



## A CLINICAL STUDY OF PERFORATIVE PERITONITIS

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Article Info	ABSTRACT
<p>Received 15/05/2015 Revised 20/06/2015 Accepted 28/06/2015</p> <p><b>Key words:</b> Perforative peritonitis, Complications.</p>	<p>Objective to study the relative frequency of perforative peritonitis in relation to age, sex, etiology, anatomical site of perforation, X-ray findings, to study the different methods of surgical management in perforative peritonitis and to assess the postoperative complications associated with different surgical methods. The prospective study was conducted in the Department of General Surgery MRIMS during the period January 2014 to March 2015. The study was based on the analysis of 50 cases on hollow viscus perforation selected randomly. In the study commonest age group was above 50 years (34%) and the most common site of perforation was in duodenum (50%). The next common in occurrence was enteric perforation in 26% of cases and appendicular perforation in 20% of cases. Post-operative morbidity is seen in 38% of our cases, of which 18% had lower respiratory tract infection and 16% had surgical site infections.</p>

### INTRODUCTION

Peritonitis is the inflammation of the peritoneum, which may result from infective or non-infective cause by the leakage of sterile body fluids in to the peritoneum. Peritonitis secondary to perforation of gastrointestinal tract is the most common surgical emergency in India which requires early intervention [1]. Causes of perforation are duodenal ulcer, gastric ulcer, enteric fever, acute appendicitis, diverticular disease and perforation of a segment of strangulated bowel.

Smoking and use of non-steroidal anti-inflammatory drugs are important risk factors for perforation [2]. Diagnosis is made by clinical examination and confirmed by the presence of pneumoperitoneum on plain X-ray abdomen in erect posture. Operative management consists of laparotomy and omental patch closure in cases of duodenal ulcer perforations. Laparoscopic approaches for closure of duodenal perforation are now being applied widely in cases where patients present with abdominal pain within first 24 hours of onset of pain [3]. Ileal perforation due to enteric fever is a common surgical emergency in tropical countries.

It usually carries high morbidity and mortality. For appendicular perforations open appendicectomy was practiced since last century and laparoscopic surgery is now a well-established method. Despite advances in surgical techniques, antimicrobial therapy and intensive care support, management of perforative peritonitis continues to be highly demanding, difficult and complex. The study is done to highlight the spectrum of perforation peritonitis as encountered by us at MRIMS Hyderabad.

### PATIENTS AND METHODS

The prospective study was conducted at the department of general surgery, MRIMS, Hyderabad from January 2014 to March 2015. The study population included 50 patients of perforative peritonitis presenting to the surgical emergency department. The inclusion criteria were 1. All cases of perforation secondary to perforation of gastrointestinal tract, 2. Age more than 18 years. Exclusion criteria: 1. Age less than 18 years, 2. Patients with perforation of oesophagus, biliary tree, bladder, reproductive organs and post-operative anastomotic leak, 3.



Perforation secondary to blunt abdominal trauma, 4. Patients not willing for surgery, 5. All cases of primary peritonitis. Each patient was examined thoroughly after taking detailed history. The diagnosis was made by history, clinical features, X-ray abdomen and ultrasound abdomen. All patients underwent emergency laparotomy/laparoscopy. At laparotomy or laparoscopy the site of

perforation and amount of peritoneal contaminants were determined. The procedures adopted were omental patch closure or simple closure for duodenal perforations, open appendicectomy for appendicular perforations and resection anastomosis for Ileal perforations. Laparoscopic appendicectomy was preferred. Post-operative follow up was done and final results were evaluated.

## RESULTS

**Table 1. Distribution of sample by AGE**

Age Group (years)	Frequency	Percentage (%)
< 20	3	6
21-31	10	20
31-40	13	26
41-50	7	14
>51	17	34
TOTAL	50	100

Maximum numbers of patients were seen in the age group above 50 years (34%) followed by 31-40yrs (26%).

**Table 2. Distribution of sample by Sex and diagnosis**

Diagnosis	Male		Female		Total	
	Frequency	%	Frequency	%	Frequency	%
DUP	21	42	4	8	25	50
SIP	11	22	1	2	12	24
App P	8	16	2	4	10	20
GUP	1	2	0	0	1	2
SP	0	0	1	2	1	2
LIP	1	2	0	0	1	2
Total	42	84	8	16	50	100

(DUP-Duodenal Ulcer Perforation, SIP-Small Intestine Perforation, App P-Appendicular Perforation, GUP-Gastric Ulcer Perforation, SP-Stomal Perforation, LIP-Large Intestine Perforation)

About 84% of cases in the study were males and of which 42% of them suffered from duodenal ulcer perforation. Only 16% of the cases were females.

**Table 3. Distribution of sample by Site of perforation**

Anatomical site	frequency	Percentage (%)
Stomach	1	2
Duodenum	25	50
Stomal (G-J)	1	2
Ileum	12	24
Appendix	10	20
Large intestine	1	2
Total	50	100

Commonest site of perforation in the study is Duodenum (50%) followed by Ileum (24%), Appendix (20%), Stomach (2%), Stoma (2%), and Large intestine (2%).

**Table 4. Distribution of sample by Etiology of perforation**

Etiology	Frequency	Percentage (%)
Peptic ulcer perf.	26	52
Appendicular perf.	10	20
Enteric perf.	13	26
Ischaemic perf.	1	2
Total	50	100

Most common cause for perforative peritonitis in the present study is peptic ulcer perforation (52%). Enteric perforation is seen in 26% of cases, Appendicular perforation in 20% and Ischaemic perforation in 2% of cases.



Apart from abdominal pain, vomiting's are seen in 38% of cases, fever in 34% and bowel symptoms in 14%. Among the signs, highest number of the patients showed guarding and rigidity (86%) followed by absence of bowel sounds (48%). In the present study about 74% of the patients had pneumoperitoneum in plain X-ray abdomen erect.

**Table 5. Distribution of sample by Type of Surgery**

Type of Surgery	Frequency	Percentage (%)
OPC	23	46
SC	11	22
Lap Appendicectomy	4	8
Appendicectomy	6	12
R & A	6	12
Total	50	100

(OPC-Omental Patch Closure, SC-Simple Closure, R & A-Resection and Anastomosis)

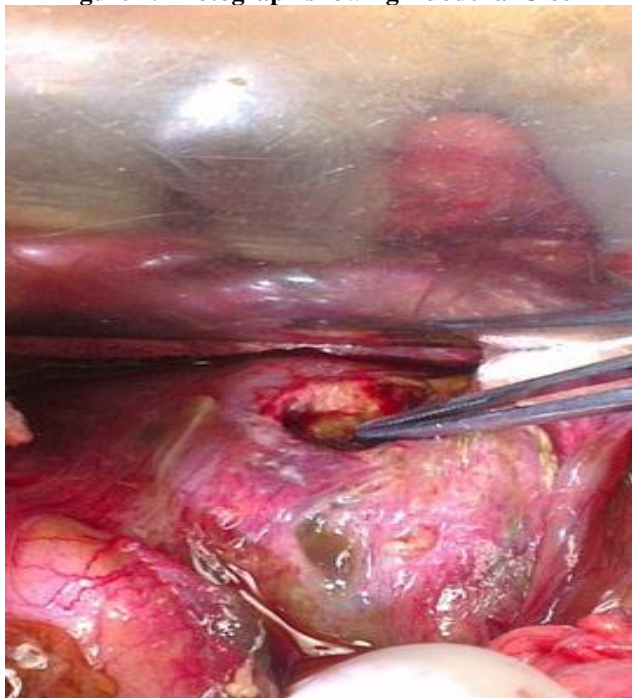
**Table 6. Distribution of sample by Post-Operative Complications:**

Post-Operative Complications	Frequency	Percentage (%)
Wound Infection	4	8
Wound Dehiscence	2	4
ARF	1	2
LRTIs	3	6
ARDS	2	4
Septicemia	1	2
WI+LRTIs	4	8
Septicemia+LRTIs	2	4
Nil complications	31	62
Total	50	100

(ARF-Acute Renal Failure, LRTIs-Lower Respiratory Tract Infections, ARDS-Adult Respiratory Distress Syndrome ,WI-wound infection)

No Complications were seen in 62% of the cases.8% of the patients suffered from wound infection and another 8% from Wound infection along with Lower Respiratory Tract Infections. Septicemia with LRTIs, ARDS, and Wound dehiscence were seen each in 4% and ARF in 2% of the patients.

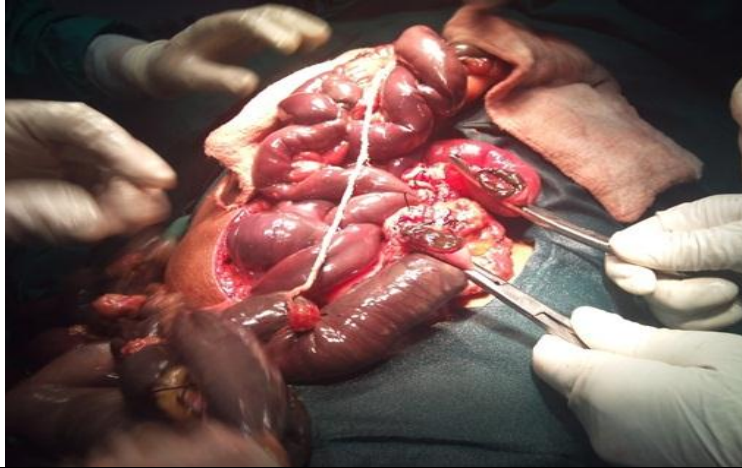
**Figure 1. Photograph showing Duodenal Ulcer**



**Figure 2. X-Ray showing air under diaphragm**



**Figure 3. Photograph showing Acute Mesenteric Ischaemia**



## DISCUSSION

Perforative peritonitis is a frequently encountered surgical emergency in tropical countries like India and is a common cause of morbidity and mortality and warrants early surgical intervention. This study included 50 patients elected as per inclusion criteria over a period of 1 year and 3 months.

Highest number of patients in the present study belongs to the age group of >50 years (34%) and majority of the patients are males (84%) [4]. The commonest etiology is duodenal ulcer perforation. This is comparable with the study Rajender Singh Jhobta who studied 504 cases. In India the perforation in the proximal gastrointestinal tract is more common<sup>5</sup> than distal gastrointestinal tract. This is in a sharp contrast to studies from developed countries like USA [6-8] Greece and Japan which revealed distal gastrointestinal tract perforations to be more common. The commonest site of perforation in the present study is duodenum (50%) followed by Ileum (24%) Appendix (20%), stomach (2%), Stoma (2%) and large intestine (2%). Studies by Rajandeep Singh Bali et al [9], Shreshtra et al [10] and Rajender Singh Jhobta et al has shown similar results.

Clinical presentation of the patients varied according to the site of perforation. All the patients in the present study suffered from abdominal pain and the site of pain varied according to the anatomical site of perforation. Apart from pain abdomen, fever (34%), vomiting (38%) and bowel symptoms (14%) were noticed. In the present study distension of abdomen is seen in 44% of the patients, guarding & rigidity in 86%, absent bowel sounds in 48% and obliteration of liver dullness in 42% of the patients.

In the present study pneumoperitoneum was seen in 76% of the cases, and this is comparable to Rajender Singh Jhobta et al. In his review of 504 cases 67% had pneumoperitoneum.

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In the diagnosis of perforated appendicitis, ultrasound abdomen is also a valuable tool.

Preoperatively all the patients were stabilised haemodynamically and broad spectrum antibiotics usually a combination of injectable third generation cephalosporins and metronidazole was administered. After the confirmation of diagnosis of gastrointestinal perforation, all the patients underwent emergency exploratory laparotomy /laparoscopy. At the time of surgery source of contamination was noted and appropriate procedure was performed. Duodenal ulcer perforation was closed by omental patch closure in 23 cases (46%) and simple closure in 11 cases (22%). Of the 10 cases (20%) of perforated appendicitis open appendicectomy was done in 6 cases (12%) and laparoscopic approach in 4 cases (8%). In enteric perforation simple closure was carried out in single perforations. In case of multiple perforations both resection and anastomosis was done or Ileostomy was considered selectively in few cases with unhealthy gut.

In the present study post-operative morbidity is seen in 38% of the patients and the reason being delayed presentation, anaemia, malnutrition and dehydration at the time of presentation. The most common complications are lower respiratory tract infection in 18% of the cases, wound infection in 16% of the cases and wound dehiscence in 4% of cases, 6% had septicemia, 4% suffered from ARDS and 2% from acute renal failure. In our study mortality was nil.

## CONCLUSION:

In the present study most common age group affected is 50 years and above and males predominated. The most common site of perforation is duodenum (50%) followed by ileum (24%). In perforative peritonitis all patients require laparotomy/laparoscopy.



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