

A Single Centre Experience of Perforation Peritonitis in a Tertiary Care Hospital in North-East India: A Retrospective Study.

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ABSTRACT

Background: Perforation peritonitis is one of the most common surgical emergencies in India. The spectrum of etiology of perforation in tropical countries continues to be different from its Western countries. The objective of the study was to highlight the spectrum of perforation peritonitis as encountered at Jawaharlal Nehru Institute of Medical Sciences, Imphal Manipur. **Methods:** Sixty five consecutive cases of perforation peritonitis over a period of 16 months were reviewed in terms of clinical presentation, operative findings and post-operative course retrospectively at JNIMS, Imphal. All patients were resuscitated and underwent emergency exploratory laparotomy. On laparotomy the cause of perforation peritonitis was confirmed. **Results:** The most common cause of perforation in our series was perforated duodenal ulcer (54 cases) followed by gastric perforation and perforated appendix. Despite delay in seeking medical treatment, the overall mortality (3%) was better than other published series. **Conclusion:** In contrast to western literature, where lower gastrointestinal tract perforations predominate, upper gastrointestinal tract perforations constitute the majority of cases in India. Most common cause of perforation peritonitis was perforated duodenal ulcer, followed by perforated gastric ulcer. There was no perforation due to malignant neoplasms during the study period.

Keywords: Acid-peptic disease, appendicular perforation, perforation peritonitis, spectrum of perforation.

INTRODUCTION

Perforation peritonitis is the most common surgical emergency in India. Despite advances in surgical techniques, antimicrobial therapy and intensive care support, management of peritonitis continues to be highly demanding, difficult and complex. The spectrum of etiology of perforation continues to be different from that of western countries.^[1] Yet there is paucity of data from India regarding its etiology, prognostic indicators, morbidity and mortality patterns.^[2] Our study was designed to highlight the spectrum of perforation peritonitis as encountered by us at Jawaharlal Nehru Institute of Medical Sciences, Manipur.

MATERIALS AND METHODS

Data of 65 patients of perforation peritonitis operated at the Department of Surgery, JNIMS,

Manipur, India over a period of 16 months (May 2017 – August 2018) was analysed. All cases found to have peritonitis as a result of perforation of any part of gastrointestinal tract at the time of surgery were included in the study. Cases with either primary peritonitis or that due to anastomotic dehiscence or due to penetrating trauma were excluded.

All cases were studied in term of clinical presentation, radiological investigations done, operative findings and post-operative course. Data was collected from indoor patient records, operation theatre records and out-patient department follow up of cases.

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 warm normal saline and the decision to insert a drain was left to the discretion of the operating surgeon. Abdomen was closed with continuous, delayed absorbable suture material. Although all patients received appropriate perioperative broad spectrum antibiotics, the drug regimen was not uniform.

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RESULTS

A total of 65 patients were studied. Mean age was 48.9 years (range being 13 - 83 years) with majority of patients being males (83%). More than half of the patients (54%) were aged 50 years or more. The clinical presentation of the patients varied according to the site of perforation [Table 1]. The patient of duodenal ulcer perforation usually had a short history of pain starting in epigastrium or upper abdomen along with generalized tenderness and guarding.

Abdominal pain was the most common sign (65;100%) followed by abdominal distension and altered bowel habit. A total of 60 cases (92%) showed pneumoperitoneum on chest x-ray. The time taken by the patient between onset of symptoms and presentation to the hospital was less than 12 hours in 35(54%) cases and more than 12 hours in 30(46%) cases.

Appendicular perforations had characteristic pain starting in the periumbilical area or right iliac fossa along with vomiting or fever. None of the patients of appendicular perforation showed evidence of gas under diaphragm on erect chest X-Ray. Acid peptic disease was the most common cause of gastroduodenal perforation (91%) followed by acute appendicitis (6%) and blunt trauma (1.5%).

Table 1: Pre-operative data.

Parameter	Number of cases (%)
Age in years	
• <50	30 (40)
• ≥50	35 (54)
Sex	
• Male	54 (83)
• Female	11 (17)
Signs & symptoms	
• Abdominal pain	65 (100)
• Vomiting	30 (46)
• Abdominal distension	44 (68)
• Fever	26 (40)
• Altered bowel habit	38 (58)
• Septicaemia	12 (18)
Duration of resuscitation (hrs)	
• < 12 hrs	35 (54)
• ≥12 hrs	30 (46)
Investigation findings	
• Pneumoperitoneum on Chest X-ray	60 (92)
• Hypokalemia	3 (4)
• Hyponatremia	12 (19)
• Raised blood urea and creatinine	16 (25)

Table 2: Co-morbidities present.

Co-morbidities	Frequency (%)
Family history of TB	5 (8)
History of TB	2 (3)
Renal problem	12 (19)
Diabetes mellitus	6 (9)

[Table 2] shows the associated co-morbidities. 12 of the cases (19%) had associated renal problem whereas diabetes mellitus, family history of TB and

past history of TB were also found in smaller proportions.

In a majority of patients (90%) the peritonitis was generalized and the contamination was either purulent or faecal. Graham's patch repair was done in 59(91%) patients. Primary repair and resection and anastomosis were done in 1(1.5%) patient. Appendicectomy was done in 4 (6%) patients.

In 27 of the 65 cases there were post-operative complications [Table 3]. Postoperative complications recorded were wound infection (15%), wound dehiscence (6%), respiratory complications (6%), septicaemia (4%), and abdominal collection (1%). The overall mortality was 3%. Postoperative complication was noticed mostly in patients presented late with faecal peritonitis, septicaemia, and associated co-morbidity.

Table 3: Post-operative complications encountered

Complications	Frequency (%)
Wound infection	10 (15)
Wound dehiscence	4 (6)
Respiratory complications	6 (9)
Septicaemia	4 (6)
Abdominal collection	1 (1.5)
Mortality	2 (3)

DISCUSSION

Perforation peritonitis is a frequently encountered surgical emergency in tropical countries like India, most commonly affecting young men in the prime of life as compared to the studies in the west where the mean age is between 45–60 years.^[3] But in our study the mean age was 48.9 years. Male-to-female ratio was 5:1 in our study which was in accordance to several studies done earlier.

In many cases the presentation to the hospital is late with well-established generalized peritonitis with purulent/faecal contamination and varying degree of septicaemia. The signs and symptoms are typical and it is possible to make a clinical diagnosis of peritonitis in all patients.

The perforations of proximal gastrointestinal tract were more common than perforations of distal gastrointestinal tract as has been noted in earlier studies from India,^[1] which is in sharp contrast to studies from developed countries like the United States, Greece and Japan which revealed that distal gastrointestinal tract perforations were more common.^[4-6]

Not only the site but the etiological factors also show a wide geographical variation. Khanna et al from Varanasi studied 204 consecutive cases of gastrointestinal perforation and found that over half (108 cases) were due to typhoid. They also had perforations due to duodenal ulcer (58), appendicitis (9), amoebiasis (8) and tuberculosis (4).^[7] These figures show the importance of infection and infestation in the third world. But in our study majority were due to duodenal perforation (83%) and no cases were due to infections/infestations.

At the other end of the spectrum, Noon et al from Texas studied 430 patients of gastrointestinal perforation and found 210 cases to be due to penetrating trauma, 92 due to appendicitis and 68 due to peptic ulcer.^[8] This shows the importance of trauma in developed countries. In our study only one case was due to blunt trauma and one case was penetrating bullet injury but excluded from the study. Duodenal to gastric ulcer ratio was 11:1 in the present series. This is in accordance with the ratio 15:1 noted in an earlier study from India.^[1] The ratio reported from Contrary to this the ratio is 4:1 in studies from United Kingdom and United States is quite low (4:1).^[10,11]

There were 2 (3%) deaths within 30 post-operative days which is less compared to other published series 10-12 despite delay in seeking medical treatment (46%). This was probably because of lower mean age (which is a factor determining mortality) of patients in our study. The main cause of death in the present series of patients was septicaemia. Therefore contamination is a crucial consideration in patients with peritonitis and problem of mortality is a problem of infection. So by early surgical intervention, we succeeded in preventing further contamination by removing the source of infection although the end result will also depend upon the general host resistance and the antibiotic sensitivity of the organism.^[13]

CONCLUSION

In conclusion, the spectrum of perforation peritonitis in India continues to differ from western countries. Perforations are seen mostly in the small bowel rather than the large bowel. Majority of perforations are noticed in the duodenum due to acid-peptic disease followed by gastric ulcer and appendix perforation. Malignancy was not encountered during our study period in our setup. Aggressive resuscitation and early minimum surgery are required to avoid the high morbidity and mortality. Major complications noticed were wound infection and respiratory complications. Overall mortality was 3 % which was significantly lower compared to other studies.

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