



## ASSESSMENT OF THE CLINICAL PRESENTATION OF PERFORATION PERITONITIS ADMITTED IN TERTIARY CARE HOSPITAL

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### ABSTRACT

**Background:** Peritonitis due to perforation of the gastrointestinal tract is the most common surgical emergency all over the world. The spectrum of aetiology of perforation differs from its western counterpart. Majority of the patients present late, with purulent peritonitis and septicaemia. surgical treatment of perforation peritonitis is highly demanding and very complex, combination of improved surgical technique, anti microbial therapy and intensive care support has improved the outcome of such cases. The objectives of the present study were to study the clinical presentation of perforation peritonitis admitted in tertiary care hospital.

**Materials and methods:** It was a Prospective Observational (Analytical) study, conducted during 18 months (November 2016 to June 2018). All the cases of perforative peritonitis i.e. hollow viscus perforation admitted in Krishna hospital during the study period were enrolled in the present study.

**Results:** Most of the cases presented with perforation peritonitis had duodenal perforation (42.30%), followed by gastric perforation (28.84%), appendicular perforation (13.46%), ileal perforation (9.61%), jejunal (3.8%), colonic perforation (1.9%).

**Conclusions:** The commonest presentation of perforation peritonitis was: duodenal perforation (28.84%), followed by appendicular perforation (15.38%), colonic perforation (13.46%), gastric (9.61%).

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### INTRODUCTION

Perforation peritonitis is the most common surgical emergency in India. Despite advances in surgical techniques, antimicrobial therapy and intensive care support, management of peritonitis continues to be highly demanding, difficult and complex<sup>[1]</sup>. Secondary peritonitis (henceforth called peritonitis) is one of the most common causes of acute abdomen requiring emergency laparotomy. Despite tremendous advancements in medical care, it still remains a potentially fatal affliction. With a wide range of aetiologies, peritonitis declares itself in a variety of ways. Diverse epidemiology and aetiopathology are noted among populations of different socioeconomic, geographic, and climatic conditions. Although the Indian demographic profile of the population in our part of the country is different from the rest of India in several aspects, e.g., dietary habits, the prevalence of infectious disease, etc.<sup>[2]</sup>

Peritonitis due to perforation of the gastrointestinal tract is the most common surgical emergency all over the world. The spectrum of aetiology of perforation differs from its western counterpart. Majority of the patients present late, with purulent

peritonitis and septicaemia. surgical treatment of perforation peritonitis is highly demanding and very complex, combination of improved surgical technique, anti microbial therapy and intensive care support has improved the outcome of such cases<sup>[3][4]</sup>.

The clinical spectrum of peritonitis may also be classified according to the pathogenesis as primary, secondary, or tertiary peritonitis. Alternatively, a more localized phenomenon in peritonitis is the formation of abscesses, a condition characterized by the isolation and walling off of the infectious process from the rest of abdominal cavity<sup>[5]</sup>.

Peritonitis usually presents as an acute abdomen. Local findings include abdominal tenderness, guarding or rigidity, distension, diminished bowel sounds. Systemic findings include fever, chills or rigor, tachycardia, sweating, tachypnea, restlessness, dehydration, oliguria, disorientation and ultimately shock<sup>[6]</sup>. The diagnosis of peritonitis is supported by clinical signs, e.g., abdominal pain and tenderness, nausea, vomiting, diminished intestine sounds, fever, shock, and diagnostic tests, e.g., abdominal x-ray, chest x-ray, ultrasound and CT scan. Ultrasound may be positive in up to 72%, CT in up to 82%. Leukocytes and C reactive protein may be altered but are not direct signs of peritonitis<sup>[10]</sup>. A prompt diagnosis and urgent surgery is lifesaving for all patients with generalized secondary peritonitis. The diagnosis is based

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mainly on clinical grounds. Plain X-ray, ultrasound and CT scan are the tools that can ascertain the diagnosis. However diagnostic laparoscopy can be helpful in some cases[6]. Surgical source control is the most important determinant for survival and has to be placed on top of the therapeutic priority list. Nevertheless the therapy of sepsis requires state of the art intensive care. The mortality rate increases with the length of interval between the time of hollow organ perforation and time of surgery<sup>[7],[8],[9]</sup>.

The objectives of the present study were to study the clinical presentation of perforation peritonitis admitted in tertiary care hospital.

## **MATERIALS AND METHODS**

It was a Prospective Observational (Analytical) study, conducted during 18 months (November 2016 to June 2018). All the cases of perforative peritonitis i.e. hollow viscus perforation admitted in Krishna hospital during the study period were enrolled in the present study. We found 52 cases fulfilling the inclusion criteria. The cases were evaluated, clinical history was recorded, necessary investigations were carried out and the results were noted down, examination findings were recorded. All the data was recorded using a specially designed case recording proforma from the patients and the informant (in case the patient is unconscious or disoriented) and by doing detailed clinical examination and relevant investigations.

### **Inclusion Criteria**

1. All age group patients of both sexes.
2. Cases will be included according to the definition of Peritonitis which is "presence of infection in the peritoneal cavity".

### **Exclusion Criteria**

1. All patients with primary peritonitis (Spontaneous bacterial peritonitis)
2. All patients with tertiary peritonitis - Patients with peritonitis due to anastomotic dehiscence or leak.
3. Patients with acute appendicitis (without perforation)
4. Already diagnosed and conserved cases of haemoperitoneum which may be referred to our hospital for further management.
5. Post-operative cases of haemoperitoneum referred for further management.
6. Haemoperitoneum due to gynaecological manifestations.
7. Patients with proven deranged coagulation profile.

Demographic data was also collected from the cases such as: Gender, age, aetiology of Peritonitis, days of hospitalization etc. Investigations such as: complete blood count, biochemical analysis of blood, Microbiology for serology, X-ray erect abdomen, CT scan (abdomen/Pelvis) / Ultrasonography (abdomen/pelvis) were carried out wherever necessary.

Where, The criteria for:

### **Organ Failure**

**Renal Failure:** serum creatinine more than 2 mg/dl or serum more than 46.78 mg/dl or presence of oliguria < 20 ml/ hour.

**Shock:** Hypotension (systolic BP less than <90 mmHg) or a reduction of greater than 40 mmHg from baseline, when other causes for the fall in blood pressure are absent.

**Intestinal obstruction:** (profound): paralysis more than 24 hours or complete mechanical ileus.

**Respiratory failure:** pO<sub>2</sub> less than 50 mmHg or pCO<sub>2</sub> greater than 50 mmHg.

**Malignancy:** On examination presence of features of malignancy or cases of known malignancy were included in the study.

**Evolution time:** Less than 24 hour or greater than 24 hour, depending upon history and timing of surgery.

**Origin of sepsis:** Colonic or noncolonic, according to laparotomy findings.

**Extension of Peritonitis:** Diffuse or localized

### **Character of exudates or peritoneal fluid**

- a. Clear
- b. Cloudy/purulent
- c. Faecal

Bilious collections in cases of recent perforation without any superadded infection were considered as clear.

**Data Analysis:** The collected data was coded and entered with the help of Microsoft Excel software. The data was analyzed with the help of SPSS Version 22 statistical package. Descriptive statistics were derived in the form of tables and charts for frequency analysis.

Quantitative variables were analysed and compared using parametric tests (students t-test), whereas qualitative data was analyzed with the help of non-parametric tests (Chi-square test). P-values were derived. P-values lower than 0.05 were considered as significant.

## **RESULTS**

The present study was conducted among 52 cases of peritonitis, admitted under department of general surgery, KIMS, Karad, after the approval from institutional ethical committee. We collected information from the cases, their demographic profiles, clinical findings, investigations results etc.

### **Demographic Features: Gender-Wise Distribution**

Most of the study subjects were males (65.38%), followed by females (34.61%). It was observed that most of the cases belonged to age group of 46-55 years (25%), followed by 36-45 years (23.07%) and 26-35 years (19.23%). Here it was observed that most of the study cases were less than 50 years of the age group (61.53%).

### **Distribution According to the Site of Perforation**

Most of the cases presented with perforation peritonitis had duodenal perforation (42.30%), followed by gastric perforation (28.84%), appendicular perforation (13.46%), ileal perforation (9.61%), jejunal (3.8%), colonic perforation (1.9%).

### **Clinical Presentation**

We reported that most of the subjects presented with abdominal pain (94.23%), followed by abdominal distension (61.53%), fever (63.46%), vomiting (57.73%), not passing of stools and flatus. Organ failure was seen among 38.46% of the cases, which is one of the parameter to be considered while calculating MPI score. Mostly subjects in this study reported more than 24 hours of the pre-operative duration (84.61%),

only 15.38% cases reported less than 24 hours duration (pre-operative). We observed that 7.69% cases in the present study had malignancy.

The majority of the study subjects reported the origin of sepsis as non-colonic (98.07%), followed by colonic (1.92%). Majority of the patients in this study had diffuse type of peritonitis (84.61%), followed by localised type of peritonitis (15.38%). Mostly the study subjects had purulent exudates (63.46%), followed by clear exudates (34.61%) and fecal type of exudates (1.92%).

**Table 1** distribution according to the site of perforation

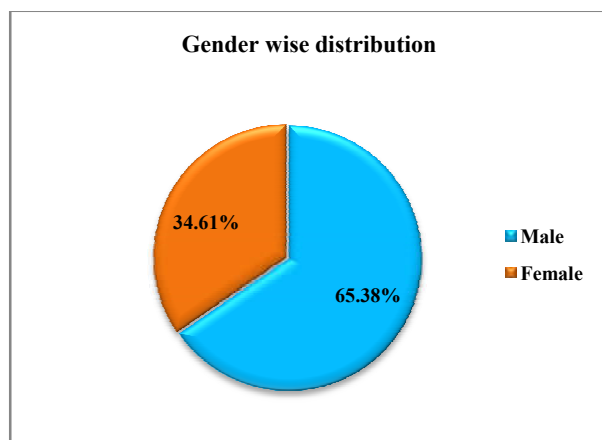
Site of perforation	Number	Percentage
Duodenal	22	42.30%
Gastric	15	28.84%
Appendicular	7	13.46%
Ileal	5	9.61%
Jejunal	2	3.8%
Colonic	1	1.9%
Total	52	100%

**Table 2** Distribution of cases according to their clinical presentation

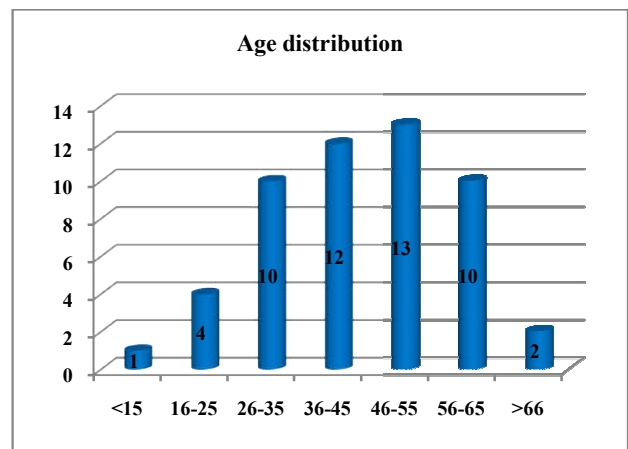
Clinical presentation	Number	Percentage
Abdominal pain	Present	49 94.23%
	Absent	3 5.76%
Abdominal distension	Present	32 61.53%
	Absent	20 38.46%
Not passed stools	Present	22 42.30%
	Absent	30 57.69%
Not passed flatus	Present	19 36.53%
	Absent	33 63.46%
Fever	Present	33 63.46%
	Absent	19 36.53%
Vomiting	Present	30 57.69%
	Absent	22 42.30%

**Table 3** Organ failure among cases

Clinical presentation	Number	Percentage
Presence of organ failure	Present	20 38.46%
	Absent	32 61.53%
Origin of sepsis	Non-colonic	51 98.07%
	Colonic	1 1.92%
Malignancy	Present	4 7.69%
	Absent	48 92.30%
Type of peritonitis	Localised	8 15.38%
	Diffuse	44 84.61%
Type of exudate	Clear	18 34.61%
	Purulent	33 63.46%
Total	Fecal	1 1.92%
		52 100%



**Figure 1** Distribution of study population according to their gender



**Figure 2** Distribution of study population according to their age

## DISCUSSION

The present study was conducted among 52 cases of peritonitis, admitted under department of general surgery, KIMS, Karad, after the approval from institutional ethical committee. We collected all the important information from the patients, demographic-profiles, clinical findings, investigations results etc.

### Demographic Features

In the present study, we assessed the study subjects according to their genders. Mostly subjects were males (65.38%), followed by females (34.61%).

In the present study, we assessed the study cases according to their age distribution. Mostly the cases belonged to age group of 46-55 years (25%), followed by 36-45 years (23.07%) and 26-35 years (19.23%). In this study we observed that majority of the study cases were less than 50 years of the age group (61.53%). In a study by Rajendra Singh Jhobta *et al*<sup>[1]</sup> the mean age was 36.8 years and age range was 3-90 years. Aijaz A Memon<sup>[10]</sup>, in their study observed the age range was from 13 years to 87 years. Rajender Singh Jhobta<sup>[11]</sup> in their study observed 84% males as majority. Similarly Aijaz A Memon *et al*<sup>[10]</sup> observed 70.30% males and 29.69% were females and Rudol fo L<sup>[11]</sup> found 52% males and 48% females.

### Distribution According to the Site of Perforation

In the present examination, we contrasted the investigation subjects concurring with their site of aperture. Most of the cases with perforation peritonitis had duodenal perforation (42.30%), followed by gastric perforation (28.84%), appendicular perforation (13.46%), ileal perforation (9.61%) colonic perforation (1.9%), and so forth.

Rodolfo L *et al*<sup>[11]</sup>, in their investigation seen that, appendicular perforations were 48.28% while among 2.87% cases gastric pathology and small bowel pathology was available and colonic pathology was found among 2.30%.

### Clinical Presentation

In the present investigation, we assessed the cases as indicated by their clinical presentation. We detailed that dominant part of the examination subjects gave abdominal pain (94.23%), followed by abdominal distension (61.53%), fever (63.46%), vomiting (57.73%), not passing of stools and flatus. In this study, we found that organ failure was seen among 38.46% of

the cases, which is one of the parameter to be considered while calculating MPI score.

Organ failure as reported by various studies

- 48.5 % in MM Correia *et al*<sup>[12]</sup>
- 11.5 % in Rodolfo L *et al*<sup>[11]</sup>
- 20 % in MurutKologlu *et al*

**Preoperative Duration**

In the present investigation, we seen that larger part of the study subjects revealed over 24 hours of the pre-operative duration (84.61%), just 15.38% cases reported less than 24 hours duration (pre-operative).

Preoperative duration	<24 hours	>24 hours
Present study	84.61%	15.38%
Rodolfo L <i>et al</i> <sup>[11]</sup>	54.48%	49.42%
MM Correia <i>et al</i> <sup>[12]</sup>	34.5%	65.5%

**Malignancy**

In the present study, we observed that 7.69% cases reported presence of malignancy.

Malignancy	Incidence
Present study	7.69%
Rodolf L <i>et al</i> <sup>[11]</sup>	2 cases
M.M. Correia <i>et al</i> <sup>[12]</sup>	3.75%

In the present study, most of the study subjects reported the origin of sepsis as non-colonic (98.07%), followed by colonic (1.92%).

Colonic origin of sepsis	Incidence
Present study	1.92%
Rodolf L <i>et al</i> <sup>[11]</sup>	12.64%
Rajendra Singh Jobhta <sup>[1]</sup>	3.76%

**Type of Peritonitis**

In the present study, we saw that majority of them had diffuse type of peritonitis (84.61%), followed by localised type of peritonitis (15.38%).

Type of Peritonitis	Incidence
Present study	Diffuse: 84.61%
	Localised: 15.38%
RajenderJhobta <i>et al</i> <sup>[1]</sup>	Diffuse: 83%
	Localised: 17%
Rodolf L <sup>[11]</sup>	Diffuse: 34.49 %
	Localised: 65.5%

**Type of Exudate**

In the present study, we found that mostly of the study subjects had purulent type of exudates (63.46%), followed by clear exudates (34.61%) and fecal type of exudates (1.92%).

Type of Exudate	Clear	Purulent	Fecal
Present study	34.61%	63.46%	1.92%
RajenderJhobta <i>et al</i> <sup>[1]</sup>	69.5%	21.8%	--
Rodolf L <sup>[11]</sup>	15%	71%	13%

**Outcome**

In the present study, we assessed the outcomes among the cases. With us majority of the cases were discharged (84.61%), while we reported 8 deaths among our study cases.

Mortality	Incidence
Present study	84.61%
Atsushi Hourichi <sup>[13]</sup>	23.1%
Koperna T <i>et al</i> <sup>[14]</sup>	18.5%

**CONCLUSIONS**

1. Mean age of the cases presented with perforation peritonitis was 43.88 ± 13.77 years
2. Faecal exudates was more ordinarily associated with colonic origin of sepsis, and it was associated with worse outcomes.
3. The commonest presentation of perforation peritonitis was: duodenal perforation (28.84%), followed by appendicular perforation (15.38%), colonic perforation (13.46%), gastric (9.61%).

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