastric perforations has occurred in the age group of 61 to 70 years of age with 30 percent (15 patients) out of total 50 cases that were taken in the study. The next age groups that were highest are 41 – 50 years and 51 to 60 years of age, where they shared equal percentage of 20 (10 patients). Whereas in the age group of 20 to 30 years, the percentage was 6 (3 patients) and 31 to 40 and 71 and above years of age, it was 12 percent (6 patients) respectively.

In the present study gastric perforations, maximum patients from the total 50 patients, fall under the category of 40 to 70 years of age group and it was high in the age group of 61 to 70 years of age group.(Table-1)

### Sex Ratio

From the present study of gastric perforations, female patients were not present in the age group of 20 to 40 years and overall, female patients were not high when compared with male patients. Male were more prone and susceptible for present study.

### Vitals

From the present study of gastric perforations, 68 percent of patients were stable and 32 percent were unstable. The unstable patients were resuscitated and taken up for surgery. (Figure-1)

### Time interval from onset of Pain to hospitalization

In the present study of gastric perforation, 26 percent (13 patients) were hospitalized < 12 hrs., 32 percent (16 patients) between 12 to 24 hrs., 14 percent (7 patients) between 24 to 48 hrs. and lastly, 28 percent (14 patients) were admitted > 48 hrs. respectively. In our study, it was seen that maximum patients have present early in our hospital. Stab injury patients presented early to hospital.

### Site of Perforation

In the present study of gastric perforation, pre-pyloric cases were highest due to peptic ulcer history and while stab injury cases, perforation were noticed in antrum and body. One among the total cases, body through and through was reported in our hospital during in the study. In the present study conducted between 2010 and 2011, 70 percent of patients had gastric ulcer perforations.(Table-2)

### Size of Perforation

From the present study of gastric perforations, it was observed that 68 percent (34 patients) of size was < 1 cm and 32 percent (16 patients) having > 1 cms of perforation size. The mean size of the perforation was 0.5 cms. In stab injury cases, it was observed that the size was > 2 cms and it was in antrum and body.(Figure-2)

### Pre-disposing factors for Peptic Ulcer

In the present study of gastric perforations, 66 percent (33 patients) was due to smoking, 60 percent (30 patients) was due to alcohol and 48 percent (24 patients) was due to

NSAIDS usage.(Table-3)

Smitha S Sharma et al (2006)<sup>5</sup> in the study of peptic ulcer perforation found an association of smoking and peptic ulcer perforation in 28 percent of patients, while 72 percent of patients were nonsmokers.

ABMA Hannan et al<sup>6</sup> showed that 13 percent of patients had NSAIDS used, whereas 87 percent were not taking NSAIDS. Phillip L Chalya et al 2011<sup>7</sup> in their study of peptic ulcer perforation, 64 percent of patients were smokers and 36 percent were nonsmokers. 85 percent of patients were alcoholic and 15 percent were nonalcoholic. 10 percent of patients had history of NSAIDS used and 90 percent not used.

### Spectrum of Etiology

In the present study of gastric perforations, 88 percent (44 patients) were complained of peptic ulcer and 12 percent (6 patients) were stab injuries. Malignancy, corrosive acids, instrumentation and foreign bodies were not reported in the study.(Table-5)

Malik et al in 2009<sup>8</sup> reported that 42 percent patients had a previous history of peptic ulcer. Phillip L Chalya et al in 2011,<sup>7</sup> reported in their study that 31 percent of patients had previous history of peptic ulcer.

### Post-Operative Complications

In the present study of gastric perforations, 26 percent (13 patients) having wound complication, 8 percent (4) having ARDS complication, 6 percent (3) having mortality and finally 4 percent (2) having atelectasis complication respectively.(Table-4)

Complications were observed after 48 hours. of onset of symptoms to hospital and in unstable patients. High complications rate was reported by Montalvo-Javé et al.<sup>9</sup> This difference in complication rates can be explained by differences in antibiotic coverage, meticulous preoperative care and proper resuscitation of the patients before operation, improved anaesthesia and somewhat better hospital environment. In keeping with other studies<sup>10,11,12</sup> surgical site infection was the most common complication.

### Post-Operative Follow Up

Patients were followed up with biopsy and UGIE reports after two weeks, one month, and two months respectively. All cases in the study found to be benign in the biopsy and normal in the UGIE. Stab injury cases were not taken for biopsy and not included in UGIE.

## CONCLUSION

Peptic ulcer perforation is more common in India in contrast to western countries were lower gastrointestinal perforation is more common. Late presentation of peptic ulcer perforation is common with high morbidity and mortality. Early presentation of patients with avoidance of NSAIDS, smoking and alcohol consumption and life style modification may reduce morbidity and mortality in patients with peptic perforation.

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