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Original Research Article

Prospective study of 50 cases of perforative peritonitis a single centre experience

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ABSTRACT

Background: Perforative peritonitis are most common surgical emergencies seen worldwide. Despite improvement in diagnosis, antibiotics, surgical treatments and intensive care support, it is still an important cause of mortality in surgical patients. 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: A prospective study was done over a period of 3 years from January 2007 to December 2010 in NHL Medical College and V.S. hospital, Ahmedabad which included 50 patients diagnosed with perforation peritonitis. All patients admitted with perforation of gastrointestinal tract were included in this study. All cases of primary peritonitis and anastomotic leaks were excluded from this study.
Results: Total 50 cases were included with 80% being males. Highest incidence of perforation peritonitis was noted in 21-30 years of age group in the present study. Most common etiology of perforative peritonitis was noted in the present study was peptic perforation 40% (20) cases, abdominal pain, tenderness were present in all of the perforative peritonitis patients.
Conclusions: Perforative peritonitis is more common in male and most common pathology was peptic perforation due to acid peptic disease, in most of the cases after adequate resuscitation and stabilization of the patient Exploratory laparotomy is mainstay treatment modality

Keywords: Intestinal, Perforation, Perforative peritonitis

INTRODUCTION

Perforative peritonitis are most common surgical emergencies seen worldwide. Perforative peritonitis is a type of secondary peritonitis which was caused by perforation of intraperitoneal hollow viscera. Majority of the patients presents late with purulent peritonitis and septicaemia. Despite improvement in diagnosis, antibiotics, surgical treatments and intensive care support, it is still an important cause of mortality in surgical patients.[1]

Considering such a high magnitude of the disease, 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

A prospective study was done over a period of 3 years from January 2007 to December 2010 in NHL Medical

College and V.S. Hospital, Ahmedabad which included 50 patients diagnosed with perforation peritonitis.

Inclusion criteria

All patients admitted with perforation of intraperitoneal hollow viscera were included in this study.

Exclusion criteria

All cases of primary peritonitis and anastomotic leaks were excluded from this study.

All patients were studied in terms of clinical presentation, etiology and site of perforation, surgical treatment, postoperative complications and mortality. All patients following a clinical diagnosis of perforation peritonitis and adequate resuscitation, underwent exploratory laparotomy in emergency setting. At surgery, the source of contamination was sought for and controlled. the peritoneal cavity was irrigated with 5-6 liters of warm normal saline and drain was placed. Abdomen was closed with continuous, interlocking prolene no. 1 suture material. Although all patients received appropriate perioperative and post-operative broad-spectrum antibiotics, the drug regimen was not uniform.

RESULTS

Total 50 cases of perforation peritonitis were included in this study, among that 80% (40) were males and 20% (10) were females, with male to female ratio of 4:1 (Table 1).

Table 1: Male: female ratio of perforative peritonitis pt.

Different study	Male: Female ratio
Present study	4:1
Dr. Ramchandra's series	9:1
Dr. Bhansali's series	4.7:1

Perforative peritonitis can occur at any age but highest incidence of perforation peritonitis was noted in 21-30 years of age group in the present study (Table 2).

Table 2: Age group wise distribution of patient of perforative peritonitis.

Age groups	Peptic perforation		Enteric perforation		Appendicular perforation		Small bowel perforation		Urinary bladder perforation		Colon perforation		Gastroduodenal perforation		Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
11-20	1	1	1		1		1						1		6
21-30	3		5		2		3	1							14
31-40	2	2		1		1	2		1	1	2		1		13
41-50	4						1	1							6
51-60	2				1		1								4
61-70	2										1				3
71-80	1	1					1								3
81-90		1													1
Total	15	5	6	1	4	1	9	2	1	1	3		2		50

Table 3: Comparative study of cause of patient of perforative peritonitis.

Cause	Present study	Ramchandra's study (50)	Jhobta et al (504)	Shantanukumar et al (50)
Peptic perforation	20 (40%)	32 (64%)	297 (58.92%)	21 (42%)
Enteric perforation	7 (14%)	6 (12%)	41 (8.13%)	13 (26%)
Small bowel perforation	9 (18%)	6 (12%)	25 (4.96%)	-
Appendicular perforation	5 (10%)	6 (12%)	59 (12%)	1 (2%)
Urinary bladder perforation	2 (4%)	-	-	-
Colonic perforation	1 (2%)	-	9(1.78%)	2 (4%)
Gastroduodenal perforation	1 (2%)	-	-	-
Blunt abdominal injury	1 (2%)	-	-	8 (16%)
Stab injury	4 (8%)	-	-	1 (2%)

Table 4: Sign and symptoms of patient of perforative peritonitis.

Patient's characteristics (signs and symptoms)	Peptic ulcer perforations	Small bov perforatic	Appendicula perforations	Enteric perforatio	Urinary bladder perforation	Colonic perforatio	Gastroduodena perforations	Total
Pain	20 (40%)	11 (22%)	5 (10%)	7 (14%)	2 (4%)	3 (6%)	2 (4%)	50 (100%)
Vomiting	17 (34%)	10 (20%)	5 (10%)	6 (12%)	-	2 (4%)	1 (2%)	41 (82%)
Constipation	10 (20%)	7 (14%)	-	1 (2%)	1 (2%)	1 (2%)	1 (2%)	21 42%)
Distension	11 (22%)	7 (14%)	1 (2%)	4 (8%)	1 (2%)	2 (4%)	1 (2%)	27 (52%)
Fever	8 (16%)	3 (6%)	3 (6%)	7 (14%)	-	1 (2%)	1 (2%)	23 (46%)
Tenderness	20 (40%)	11 (22%)	5 (10%)	7 (14%)	2 (4%)	3 (6%)	2 (4%)	50 (100%)
Rigidity	20 (40%)	4 (8%)	1 (2%)	3 (6%)	-	2 (4%)	2 (4%)	32 (64%)
Absent / Diminished bowel sounds	14 (28%)	9 (18%)	3(6%)	6 (12%)	-	2(4%)	1(2%)	35 (70%)

Most common cause of perforative peritonitis was noted in the present study was peptic perforation 40% (20) cases, followed by small bowel perforation 32% (16), followed by appendicular perforation 10% (5) (Table 3).

Abdominal pain, tenderness was present in all of the perforative peritonitis patients. Fever, constipation, abdominal distension and vomiting were observed more in the study which is probably because of late presentation of cases (Table 4).

Commonest surgical procedure performed was suturing of perforation and omentopexy in the present study (Table 5).

Table 5: Operative procedure of patient of perforative peritonitis.

Operative procedure	No. of cases
Suturing of perforation with omentopexy	23 (46%)
Appendicectomy	5 (10%)
Resection and anastomosis	4 (8%)
Perforation suturing with proximal colostomy	1 (2%)
Suturing of perforation	15 (30%)
Urinary bladder tear repair	2 (4%)

During postoperative period wound infection was the most common complication found in 22% (11) cases, followed by electrolyte imbalance in 20% (10), pulmonary complications in 12% (6), septicemic shock in 12% (6), intestinal obstruction in 2% (1), faecal fistula in 2% (1) cases were noted. We recorded 16% mortality in the present study, the main cause of death was septicemia and was most probably due to late presentation of cases (Table no 6).

Table 6: Complication of patient of perforative peritonitis.

Complication	Present study	Jhobta et al[6]	Ramchandra[2]
Wound infection	11 (22%)	126 (25%)	19 (38%)
Intestinal obstruction	1 (2%)	-	-
Faecal fistula	1 (2%)	34 (7%)	3 (6%)
Pulmonary complications	6 (12%)	143 (28%)	-
Septicaemia	6 (12%)	90 (18%)	-
Electrolyte imbalance	10 (20%)	88 (17%)	-
Burst abdomen	1 (2%)	44 (9%)	-
Mortality	8 (16%)	51 (10%)	-

DISCUSSION

Perforative peritonitis is common surgical emergency worldwide, most commonly affecting younger male. Male preponderance also seen in other study like Ramchandra's series and Bhansali's series (Table 1).[2,3]

In majority of cases presentation to the hospital is late with well-established generalized peritonitis with

purulent/faecal contamination with varying degree of septicemia. Perforated peptic ulcer is common in 21-30 age group because of dietary changes, alcohol abuse and tobacco-guthka habits in this age group (Table 2).

Etiological factors also show a wide geographical variation. According to a study from India, infections formed the most common cause of perforation peritonitis; around 50% cases in this study were due to infective aetiology like typhoid, tuberculosis or appendicular perforation.[4] In contrast to this, Noon et al from Texas in their study reported only 2.7% cases due to infections.[5] Also studies from the west have shown that around 15-20% cases are due to malignancy (Table 3).

The patients of peptic perforation usually had a short history of pain starting in epigastrium or upper abdomen along with generalized tenderness and guarding. The patients with small bowel perforation presented with prolonged history of fever followed by appearance of pain in abdomen (Table 4).

All patients in the present study were treated with emergency exploratory laparotomy after adequate resuscitation. On exploration source of contamination was sought for and controlled. Elimination of source of infection was done by suturing of perforation, resection and anastomosis, appendicectomy (Table 5).

Peritoneal lavage with 4 to 5 liters of normal saline given to all patients to reduce the degree of bacterial contamination and to remove the blood, faecal material, fibrin flakes and necrotic tissue. In all cases intraabdominal drain tubes were placed.

In the bacteriological study of peritoneal fluid mixed infection was found in majority of the cases. *E. Coli* was the commonest organism isolated from culture. it was also isolated from cultures of post-operative wound infections. *Kleibsella*, *proteus* and *enterococcus* were also isolated in combination with *E. coli*. Broad spectrum antibiotics were given in all patients.

The mortality rate in the present study was 16%. One of the most important factors responsible for mortality is septicemia due to late presentation. Adequate pre-operative resuscitation, early surgical intervention, to remove the source of infection and stop further contamination is key factor for good outcome and minimizing morbidity and mortality.

The major cause of postoperative morbidity was wound infection, electrolyte imbalance, septicemia, pulmonary complications like pneumonia, atelectasis, ARDS, etc. Which are preventable and should be detected early and aggressively treated which was also similar with other study like Jhobta et al and Ramchandra et al (Table 6).[2,6]

CONCLUSION

Perforative peritonitis is more common in male and most common pathology was peptic perforation due to acid peptic disease, in most of the cases after adequate resuscitation and stabilization of the patient. Exploratory laparotomy is mainstay treatment modality.

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