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A Clinical Study of Perforation Peritonitis

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ABSTRACT

Background : Perforation peritonitis is the most common surgical emergency in India. The spectrum of etiology of perforation in Tropical countries continues to be different from its Western counterpart. The objective of the study was to highlight the spectrum of perforation peritonitis managed in RIMS,Kadapa.

Methods : A retrospective study was carried out between May 2012 and June 2015 in the department of Surgery, RIMS,Kadapa. It included 200 patients of perforation peritonitis (diffuse or localized) who were studied retrospectively in terms of cause, site of perforation, surgical treatment, complications, and mortality. Only those patients who underwent exploratory laparotomy for management of perforation peritonitis were included.

Results : The commonest cause of perforation peritonitis included 98 cases of peptic ulcer disease (80 duodenal ulcers and 18 gastric ulcers) followed by appendicitis (34 cases), typhoid fever (24 cases), tuberculosis (20cases), and trauma (12). The overall mortality was 8%.

Conclusions : Perforation peritonitis in India has a different spectrum as compared to the western countries. Peptic ulcer perforation, perforating appendicitis, typhoid, and tubercular perforations are the major causes of gastrointestinal perforations. Early surgical intervention under the cover of broad spectrum antibiotics preceded by adequate aggressive resuscitation and correction of electrolyte imbalances is imperative for good outcomes minimizing morbidity and mortality.

Inclusion criteria

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.

Exclusion criteria

All cases with either primary peritonitis or that due to anastomotic dehiscence were excluded.

All cases were studied in term of clinical presentation, radiological investigations done, operative findings and postoperative course. Data was colleted from indoor patient records, operation theatre records and outpatient 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 4-5 litres of warm normal saline and the decision to insert a drain was left to the discretion of the operating surgeon. Abdomen was closed with continuous, number one non-absorbable suture material. Although all patients received appropriate perioperative broad spectrum antibiotics, the drug regimen was not uniform

3. Results :

Table 1: Preoperative data

PARAMETER		N
SEX	MALE FEMALE	138 (69%) 62 (31%)
Comorbid conditions	• Respiratory disease • Diabetes mellitus • Renal disease • Hypertension	42 30 20 12
Symptoms and signs	• Abdominal pain • Altered bowel habit • Nausea and vomiting • Abdominal distention • Positive H/O NSAID (>6 months) • Tachycardia • (pulse > 100/minute)	196 (98%) 128 (64%) 86 (42%) 72 (36%) 48 (24%) 74 (37%)

A total of 200 patients were studied. Mean age was 35 years (range from 18 to 80 years) with majority of patients being males (69%). Male : female ratio was 2.2 : 1, respectively. 98%patients presented with the history of abdominal pain, 64% with altered bowel habit, 42% with nausea and vomiting, and 36% with abdominal distention. 24% patients had positive history of NSAID intake for more than 6 months (Table 1).In our study, 15% cases had associated comorbid conditions. The commonly associated comorbidity was chronic obstructive pulmonary disease followed by renal disease, diabetes, and hypertension.

Table 2: Etiology and site of perforations

PARAMETER		N
Causes of perforation	• Acid peptic disease • Appendicitis • Typhoid • Tuberculosis • Trauma • Malignancy • Bowel strangulation • Band obstruction perforation	98 (49%) 34 (17%) 24 (12%) 20 (10%) 12 (11%) 5 (2.5%) 4 (2%) 3 (1.5%)
Site of perforation	• Duodenum • Ileum • Appendix • Jejunum • Stomach • Sigmoid colon • Caecum • Transverse colon • Descending colon	74 (37%) 46 (23%) 34 (17%) 19 (9.5%) 15 (7.5%) 5 (2.5%) 3 (1.5%) 2 (1%) 2 (1%)
Surgical procedure	• Omental patch (With feeding jejunostomy) • Stoma • Appendectomy • Primary repair • Resection-anastomosis • Limited resection with Ileo-ascending anastomosis • Right hemicolectomy	87(43.5%) 45(22.5%) 33(16.5%) 15(7.5%) 13(6.5%) 4 (2%) 3 (1.5%)

79%patients had pneumoperitoneum on chest X-ray in erect posture. Multiple air fluid levels on abdominal X-ray in erect position were present in 28% patients.Electrolyte imbalances included hyponatremia in 21%, hypokalemia in 19% and elevated serum

creatinine in 18% patients. Most of the patients were operated within 24 hours of presentation under the cover of broad spectrum antibiotics after adequate resuscitation and correction of electrolyte imbalances.

The commonest cause of perforation peritonitis in our study was gastroduodenal perforation due to acid peptic disease (49%) followed by appendicitis (17%), typhoid fever(12%), tuberculosis (10%), and trauma (11%), (Table 2).

Patients of peptic ulcer perforation usually had a short history of pain starting in epigastrium followed by generalized tenderness. 24% of these patients had history of NSAID intake for >6 months. 87 such were managed by an omental pedicle repair, in the other 4 cases a feeding jejunostomy was also done due to the large size of the perforation.

Patients with appendicular perforation presented with right iliac fossa pain along with localized peritonitis. 8% of these patients were managed by a limited resection with Ileoascending anastomosis due to associated unhealthy caecum.

Patients of typhoid perforation had an initial history of high grade fever prior to abdominal complaints. 83% were located in the ileum and 40% were multiple.

Of the 20 patients of tubercular perforation, 60% had previous history of tuberculosis and 50% of these patients took antitubercular therapy for <6 months.In cases of traumatic perforation, the most common site was jejunum (49%) followed by ileum (42%).

The most commonly performed procedure was omental pedicle closure of peptic ulcer perforation (43.5%), followed by exteriorization of the gut in the form of ileostomy or colostomy (22.5%). Appendectomy was the third most common procedure (16.5%), (Table 2).

Table 3: Postoperative complication

Complication	N
• Wound infection	65 (32.5%)
• Dyselectrolytaemia	42 (31%)
• Septicemia	40 (20%)
• pnemonia	32 (165)
• Abdominal collection	28 (14%)
• Acute renal failure	18 (9%)
• Burst abdomen	16 (8%)
• Anastomotic leak	8 (4%)
• Mortality	14 (7%)

The most common complication was wound infection followed by dyselectrolytaemia, abdominal collection, and respiratory complications. The morbidity rate was higher in the patients with intestinal perforation (58%) than those with gastroduodenal perforation (32%).The overall mortality rate was 8%. Factors involved in death included septicemia due to fecal peritonitis, respiratory complications, pulmonary embolism, and late presentation.

4. Discussion :

One of the most common surgical emergencies is perforation peritonitis [6]. It is commonly seen in a younger age group in the tropical countries (mean age in our study was 35 years)as compared to the studies in the West [7–9].More commonly the perforations involve the proximal part of the gastrointestinal tract; [10–13] this being in contrast to studies from the western countries, where perforations are common in the distal part [14–16].Etiological factors also show a wide geographical variation. According to a study from India, infections formed the most common cause of perforation peritonitis [17], around 50% cases in this study were due to typhoid. In our study 22% of the cases were due to typhoid and tuberculosis. In contrast to this, Noon et al. [18] from Texas in their study reported only 2.7% cases due to infections. Also studies from the west have shown that around 15–20% cases are due to malignancy [19, 20], this being in stark contrast to our study where malignancy was ascertained to be the cause of perforation peritonitis in only 3%of the cases. This shows that malignancy is not a common cause of perforation peritonitis in our setup as compared to our western counterparts. The overall mortality due to perforation peritonitis ranges between 6 and 27% [21]. The mortality rate in our study was 7%. One of the most important factors responsible for mortality is septicemia. Adequate preoperative resuscitation (with fluids, etc.), correction of electrolyte imbalances followed by an early surgical intervention, to remove the source of infection and stop further contamination, is imperative for good outcomes minimizing morbidity and mortality.

5. Conclusion :

Perforation peritonitis in India has a different spectrum as compared to the western countries. Peptic ulcer perforation, perforating appendicitis, typhoid, and tubercular perforations are the major causes of gastrointestinal perforations. Early surgical intervention under the cover of broad spectrum antibiotics preceded by adequate aggressive resuscitation and correction of electrolyte imbalances is imperative for good outcomes minimizing morbidity and mortality.

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