

## Original Research Article

# Analysis of presentation, etiology, management and outcome of perforation peritonitis in a tertiary care centre

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### ABSTRACT

**Background:** The most common surgical emergency in general surgery is perforation peritonitis. It is a serious condition with a mortality rate of up to 20%, and it is the third most common cause of surgical abdomen after appendicitis and intestinal obstruction. The aim of this study to discuss presentation, etiology, management and outcome of perforation peritonitis in our hospital.

**Methods:** The 60 patients with features of perforation peritonitis admitted from September 2021 to August 2022 in the department of general surgery, PMCH, Patna were chosen. Descriptive statistics was used for analysis. Detailed history was taken, physical examination and X-ray was done. Signs and symptoms, duration of illness, age of presentation, intra-op findings regarding size and location, its management, post-op complications were documented.

**Results:** Total 60 cases of perforation peritonitis were included in this study, among that 80% (48) were males and 20% (12) were females, with male to female ratio of 4:1. Pain abdomen was a universal symptom. Generalized pain abdomen was seen in 54 (90%) cases, followed by lower quadrant in 3 cases (5%) and epigastrium pain seen in 3 cases (5%). Radiation of pain to right iliac fossa was seen in 6 cases (10%). Blunt injury was seen in 9 (15%) case. 14 patients were treated with anti-ulcer medications. Three patients with duodenal ulcer perforation were treated with nonsteroidal anti-inflammatory drugs. Liver dullness was obliterated in 28 patients (47%). Bowel sounds were either sluggish or absent in most cases.

**Conclusions:** Perforation peritonitis is a frequently encountered surgical emergency. Various factors like age, sex, duration, site of perforation, extent of peritonitis and delay in surgical intervention are associated with morbidity and mortality. A successful management depends upon early surgical intervention, source control and exclusive intraoperative peritoneal lavage.

**Keywords:** Abdominal emergency, Perforation, Laparotomy, Peritonitis

### INTRODUCTION

Hollow viscus perforation is an acute emergency and is one of the common causes of admission in surgery and emergency laprotomy. Its treatment still remains a challenge despite advances in surgical techniques, antimicrobial therapy and intensive care support. Peritonitis is inflammation of the serous membrane lining the abdominal cavity and the visceral organs within.

Peritonitis may be localized or generalized and is classified into primary, secondary and tertiary. Primary spontaneous peritonitis is rare and monomicrobial due to *pneumococci* or *Haemophilus* bacteria. Secondary peritonitis is due to spread of infection from intra-abdominal organs or as a result of spillage from gastrointestinal or genitourinary tract. Others causes include exogenous contamination.

Gastrointestinal perforation is a common abdominal emergency having a high morbidity and mortality.<sup>1</sup> Missed diagnosis and late intervention are frequent causes of increased morbidity and mortality especially in patients who survive the initial phase of insult.<sup>2</sup> Diagnosis and treatment of gastrointestinal perforation remains a formidable problem in our country. A great majority of perforation of stomach and duodenum are due to complications of peptic ulceration. Perforation of large intestine represents a major surgical challenge to the clinician.<sup>3</sup> Since it is a rapidly fatal condition death being caused by sepsis from peritoneal contamination with various pathogens both aerobic and anaerobic. Main aims of treatment are to control sepsis, to minimize contamination and treat the underlying cause.<sup>4</sup> Surgery plays an important role in the management of perforation. The structure of the hollow viscera is more fragile than parenchymatous organ and even minor degrees of trauma can cause serious injury.<sup>5</sup>

This study was done to know the spectrum of etiology, clinical presentation, management and treatment outcomes of patients admitted with perforation peritonitis in our hospital.

**METHODS**

This prospective study was done in the department of general surgery, PMCH, Patna on patients with features of perforation peritonitis admitted from September 2021 to August 2022. Descriptive statistics was used for analysis. Detailed history was taken, physical examination and X-ray was done. Signs and symptoms, duration of illness, age of presentation, intra-op findings regarding size and location, its management, post-op complications were documented.

**Inclusion criteria**

All patients having peritonitis secondary to hollow viscus perforation were included.

**Exclusion criteria**

All cases with peritonitis secondary to oesophageal perforation and reproductive tract perforation were excluded.

**RESULTS**

Total 60 cases of perforation peritonitis were included in this study, among that 48 (80%) were males and 12 (20%) were females, with male to female ratio of the 4:1.

Pain abdomen was a universal symptom. Generalized pain abdomen was seen in 54 (90%) cases, followed by lower quadrant in 3 cases (5%) and epigastrium pain seen in 3 cases (5%). Radiation of pain to right iliac fossa was seen in 6 cases (10%). Blunt injury was seen in 9 (15%) case. The 14 patients were treated with anti-ulcer

medications. Three patients with duodenal ulcer perforation were treated with nonsteroidal anti-inflammatory drugs. Liver dullness was obliterated in 28 patients (47%). Bowel sounds were either sluggish or absent in most cases.

**Table 1: Age and sex distribution.**

Age (years)	Male	Female
0-9	0	0
10-19	0	0
20-29	12	6
30-39	12	3
40-49	10	3
50-59	8	0
60-69	6	0
>70	0	0
<b>Total</b>	<b>48</b>	<b>12</b>

**Table 2: Sign and symptoms.**

Signs and symptoms	No. of cases (%)
<b>General abdominal distension</b>	54 (90)
<b>Vomiting</b>	30 (50)
<b>Raised temperature</b>	34 (56)
<b>Fever with chills</b>	3 (5)
<b>Dehydration</b>	24 (40)
<b>Shock</b>	3 (5)
<b>Tenderness</b>	60 (100)
<b>Tenderness with the rigidity</b>	24 (40)

**Table 3: Sites of perforation.**

Sites of perforation	No. of cases (%)
<b>Acute gastric perforation</b>	3 (5)
<b>Acute duodenal perforation</b>	42 (70)
<b>Acute jejunal perforation</b>	3 (5)
<b>Acute ileal perforation</b>	5 (8)
<b>Appendicular perforation</b>	5 (8)

**Table 4: Based on etiology.**

Variables	No. of cases (%)
<b>Gastric ulcer perforation</b>	3 (6)
<b>Benign tuberculosis</b>	6 (10)
<b>Duodenal ulcer perforation</b>	24 (40)
<b>Typhoid</b>	4 (6)
<b>Trauma</b>	9 (15)
<b>Non traumatic</b>	51 (85)

**Table 5: Postoperative complications.**

Complication	N	(%)
<b>Wound infection (WI)</b>	25	41
<b>Residual collection (RC)</b>	3	5
<b>Respiratory infections (RI)</b>	12	20
<b>Hypertensive crisis (HTNC)</b>	1	3
<b>Incisional hernia (I)</b>	2	4
<b>Prolonged paralytic ileus (PP)</b>	2	4

Wound infection (41%), lead the list of postoperative complications with residual abscess following behind faecal fistula and burst abdomen.

Majority of the hollow viscus perforation were located at duodenum 70%.

## DISCUSSION

There were 60 patients in the study conducted over a period of one and a half years. In our study males (80%) outnumbered females (20%). The male preponderance has been uniformly reported especially from the developing world, with wide variation of 3.3:1 to 9:16.<sup>6,7</sup> In Dilip et al study males were 88.54% as compared to 11.46% females and majority i.e., 34.4% fell in the age group of 30-49 year.<sup>8</sup>

Gastroduodenal ulcer perforation (70%) led the list of highest incidences, followed by small bowel and then appendicular (8%). In Dilip et al study most common sites of perforation were gastro duodenal (80.25%), followed by small bowel (14.02%), appendicular (3.82%), colonic (1.27%) and rectal perforation (0.64%). Velappan et al also found 52 cases (52%) having duodenal ulcer perforation followed by appendicular perforation (16%).<sup>9</sup> Pain noticed in 100% patients, vomiting in 50%, and abdominal distension in 80% cases. In Dilip et al study pain was noticed in 100% cases, vomiting in 52.2%, and abdominal distension in 36.3% cases.

In our study 82% of patients had gas under the diaphragm. Velappan et al study showed gas under diaphragm in all patients (100%) while in Ramachandra et al study 72% of patients had gas under the diaphragm.<sup>10</sup>

### Complication

Wound infection (41%), lead the list of postoperative complications with residual abscess following behind faecal fistula and burst abdomen. In Dilip et al study wound infection lead the list of postoperative complications (71.7%), followed by fecal fistula (4.7%), burst abdomen (1.35%), intraperitoneal abscess (1.35%). Mortality rate was 8% and compared to Dilip et al study with mortality rate of 5.7%. The study by Agrawal et al of 260 cases reported overall mortality of 10%.<sup>11</sup> Ramachandra et al had a mortality rate of 14%. In our study 25 cases (41%) developed wound infections and 12 (20%) patients developed respiratory complications as postoperative complication. The most common postoperative complication in Thirumalagiri et al study was lower respiratory tract infections.<sup>12</sup>

## CONCLUSION

Early recognition of perforation, prompt surgical intervention, adequate drainage, recognition of co-morbid conditions and complications would help reduce morbidity and mortality. Surgery remains the mainstay in all perforations.

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