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Original Research Article

Perforation peritonitis: as a spectrum

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ABSTRACT

Background: Peritonitis due to hollow viscus perforation is one of the frequent cause of patient presenting as acute abdomen in clinical practice. The cause of this perforation can be traumatic perforation or an underlying diseased viscus.
Methos: The study was conducted in Sir J J group of hospitals, Mumbai between January 2021 to June 2021. A total of 50 cases with peritonitis due to gastrointestinal tract perforation were studied. The patient were studied on the basis of clinical presentation, radiological findings, cause and site of perforation, treatment given, postoperative complication and mortality.
Results: Perforated duodenal ulcer (32%) and illeal perforation (24%) were most common in our study which is in contrast to the pattern seen in western part of the world. Perforations due to malignancy were the least commonly seen.
Conclusions: As indicated on our study the spectrum of perforation peritonitis in India continues to be different from its western counterpart with duodenal ulcer perforation, perforating appendicitis, typhoid perforation and tubercular perforation being the major causes of generalized peritonitis.

Keywords: Peroration peritonitis, Peritonitis, Exploratory laparotomy, Emergency surgery, Resection and anastomosis

INTRODUCTION

Peritonitis due to hollow viscus perforation is one of the frequent cause of patient presenting as acute abdomen in clinical practice. The cause of this perforation can be traumatic perforation or an underlying diseased viscus. Bacterial transmigration to the peritoneal cavity leads to diffuse peritonitis and septic shock which requires urgent surgical intervention after initial resuscitation. It has been shown that non-resectional procedures lead to high mortality reaching 66-72% in cases of diffuse peritonitis.[1]

The patients usually present with diffuse tenderness, rigidity, guarding. Absent or diminished bowel sounds maybe observed in some cases. Systemic symptoms include fever, tachycardia, sweating, dehydration, oliguria, disorientation and ultimately shock which is due to third space fluid loss.[2]

Diagnosis of perforation can be done on basis of clinical findings along with X ray image and USG. CT scan can be used in cases where there is no obvious air under diaphragm. Diagnostic laparoscopic can be used in some cases.

The objective was to study the patients on the basis of clinical presentation, radiological findings, cause and site of perforation, treatment given, postoperative complication and mortality, and to describe various etiological factors, clinical features as well as mortality patterns in GGMC and sir J. J. group of hospitals, Mumbai.

METHODS

It is a prospective descriptive type of study. The study was conducted in Grant medical college and sir J. J. group of hospitals, Mumbai between January 2021 to June 2021. A total of 50 cases with peritonitis due to gastrointestinal tract perforation were studied. Inclusion criteria was patient with features of peritonitis due to gastrointestinal tract perforation. Exclusion criteria was cases with peritonitis due anastomotic dehiscence, corrosive poisoning and the patients not willing to participate in the study were excluded.

Patients were diagnosed on basis of history and clinical presentation along with presence of pneumoperitoneum on erect abdominal X Ray. CT scan was done in cases with atypical presentation. Emergency blood investigation like Hb% serum urea, electrolytes, random blood sugar were done. Urinary catheterization for urine output monitoring and nasogastric tube insertion were done in all cases. Central venous catheterization was done in some cases where indicated. After initial resuscitation patients that fit for anesthesia underwent emergency exploratory laparotomy. After opening the abdomen source of peritonitis identified and controlled and appropriate procedure was done depending upon the presentation of the patient. Pus fluid was collected and sent for culture and sensitivity in all these cases for deciding the antibiotic regimen subsequently. Post operatively the patients were managed with appropriate antibiotics and strict fluid and electrolyte monitoring.

The patient were studied on basis of clinical presentation, radiological findings, cause and site of perforation, treatment given, post-op complication and mortality.

Ethical approval: not required.

RESULT

Of all 50 cases that presented during study duration 41 were male and 9 were female. Male:female ratio is 4.5:1.

Highest number of cases were present in the age group of 26-40 years of age (44%).

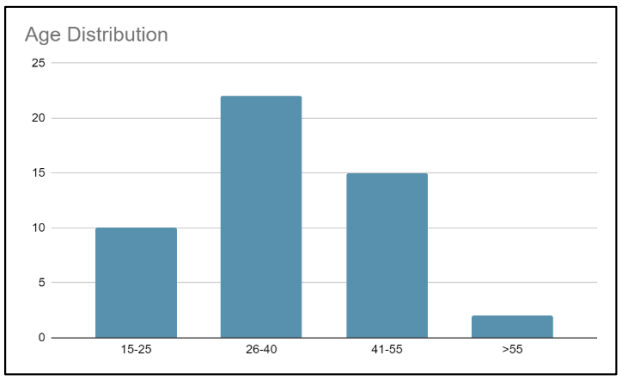

Figure 1: Age wise distribution of patients.

Only 15 (30%) patients presented within the first 24 hours of onset of symptoms and 19 patients (38%) presented within 24-72 hours and 16 (32%) patients presented after 72 hours of onset of symptoms.

Symptoms of presentation in all patients of which most common was pain followed by distension, vomiting and fever least was constipation and oliguria.

Table 1: Distribution according to symptoms.

Symptoms	No. of patients	Percentage (%)
Fever	21	42
Pain	50	100
Vomiting	43	86
Constipation	17	34
Oliguria	11	22
Distension	31	62

Tenderness guarding and rigidity present in 100% of patients.

Of all the cases studied only 31 cases (62%) presented with air under diaphragm. WBC counts were in the range of 5000-10000 in 13 (26%) patients, in the range of 10000-15000 for 26 cases (52%) and more than 15000 for 11 patients (22%).

The cause of perforation was classified as duodenal ulcer perforation, gastric ulcer perforation, ileal perforation, appendicular perforation and other (Jejunal and caecal).

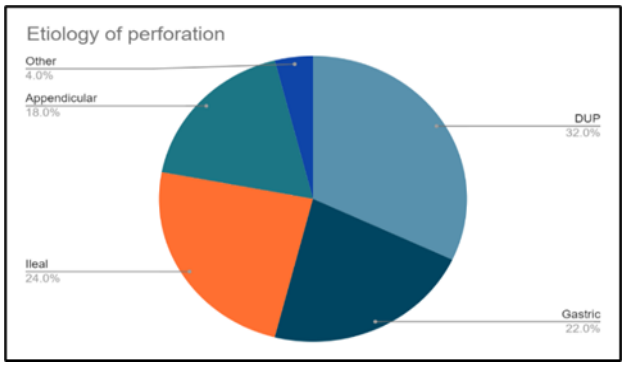

Figure 2: Eitology of perforation.

Grahams Omental patch repair was done in 27 patients (54%), primary closure was done in 13 patients (26%) and Appendicectomy was done in 9 patients (18%) colostomy was done in one patient.

Table 2: Mortality pattern according to procedure performed.

Surgery	Mortality	Percentage (%)
Omental patch	1 of 27	3.8
Primary repair	2 of 13	15.3
Appendicectomy	Nil	-
Colostomy	1 of 1	100

Post operative complications included wound infection (14%), anastomotic leak (8%), pneumonia with other respiratory complications (14%), septicemia (8%). Post operative complications were noted mainly in patients with associated comorbidities, late presentation, old age. Overall mortality was 8%.

The mortality pattern according to the age, time of presentation from onset of symptoms and surgery performed are as follows.

Table 3: Age wise distribution of mortality.

Age (Years)	Mortality	Percentage (%)
15-25	Nil	-
26-40	2 of 22	9.09
41-55	1 of 15	6.3
>55	1 of 2	50

Table 4: Mortality pattern according to time of presentation of patient.

Time of presentation (Hours)	Mortality	Percentage (%)
First 24	Nil	-
24-72	1 of 19	5.2
>72	3 of 16	18.7

DISCUSSION

Perforation peritonitis (due traumatic or non-traumatic causes) is a common surgical emergency in clinical practice, 44% patient belonged to 26-40 age group with male predominance (male: female ratio being 4.5:1). Similar findings were recorded in another study.[3]

Perforated duodenal ulcer (32%) and illeal perforation (24%) were most common in our study similar findings were present in a study conducted by Yadav et al, gastric perforation in around 22% and the remaining included jejunal, colonic and appendicular perforation.[4] Our study showed that majority of perforation was seen in proximal bowel, similar findings were seen in study conducted among Asian population.[5] This is in contrast to study developed from USA, Japan, Greece where majority of patients presented with distal bowel perforation.[6]

Peptic ulcer perforation patients were managed by adequate hydration, proper antibiotic cover and closure of the perforation by Graham's Patch repair which showed significantly reduced mortality rate. Other treatment options for peptic ulcer perforation include Billroth I, Billroth II procedure, laparoscopic repair of the perforation by primary closure.

Tuberculosis and typhoid were the cause behind illeal perforation in our series. Patient with illeal perforation were managed by primary closure of the defect, 4% patient presented with illeo-caecal perforation for which right hemicolectomy was done. Intestinal tuberculosis usually affects in the terminal ileum and ileo-caecal junction.[7] The management of tubercular perforation depends on factors such as age, general condition of patient, number of perforations, site, condition of bowel. For typhoid perforation primary closure is safe and effective method.[8] Primary closure was done in 26% patient in our series, with low mortality and morbididty.

In our series the cases which had perforation at the tip of appendix for all these cases appendectomy with drain insertion was done. Commonly seen complication in these cases was colonic perforation were very rare constituting only 2% of the total cases. The most common complication is the morbidity due to leakage, peritonitis, septic shock, respiratory complications. Re look laparotomies and abdominal washout had a definite role to play in perforation peritonitis in our study 12% patients underwent re exploration.[9]

Limitations of our study was cases of perforation due anastomotic dehiscence, corrosive poisoning, traumatic perforation were not included.

CONCLUSION

Perforation Peritonitis patients need early diagnosis and prompt surgery there is no substitute for it. To conclude, as indicated on our study the spectrum of perforation peritonitis in India continues to be different from its western counterpart with duodenal ulcer perforation, perforating appendicitis, typhoid perforation and tubercular perforation being the major causes of generalized peritonitis. Malignancy as a cause of perforation is rare as indicated in our study. Mortality in our study came out to be 8%.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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