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Original Research Article.

Study of Surgical Management of Jejunal and Ileal Perforation At a Tertiary Care Hospital

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ABSTRACT

Background: Perforation of the small bowel is a common abdominal emergency faced by the general surgeon. Hence, the present study was undertaken for assessing surgical management of Jejunal and Ileal perforation.

Materials & Methods: A prospective study was carried out of 50 patients, admitted to Department of General Surgery, Rama Medical College Hospital and Research Centre, Hapur, Uttar Pradesh (India) with a diagnosis of small bowel perforation. Only patients who underwent surgery were taken. The data was collected with respect to their age and sex. A detailed clinical history was taken for all these patients with an emphasis on the presenting complaints. A thorough physical examination was done for all patients, vital signs were recorded. All patients were operated upon after adequate resuscitation. Patients were subjected to laparotomy with incisions depending on the probable site of perforation. The perforations were managed according to the protocol followed in our hospital. The surgical procedures undertaken were recorded.

Results: Ileal perforation was the most common cause of small bowel perforation accounting for 80% of cases. Tubercular perforation accounted for 12% of the ileal perforations while iatrogenic perforation was seen in 2 case of ileal perforation. In one case the patient underwent MTP one-week preceding presentation which was followed by pain with abdominal distension. On exploration a small rent was found at the fundus of uterus along with a perforation at the jejuno-ileal junction and another in the sigmoid colon; primary repair was done of both, by single layer interrupted suture using Vicryl. On 13th post-operative day patient developed enterocutaneous fistula, with discharge of formed stools from drain site; the patient was treated conservatively, and the fistula healed spontaneously after 8 weeks.

Conclusion: Erect abdomen X-ray is very useful investigation for diagnosis. Primary closure of perforation in single layer interrupted sutures is a viable option for repair. Resection and anastomosis were also sometimes required.

Key words: Surgical, Jejunal, Ileal.

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INTRODUCTION

Perforation of the small bowel is a common abdominal emergency faced by the general surgeon. While typhoid, trauma and tuberculosis are the commonly encountered causes of such perforation, other aetiology is varied and includes perforation of diverticula, infarctions of diverse aetiology and tumour perforations. Sometimes gross appearance, and even histopathological examination, reveals no obvious aetiology.[1, 2] As perforative peritonitis is an emergency, the outcome of patients with jejunal/ ileal perforations depends on a lot of factors including general health of the patient, the time of presentation, the time taken for diagnosis, the pre-hospital care, the local findings, etc. Similarly, the type of operative procedure also varies with these factors.[3]

The role of ileostomy as a first line operation for typhoid perforation continues to be debated. It has been recommended for patients with severe peritoneal contamination, enhancing intestinal decompression with improved healing, early resolution of ileus and early start to enteral feeding. Morbidity and hospital stay have been found to be less with patients on ileostomy. Combining ileostomy with resection aims to further reduce the risk of reperforation. The major drawback is the need for a second operation to restore intestinal continuity, the specialized care before closure and the attendant cost which reduces its popularity. Many surgeons resort to ileostomy only for its life saving value in patients with continuing peritoneal contamination from reperforation or anastomotic leak.[4- 7]

Hence, the present study was undertaken for assessing surgical management of Jejunal and Ileal perforation.

MATERIALS & METHODS

A prospective study was carried out of 50 patients, admitted to Department of General Surgery, Rama Medical College Hospital and Research Centre, Hapur, Uttar Pradesh (India) with a diagnosis of small bowel perforation. Only patients who underwent surgery were taken. The data was collected with respect to their age and sex. A detailed clinical history was taken for all these patients with an emphasis on the presenting complaints. A thorough physical examination was done for all patients, vital signs were recorded. Presence of guarding / rigidity, rebound tenderness, liver dullness obliteration was looked for in all patients. All patients were operated upon after adequate resuscitation. Patients were subjected to laparotomy with incisions depending on the probable site of perforation. The perforations were managed according to the protocol followed in our hospital. The surgical procedures undertaken were recorded. Patients were followed up in the post-operative period to know the post-operative complications, morbidity, and mortality rates. The data was analysed to find the usefulness of clinical features and investigation for the diagnosis.

Inclusion Criteria

- Patients aged > 12 years
- Patients presenting with small bowel perforation and managed surgically.

Exclusion Criteria

- Patients aged <12 years
- Patients managed conservatively (non-surgically).

All the results were analysed by SPSS software.

RESULTS

Ileal perforation was the most common cause of small bowel perforation accounting for 80% of cases. Tubercular perforation accounted for 12% of the ileal perforations while iatrogenic perforation was seen in 2 case of ileal perforation. In one case the patient underwent MTP one-week preceding presentation which was followed by pain with abdominal distension. On exploration a small rent was found at the fundus of uterus along with a perforation at the jejuno-ileal junction and another in the sigmoid colon; primary repair was done of both, by single layer interrupted suture using Vicryl. On 13th post-operative day patient developed enterocutaneous fistula, with discharge of formed stools from drain site; the patient was treated conservatively, and the fistula healed spontaneously after 8 weeks.

In another case, the patient underwent diagnostic laparoscopy for abdominal koch's; during the procedure there was an iatrogenic perforation. Exploratory laparotomy was done with primary repair of the ileal rent with vicryl 3-0. After 7 days he developed enterocutaneous fistula, which was managed conservatively for 6 weeks. On no improvement, exploratory lap was done; exploration revealed a conglomerated mass of small gut, transverse colon and caecum, with perforation in the ileum 30 cm from ileo-colic junction, resection of the ileum and ascending colon with ileotransverse anastomosis was done, side to side, in two layers, with pds 3-0.

Perforated meckels diverticulum was found in 2 cases; one of them presented as perforated Littre's hernia. The incision was midline in (92%), inguinal converted to midline in 4% cases and mcburney's incision converted to midline in (4% cases).

One case presented with obstructed, right sided incomplete inguinal hernia; an extended right groin incision was made. On opening the sac feces and pus came out and a perforated Meckels diverticulum (Littre's hernia) was detected, A midline incision was added, and loop ileostomy was done.

Another case presented with obstructed left inguinal hernia; left inguinal incision was made, and a small strangulated ileal loop with perforation, 2 ft from IC junction, was found. The incision was then converted to midline, and limited resection of the small gut loop was done with primary anastomosis in single layer, interrupted, along with darning of left side inguinal wall.

One case opened on suspicion of acute appendicitis abdomen, with Macburney's incision, was later converted to lower midline after finding a perforated Meckel's diverticulum, around 90 cm from IC junction. Total resection of the diverticulum-bearing segment of the gut with repair in single layer, interrupted, with vicryl 2-0, was done. Resection and end-to-end anastomosis in 2 layers were done in 8% of cases, Simple closure, in 1 layer, was done in 40% of cases. Resection and end-to-end anastomosis, in 1 layer, was done in 12% of cases and simple closure in 2 layers was done in 20% of cases. Ileostomy was done in 20% of cases.

Table 1: Distribution of cases based on Post –Operative Diagnosis

Post –Operative Diagnosis	Number (n=50)	%
Ileum Perforation (n=40)		
Tuberculosis	6	12.00
Typhoid	5	10.00
Iatrogenic	1	2.00
Trauma	10	20.00
Ischemic Bowel Disease	3	6.00
Meckels diverticulum	2	4.00
Non-Specific	13	26.00
Total	40	80.00
Jejunum Perforation (n=10)		
Tuberculosis	2	4.00
Typhoid	-	-
Traumatic	7	14.00
Iatrogenic	1	2.00
Ischemic Bowel Disease	-	-
Non-specific	-	-
Total	10	20.00

Table 2: Distribution of cases based on Type of Incision.

Type of incision	Number (n=50)	%
Mc Burney (converted to midline)	2	4
Midline	46	92
Inguinal (converted to midline)	2	4
Total	50	100.00

DISCUSSION

Perforation is a serious complication of abdominal TB, associated with high morbidity and mortality. The perforation of tubercular ulcer maybe complete or incomplete (partly contained); complete perforations into peritoneal cavity occurs in small bowel where ulcers are deeper. Incomplete perforations occur in the large bowel, especially in the right iliac fossa, where they give rise to fecal abscesses. The low incidence of tuberculous perforation is due to reactive fibrosis of the peritoneum. However, in recent years, intestinal perforation, which was relatively rare in the past, has been reported more frequently. The cause of this remains unknown.[8- 10]

In the present study, Ileal perforation was the most common cause of small bowel perforation accounting for 80% of cases. Tubercular perforation accounted for 12% of the ileal perforations while iatrogenic perforation was seen in 2 case of ileal perforation. In one case the patient underwent MTP one-week preceding presentation which was followed by pain with abdominal distension. On exploration a small rent was found at the fundus of uterus along with a perforation at the jejuno-ileal junction and another in the sigmoid colon; primary repair was done of both, by single layer interrupted suture using Vicryl. On 13th post-operative day patient developed enterocutaneous fistula, with discharge of formed stools from drain site; the patient was treated conservatively, and the fistula healed spontaneously after 8 weeks Ameh et al from Zaria, Northern Nigeria, in a prospective nonrandomized study showed that patients who had segmental resection and anastomosis had lower reperforation and mortality rates than simple closure and wedge resection and closure. In one of the larger series from a centre involving 352 patients over 25 years, Athie et al from Mexico City, reported the benefits of directed resection of 10 cm of small bowel proximal and distal to a perforation site reducing morbidity and mortality to 1.72% compared to 33.47% and 7.20% when conventional simple closure or standard resection and anastomosis are used.[10- 12]

In another case, the patient underwent diagnostic laparoscopy for abdominal koch's; during the procedure there was an iatrogenic perforation. Exploratory laparotomy was done with primary repair of the ileal rent with vicryl 3-0. After 7 days he developed enterocutaneous fistula, which was managed conservatively for 6 weeks. On no improvement, exploratory lap was done; exploration revealed a conglomerated mass of small gut, transverse colon and caecum, with perforation in the ileum 30 cm from ileo-colic junction, resection of the ileum and ascending colon with ileotransverse anastomosis was done, side to side, in two layers, with pds 3-0. Sümer A et al represented their clinical experience in the treatment of intestinal perforation arising from typhoid fever. The records of 22 surgically treated patients with typhoid intestinal perforation were evaluated retrospectively. There were 18 males and 4 females, mean age 37 years (range, 8-64 years). Presenting symptoms were fever, abdominal pain, diarrhoea or constipation. Sixteen cases were subjected to segmental resection and end-to-end anastomosis, while 3 cases received 2-layered primary repair following debridement, one case with multiple perforations received 2-layered primary repair and end ileostomy, one case received segmental resection and end-to-end anastomosis followed by an end ileostomy, and one case received segmental resection and end ileostomy with mucous fistula operation. Postoperative morbidity was seen in 5 cases and mortality was found in one case. Intestinal perforation resulting from Salmonella typhi is an important health problem in Eastern and Southeastern Turkey.[13]

One case presented with obstructed, right sided incomplete inguinal hernia; an extended right groin incision was made. On opening the sac feces and pus came out and a perforated Meckels diverticulum (Littre's hernia) was detected, A midline incision was added, and loop ileostomy was done. Another case presented with obstructed left inguinal hernia; left inguinal incision was made, and a small strangulated ileal loop with perforation, 2 ft from IC junction, was found. The incision was then converted to midline, and limited resection of the small gut loop was done with primary anastomosis in single layer, interrupted, along with darning of left side inguinal wall. Caronna R et al compared primary repair vs intestinal resection in cases of intestinal typhoid perforations. 111 patients with acute peritonitis underwent emergency laparotomy: number of perforations, distance of perforations from the ileocaecal valve, and type of surgery performed was recorded. A laparostomy was then created and explored every 48 to 72 hours. The patients were then divided into two groups according to the surgical technique adopted at the initial laparotomy: primary repair (Group A) or intestinal resection with anastomosis (Group B). Clinical data, intraoperative findings, complications, and mortality were evaluated and compared for each group. In 104/111 patients we found intestinal perforations, multiple in 47.1% of patients. 75 had primary repair (Group A) and 26 had intestinal resection with anastomosis (Group B). Group B patients had more perforations than patients in Group A ($p = 0.0001$). At laparostomy revision, the incidence of anastomotic dehiscence was greater than that of primary repair dehiscence ($p = 0.032$). The incidence of new perforations was greater in Group B than in Group A ($p = 0.01$). Group B correlates with a higher morbidity and with a higher number of laparostomy revisions than Group A ($p = 0.005$). There was no statistical difference in terms of mortality between Group A and Group B. Presence of pus in the abdominal cavity at initial laparotomy correlates with significantly higher mortality.[14]

CONCLUSION

Erect abdomen X-ray is very useful investigation for diagnosis. Primary closure of perforation in single layer interrupted sutures is a viable option for repair. Resection and anastomosis were also sometimes required.

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