

Original article:

Clinical Study of Prognostic Factors in Perforative Peritonitis: An Hospital Based Study

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Abstract

Background: Despite advancements in surgical techniques, anti-microbial therapy and intensive care, management of peritonitis continues to be highly demanding, difficult and complex.^{2, 3} Peritonitis usually presents as an acute abdomen. Local findings include abdominal tenderness, guarding or rigidity, distension, diminished bowel sounds.

Aim of the study: Clinical study of Prognostic factors in Perforative Peritonitis.

Materials and methods: The study was conducted in the Department of General Surgery, Mahatma Gandhi Hospital Bhilwara, Rajasthan, India. For the study, we selected patients admitted to surgical ward which for suspicion of perforation peritonitis. The patients underwent detailed medical history session and through physical examination. A total of 45 subjects were included in the study. All the subjects underwent necessary lab tests such as CBC, biochemical analysis and urinalysis and necessary radiological examinations such as USG abdomen/pelvis CT-abdomen.

Results: A total of 45 patients were included in the study. The most common site for perforation was ileum (n=18) followed by stomach (n=11). Suturing was performed on 16 patients, omental patching was done in 14 patients, resection and anastomosis was performed in 5 patients, appendectomy was performed in 6 patients and ileostomy was done in 4 patients.

Conclusion: The most common site for perforation was ileum followed by stomach. Perforation peritonitis causes considerable morbidity and mortality as patients usually present late to the hospital for treatment and their general condition is deteriorated.

Keywords: peritoneum, perforation, gastric surgery, abdominal surgery

Introduction:

Peritonium inflammation, called peritonitis, presents most commonly due to localized or generalized infection caused from various probable factors.¹The condition is sometimes also the outcome of induced abortion. Perforation peritonitis is one of the commonest surgical emergencies in our country. Despite advancements in surgical techniques, anti-microbial therapy and intensive care, management of peritonitis continues to be highly demanding, difficult and complex.^{2, 3} 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.^{4, 5} The spectrum of etiology of perforation continues to be different from that of western countries and there is paucity of data from India regarding its etiology, prognostic indicators, morbidity and mortality patterns.⁶Hence,

we planned the present clinical study of Prognostic factors in Perforative Peritonitis.

Materials and methods:

The study was conducted in the Department of General Surgery, Mahatma Gandhi Hospital Bhilwara, Rajasthan, India. For the study, we selected patients admitted to surgical ward which for suspicion of perforation peritonitis. The patients underwent detailed medical history session and through physical examination.

Inclusion criteria:

- Cases of perforation peritonitis from 18-60 years
- Patients willing to provide consent
- No major surgical procedure for past 1 year

Exclusion criteria

- Patients on long term steroid medication for past 6 months
- Patients on anti-coagulants for past 2 years

A total of 45 subjects were included in the study. An informed written consent was obtained from each patient after explaining to them the procedure of the study. All the subjects underwent necessary lab tests such as CBC, biochemical analysis and urinalysis and necessary radiological examinations such as USG abdomen/pelvis CT-abdomen. After thorough investigations, patients were scheduled for surgery. In all cases, operative findings and postoperative course was followed up for three months for any complication or any need of re-surgery. Final outcome was evaluated on the basis of clinical, operative and radiological findings.

The statistical analysis of the data was done using SPSS version 20.0 for windows. The Student's t-test and Chi-square test were used to check the significance of the data. The p-value less than 0.05 was predetermined as statistically significant.

Results:

A total of 45 patients were included in the study. **Table 1** shows frequency of patients with different sites of perforation. The most common site for perforation was ileum (n=18) followed by stomach (n=11) [**Fig 1**]. **Table 2** shows frequency of patients with different surgical procedure. Suturing was performed on 16 patients, omental patching was done in 14 patients, resection and anastomosis was performed in 5 patients, appendectomy was performed in 6 patients and ileostomy was done in 4 patients. On comparing the results, observed that results were statistically non-significant ($p > 0.05$) [**Fig 2**].

Discussion:

In the present study we conducted clinical study of Prognostic factors in Perforative Peritonitis. We observed that the most common site for perforation was ileum followed by stomach. Suturing was performed on 16 patients, omental patching was done in 14 patients, resection and anastomosis was performed in 5 patients, appendectomy was performed in 6 patients and ileostomy was done in 4 patients. But the results were statistically non-significant. The results were compared with previous studies and results were consistent with previous studies. Nomani AZ et al identified prognostic factors for perforated duodenal ulcers and to devise and assess a new scoring system. The observational prospective study was conducted at the Mayo Hospital, Lahore in two phases: from March 2010 to September 2011; and from October 2011 to July 2012. It included patients with duodenal ulcer perforation who were observed for identifying factors predicting 30-day prognosis. Each of the predictive factor was given a score based on its severity to devise a new scoring system. Predictors of poor

prognosis included multiple gut perforations, size of largest perforation >0.5cm, amount of peritoneal fluid >1000ml, simple closure, development of complications, post-operative systemic septicaemia and winter/autumn season of presentation. Overall 30-day mortality rate was 32.3% (n=32) and morbidity rate was 21.2% (n=21). The mean score was higher in the ones with poor prognosis. Similarly, the mean score was greater in those with grave prognosis. The scoring system had an overall sensitivity of 85.12% and specificity of 80.67% and was favourably comparable to other scoring systems. They concluded that the new scoring system is a useful tool in predicting 30-day prognosis for perforated duodenal ulcers in acid peptic disease. Kriwanek S et al evaluated the prognostic relevance of several factors and characterized patients at high risk. One hundred and twelve patients (61 women, 51 men) were treated for colonic perforation from 1979 to 1992. Diverticulitis [65 patients (58%)] and carcinoma [24 patients (21%)] were the commonest pathology. In 62 cases (55%) perforation was found to be covered; 50 (45%) times it was free. 34 (30%) patients had diffuse peritonitis. Resection with primary anastomosis was performed 43 times (7 times with a protective colostomy). Resection without restoration of the intestinal continuity was carried out 53 times (including 49 Hartmann operations). Suture with drainage was performed 16 times mainly after iatrogenic perforation (8 times with a colostomy). The overall mortality was 19.6% (22 patients). Age over 65 years, organ failure and MPI proved to be the only risk factors of significance. The patient's course is determined by the septic state, while the underlying pathology and degree of peritonitis did not significantly influence survival.^{7,8}

Chakma SM et al studied various etiological factors, modes of clinical presentation, morbidity and mortality patterns of perforation peritonitis presented in the RIMS hospital, Imphal, India.

The study was conducted from September 2010 to August 2012 on 490 cases of perforation peritonitis admitted and treated in the Department of Surgery. Initial diagnosis was made on the basis of detailed history, clinical examination and presence of pneumoperitoneum on erect abdominal X-ray. A total of 490 patients of perforation peritonitis were included in the study, with mean age of 48.28 years. 54.29% patients were below 50 years and 45.71% patients were above 50 years. There were 54.29% male patients and 45.71% female patients. Only 30% patients presented within 24 hours of onset of symptoms, 31.43% patients presented between 24 to 72 hours and 38.57% patients presented 72 hours after the onset of symptoms. Mean duration of presentation was 54.7 hours. Overall 469 patients were treated surgically and 21 patients were managed conservatively. Overall morbidity and mortality recorded in their study were 52.24% and 10% respectively. Ayandipo OO et al determined factors influencing the outcome in patients managed for peritonitis in a tertiary health institution in Nigeria. A retrospective study involving 302 patients managed for peritonitis over a 3- year period. The biodata, clinical findings, diagnosis, pre-operative care, mode of anaesthesia, cadre of the surgeon, intraoperative findings, postoperative care, and the outcomes were retrieved from their records. Three hundred and two patients were operated on for peritonitis during the period. The mean age of the patients was 48 ± 12 years. Twenty (6.6%) patients had other comorbidities, with hypertension being the most frequent. Ruptured appendicitis was the most

common cause of peritonitis, 83(27.5). Twenty-eight (9.2%) patients had complications, 19 patients (6.5%) required intensive care unit admission, 25 patients (8.4%) required a second exploratory laparotomy. The mortality rate was 2.4%. There was a statistically significant association between an adverse outcome and presentation with shock, anaemia, jaundice and oliguria. They concluded that the factors influencing outcome are similar to those of other Africa countries. However, the mortality rate in their study

is lower. Peri-operative specific organ support and prompt surgical intervention should be instituted to improve outcome.^{9, 10}

Conclusion:

Within the limitations of the study we conclude that the most common site for perforation was ileum followed by stomach. Perforation peritonitis causes considerable morbidity and mortality as patients usually present late to the hospital for treatment and their general condition is deteriorated.

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Diags and tables:

Table 1: Frequency of patients with different sites of perforation

Site of perforation	Number of patients
Stomach	11
Duodenum	4
Jejunum	1
Ileum	18
Caecum	3
Appendix	6
Meckel's diverticulum	1
Not identified	1
Total	45

Fig 1: Showing Frequency of patients with different sites of perforation

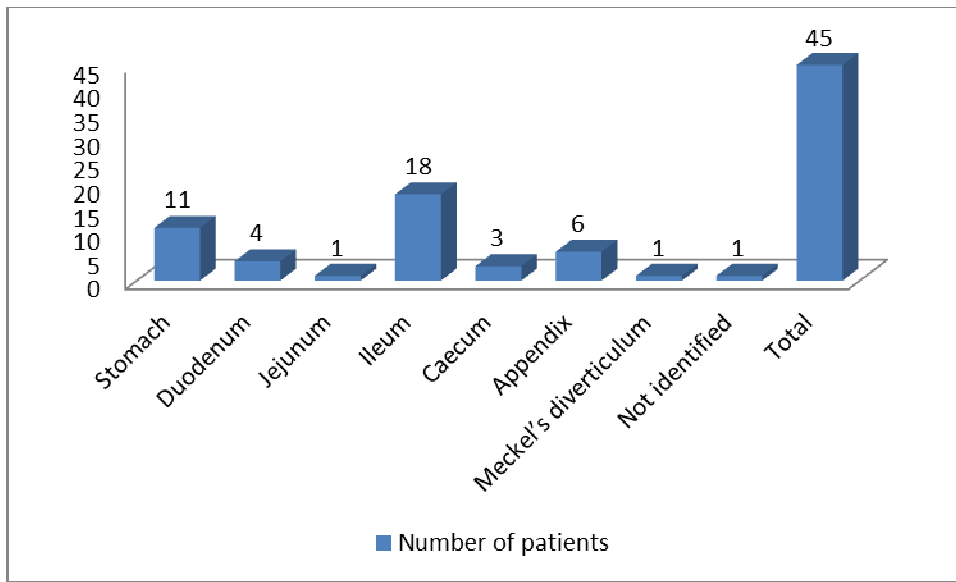


Table 2: Frequency of patients with different surgical procedure

Surgical procedure	No. of patients	p-value
Suturing	16	0.23
Omental patching	14	
Resection and anastomosis	5	
Appendectomy	6	
Ileostomy	4	
Total	45	

Fig 2: Frequency of patients with different surgical procedure

