

A STUDY OF THE EPIDEMIOLOGY, ETIOPATHOGENESIS AND CLINICAL OUTCOME OF PERFORATION PERITONITIS IN TERTIARY CARE HOSPITAL IN KASHMIR

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ABSTRACT

Background: Perforation peritonitis is one of the most common general surgical emergencies encountered by surgeons all over the world as well as in India. Spectrum, etiology, clinical presentation and management varies. **Methods:** This prospective study was done in the department of general Surgery in Government Medical College Srinagar over a period of one year from March 2019 to March 2020 and included all patients who had peritonitis except primary bacterial peritonitis and peritonitis following anastomotic leak. **Results:** Most patients were in the age group of 21 – 30 years, with male to female ratio of 16.5:1. Pain abdomen was present in 100% patients followed by vomiting (72.86%), fever (44.29%), shock due to septicemia (7.14%). Pneumoperitoneum was observed in majority of patients (80%) on X-ray abdomen. Site of perforation was duodenum (35.71%) in most of the patients, followed by ileal (21.43%), stomach (18.57%), appendix (12.86%) and jejunum (11.43%). Omentopexy (57.14%) was the major surgical procedure done in the study, followed by primary closure of perforation (17.14%), appendectomy (12.86%), stoma (10%) and resection with anastomosis (2.86%). A total of 2 (2.86%) patients expired in this study. **Conclusion:** Perforation peritonitis is the surgical emergency seen in active age groups with lot of morbidity and mortality.

KEYWORDS: Peritonitis, Peptic ulcer, Typhoid, Primary repair, Stoma.

INTRODUCTION

Perforation peritonitis is one of the most common general surgical emergencies encountered by surgeons all over the world as well as in India.^[1] The spectrum of etiology of perforation peritonitis continues to differ in tropical countries from its western counterpart. Abdominal tuberculosis, enteric fever and peptic ulcer disease is common in Asian countries while diverticulosis and traumatic perforation peritonitis is common in the western world.^[2] Peritonitis usually presents as an acute abdomen. Patient may present with symptoms of pain abdomen, vomiting, fever and local findings include abdominal tenderness, guarding or rigidity, distension of abdomen, diminished bowel sounds. Systemic findings include fever, chills or rigors, tachycardia, sweating, tachypnea, restlessness, dehydration, oliguria, disorientation and ultimately shock.^[3]

There are three progressive stages of peritonitis. Primary stage, which lasts for a period of 2 to 24 hours, is characterized by initial response of peritoneal cavity mesothelial cells to peritoneal contaminated fluid, associated with tachycardia, elevation of the temperature by 1 to 20F; and slight, generalized abdominal pain and

rigidity. Secondary stage lasts for 2 to 12 hours, characterized by further deterioration in clinical condition of the patient; pulse is disproportionately higher than the temperature. The final stage, tertiary stage, which lasts from 12 to 36 hours, is characterized by irreversible damage with patient in septic shock 2.

MATERIAL AND METHODS

The study was conducted in the Post Graduate Department of Surgery Government Medical College Srinagar over a period of 1 year from March 2019 to March 2020. Patients admitted in surgical emergency with diagnoses of perforation peritonitis except primary peritonitis and patients with peritonitis following anastomotic leak, were included in the study. In each case, after resuscitation, a detailed history, clinical examination, routine investigations, Ultrasonography abdomen and CT scan in cases of diagnostic dilemma, all the patients were subjected to emergency exploratory. The surgical procedure was carried out as per the etiology, site & pathology of perforation and the findings recorded.

RESULTS

Most patients were in the age group of 21 – 30 years (21.43%), followed by 31 – 40 and 41 – 50 years (20% each), ≤ 20 years (15.71%) and 51 – 60 (11.43%) and ≥ 61 years (10%). Mean age of the study group was 38.77 years with a range of 8 to 75 years. Majority of patients were male (94.29%), with male to female ratio of 16.5:1. Pain abdomen was present in 100% patients, vomiting in 72.86%, fever in 44.29%, shock due to septicemia in 7.14%, abdominal distension in 45.71%, abdominal tenderness in 91.43% and guarding in 10% patients. Duration of pain was 1 day in 34 (48.57%) patients, 2 days in 22 (31.43%) patients, 3 days in 12 (17.14%) patients, 4 and 5 days in 1 (1.43%) patient each. Mean duration \pm standard deviation of pain was

1.75 \pm 0.89 days.

Clinical presentation of patients varied according to the site and cause of perforation. Patients of duodenal ulcer perforation had a short history of pain originating in the epigastric region or upper abdomen. Patients with ileocecal tuberculosis presented with history of abdominal pain, abdominal distension and vomiting. Patients with small bowel typhoid perforation presented with history of pain in the abdomen along with prolonged history of fever. Patients with perforated appendix presented with history of pain starting in the umbilical region and then shifted to the right iliac fossa, or originating directly in the right iliac fossa and then spreading all over the abdomen.

Table 1: Distribution of patients according to clinical presentation.

Clinical presentation	Number of patients (No.)	Percentage (%)
Pain abdomen	70	100.00
Vomiting	51	72.86
Fever	31	44.29
Shock	5	7.14
Abdominal distension	32	45.71
Abdominal tenderness	64	91.43
Guarding	7	10.00
Total	70	100.00

Pneumoperitoneum was observed in majority of patients (80%) on X-ray findings. Air fluid levels on X-ray abdomen was observed in 11.43% patients, hyponatremia in 14.25%, hypokalemia in 4.28%, raised

blood urea and nitrogen in 31.43%, abdominal collections on USG abdomen were observed in 4.28% and 45.71% patients had leucocytosis.

Table 2: Distribution of patients according to site of perforation.

Site of perforation	Number of patients (No.)	Percentage (%)
Duodenum	25	35.71
Ileal	15	21.43
Stomach	13	18.57
Appendix	9	12.86
Jejunum	8	11.43
Total	70	100.00

Site of perforation was duodenum (35.71%) in most of the patients, followed by ileal (21.43%), stomach (18.57%), appendix (12.86%) and jejunum (11.43%).

One patient of ileal perforation had tuberculosis.

Table 3: Distribution of patients according to surgical procedure done.

Surgical procedure	Number of patients (No.)	Percentage (%)
Omentopexy	40	57.14
Primary closure	12	17.14
Appendectomy	9	12.86
Stoma	7	10.00
Resection with anastomosis	2	2.86
Total	70	100.00

Omentopexy (57.14%) was the major surgical procedure done in the study, followed by primary closure of perforation (17.14%), appendectomy (12.86%), stoma

(10%) and resection with anastomosis (2.86%).

Drainage under local anaesthesia was done in two

patients, followed by definitive procedure.

Table 4: Distribution of patients according to etiology.

Cause of perforation		Number of patients (No.)	Percentage (%)
Peptic ulcer	Duodenum	25	35.71
	Gastric	13	18.57
Typhoid		14	20.00
Trauma		8	11.43
Appendicitis		9	12.86
Tubercular		1	1.43
Total		70	100.00

Perforated duodenal ulcer (35.71%), small bowel perforation due to typhoid (20%) and gastric perforation following gastric ulcer (18.57% were most common causes of perforation peritonitis, followed by perforated

appendix (12.86%), perforation due to blunt trauma abdomen (11.43%) and small bowel perforation due to tuberculosis in one (1.43%) patient.

Table 5: Distribution of patients according to postoperative complications and mortality.

Postoperative Complications/Mortality	Number of patients (No.)	Percentage (%)
Uneventful	54	77.14
Wound infection	9	12.86
Wound dehiscence	5	7.15
Respiratory complications	8	11.43
Abdominal collections	3	4.28
Expired	2	2.86

Postoperative complications observed were wound infection in 9 (12.86%) and wound dehiscence in 5 (7.15%) patients.

A total of 2 (2.86%) patients expired in this study. These two patients had ileal perforation and were in shock at the time of presentation

DISCUSSION

Perforation peritonitis is the most common surgical emergency encountered by surgeons all over the world. The spectrum of etiology differs from western world. In our study, the mean age was 38.77 years with maximum number of patients in age group 21-30 years. This is young and working population which is subjected to stress and lifestyle changes and hence probably with higher incidence. The majority of patients were males (94.29%) and females only (5.71%), with male: female ratio (16.5: 1). Jhobta et al., 2006 also found the mean age of study 36.8 years and males (84%) and females (16%). Perforations occur more frequently among men than women. This is believed to be due to lifestyles and risk factors that contribute to the ulceration and later perforation of gastro intestinal tract. These factors include cigarette smoking, consumption of foods and beverages containing caffeine, alcohol abuse and physical stress. Men are more prone to these effects and so the ratio favours men in our study. The perforation of proximal gastrointestinal tract was more common than distal gastrointestinal tract, due to lifestyle and food habits.^[5]

Duodenal perforation secondary to ulcer was the most common perforation noticed in our study as supported by other studies. In our study, the most common site of perforation was duodenum 25 Cases (35.71%), Ileum 15 cases (21.43%), Stomach 13 cases (18.57%), Appendix 9 cases (12.86%), Jejunum 8 cases (11.43%). The study conducted by Gupta and Kaushik shows the similar result.^[6]

In our study 9 cases (12.86%) had appendicular perforations which is similar to the findings of Memon et al whose figures are around. In our study, 11.43% of cases had jejunal perforation following blunt trauma abdomen due to road traffic accidents. This is possibly due to high incidence of road traffic accidents in our state. In a study by Bose et al from PGIMER Chandigarh, 21% of cases had perforations due to blunt trauma abdomen.^[7]

In our study, 54 cases (77.14%) had uneventful postoperative period, 9 cases (12.86%) developed wound infection, 5 cases (7.15%) had wound dehiscence and 2 cases (2.86%) expired. recorded number of wound infections 18.9%, number of wound dehiscence 3.4% and mortality 3.9%. As per world literature mortality in perforation peritonitis ranges between 6 - 27%. In our study, the mortality rate was low because of adequate preoperative resuscitation, correction of electrolyte imbalances, followed by early surgical intervention to remove the source of infection and stop further contamination. The presence of wound infections, wound dehiscence were due to various factors like delayed

presentation, gross contamination of peritoneal cavity, septicemia and electrolyte abnormalities. The advances in the medical treatment of the peptic ulcer disease have led to a dramatic decrease in the number of elective surgeries performed for uncomplicated peptic ulcer. However, the number of patients undergoing surgical intervention for complications such as perforation remains relatively unchanged or has increased. Although, the surgical options are many- from simple closure to definitive acid reducing procedures, simple closure of the perforation using a pedicled omental patch gives comparable results to that of definitive surgery.

The next common perforation encountered in this study was in the small intestines. These usually arise on a background of enteric fever, when the ulcerated peyer's patches in the terminal ileum perforate to give frank peritonitis. There is no uniformity of opinion about the operative procedure to be performed in these perforations, various procedures have been described such as simple closure, wedge excision, segmental resection and anastomosis and ileostomy. As these patients have bowel edema, exteriorization of the perforation as a loop ileostomy is safest and fastest procedure to be done sometimes as a salvage procedure.

The patients who were not fit for surgery due to electrolyte abnormalities/shock were subjected to drains under local anaesthesia. After their stabilisation, they were taken up for surgery. The patients who developed wound dehiscence were subjected to secondary suturing.

Acid peptic disease and typhoid are major causes of perforation followed by gastric perforations, appendicular perforations and jejunal perforations following blunt trauma abdomen. Resuscitation before surgery improves outcome. omentopexy followed by primary closure were performed in majority of cases. Wound infection and respiratory complications were the major post operative complications. Patients presenting late and with associated comorbidities had poor outcome and developed postoperative complications. Intra operative findings and histopathological examination are important in establishing the cause of perforation.

In our study, mortality was less as compared with other studies. This was mainly because of better preoperative and postoperative management; proper resuscitation, good antibiotic cover and better ICU care.

CONCLUSION

Perforation peitonitis is frequently seen in young males. early diagnosis, adequate resuscitation and timely decision decrease morbidity and mortality.

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