

TO STUDY COMPLICATIONS OF ILEOSTOMY IN PATIENTS OPERATED FOR PERFORATION PERITONITIS: OBSERVATIONAL STUDY

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Received : 27/07/2024
Received in revised form : 17/09/2024
Accepted : 01/10/2024

Keywords:
Perforation Peritonitis, Ileostomy, Complications.

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DOI: 10.47009/jamp.2024.6.5.95

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2024; 6 (5); 500-504



Abstract

Background: The acute abdomen accounts for up to 40% of all surgery emergency hospital admission. Perforation of the bowel especially ileal perforation is a serious complication and remains a significant surgical problem in all developing and under developed nations. There are many methods of surgically treating ileal perforation like primary closure, resection and anastomosis, ileostomy etc. To study early, intermediate and late complications of ileostomy in patients operated for perforation peritonitis **Materials and Methods:** This prospective study was carried out in the Department of Surgery, ASMC, Hardoi (UP) with sample size of 60. All cases were taken from September 2023 to August 2024. The patients admitted in surgical emergency with clinical diagnosis of perforation peritonitis. Exploratory laparotomy was done after taking risk consent. **Result:** In our study early complication was superficial stomal bleeding in 2 cases (10.5%) and retraction of stoma in 2 cases (10.5%) and in 1 case (5.3%) ischaemia. Intermediate complications were skin excoriation seen in 5 cases (26.4%) followed by stomal retraction in 1 case (5.3%) and mucocutaneous separation in 1 case (5.3%). Late complications was skin excoriation seen in 2 cases (10.5%) followed by stomal stenosis in 1 case (5.3%) and stomal prolapse in 1 case (5.3%). **Conclusion:** Ileostomy is a lifesaving procedure in cases of perforation peritonitis especially in Indian setting where most of the patients usually present late with severe sepsis and generalized peritonitis. Around 32% patients developed post operative ileostomy complications. Peristomal skin excoriation is the leading cause of morbidity in ileostomy patients accounting for 42 % of total ileostomy complications.

INTRODUCTION

The acute abdomen accounts for up to 40% of all surgery emergency hospital admissions. A large percentage of these cases are secondary to perforation or impending gastrointestinal perforation which happen to be the second most common cause for acute abdomen following appendicitis.^[1] In developing countries like India, the etiology and site of perforation continues to be different from developed countries where lower gastrointestinal tract perforations predominate.^[2] The incidence of Ileal perforation is also increasing mainly due to increased number of people presenting to the emergency department and also due to better diagnosis and improved reporting of cases.^[3] In india among the causes for Ileal perforations, typhoid Ileal perforations are the commonest followed by tubercular and other etiologies.^[4] Perforation of the bowel especially ileal perforation is a serious

complication and remains a significant surgical problem in all developing and under developed nations. It is now a settled issue that ileal perforation must be treated surgically. There are many methods of surgically treating ileal perforation like primary closure, resection and primary anastomosis, limited right hemicolectomy and ileostomy.^[5] Surgical procedure such as resection anastomosis and Right hemicolectomy all of which contribute to higher morbidity and mortality.^[6,7] Most series reporting simple closure of the perforation or resection and anastomosis; in case of multiple perforations, Of all the postoperative complications reported faecal fistula remains the most life threatening. The rate of its occurrence has been reported to be around 12% with a very high mortality rate.^[8] In view of this alarming situation, a shift in favour of a defunctioning protective ileostomy following primary closure of the perforation has been observed in recent years.^[9] The stoma made in emergency surgery have high short and long term complication

rate. Emergency stomas where the site has not been marked preoperatively by a stoma therapist are more prone to complications. These complications may severely affect a patient's quality of life.^[10]

Aim: To study complications of ileostomy in patients operated for perforation peritonitis in ASMC, Hardoi (UP)

Objectives

1. To study early complications of ileostomy in patients operated in ASMC Hardoi
2. To study intermediate complications of ileostomy
3. To study late complications of ileostomy.

MATERIALS AND METHODS

This prospective study was carried out in the Department of Surgery, ASMC Hardoi with sample size of 60. All cases were taken from September 2023 to August 2024. The patients admitted in surgical emergency with clinical diagnosis of perforation peritonitis were thoroughly examined and investigated. Exploratory laparotomy was done after taking risk consent. Thereafter The cases which were found to be having ileal perforations requiring construction of temporary ileostomy were collected and included in the study.

Inclusion Criteria

18-60 years of age group, 2-Both male and female, 3-Single or multiple ulcers within 3 feet of ICJ, 4-Typhoid and other non specific ulcers.

Exclusion Criteria

1. Age group less than 18 years,
2. Age group more than 60 years,
3. Single or multiple ulcers in more than 3 feet of ICJ,
4. Traumatic causes of perforation,
5. Existing Co-morbid conditions like diabetes, heart disease,
6. Complications of ileostomy occurring after 2 months. Present study was an institutional based observational study using prospective data collection.

Methodology

This prospective study was carried out in the Department of Surgery, ASMC Hardoi with sample size of 60. All admissions were done as case of acute abdomen. The diagnosis of perforation was made on standard criteria of abdominal pain, distension, tenderness, rigidity and the presence of free intraabdominal gas on radiography. The investigations carried out were complete blood picture, ESR, Widal test, blood urea, serum creatinine, blood sugar, serum electrolytes, abdominal and chest radiographs and abdominal ultrasound. Patients were resuscitated with intravenous fluids. Nasogastric tube and urethral catheter were placed. Intravenous antibiotics comprising ceftriaxone, and metronidazole were commenced immediately. After resuscitation all patients were subjected to exploratory laparotomy under general anesthesia within 24-48 hours of hospitalization. Laparotomy was performed by a

midline incision. Peritoneal lavage was carried out with around 3 litres of normal saline. Whole length of intestine was inspected for perforation site. Peritoneal fluid culture and ulcer margin biopsy were also done. Loop ileostomy or double barrel ileostomy or primary closure with proximal ileostomy was done in two layers with silk 2-0 as the surgical procedures. Drains were placed in right paracolic gutter and pelvic cavity. Abdomen was closed by mass closure technique with interrupted ethilon. Post-operatively patients were kept nil orally till functioning of ileostomy and at that time nasogastric tube was removed. Following which they were started on liquid diet for a day and if no episode of vomiting occurred, patients were shifted to semi-solid foods in next 2-3 days and then a gradual transition to solid foods was made. Patients were continued on intravenous antibiotics (Ceftriaxone 1 gram, BD for 1 week and metronidazole 500 miligram TDS for 1 week). Drains were removed between third to tenth post-operative days depending upon the amount of drainage in 24 hours. Patients were observed for any ileostomy related complications in early, intermediate and late postoperative period. Follow up was done till 2 month post-op.

RESULTS

Age distribution: Out of 60 patients, 13 (22%) were in the age group of 18-30 years, 30 (50%) in the age group of 31-45 years, 17 (28%) were in the age group of 46-60 years. Minimum age of presentation was 18 years & maximum age of presentation was 60 years. Sex: Among the 60 patients, 49 (81%) were male and 11 (19%) were female. Time of presentation; 8 (13%) patients presented within 24-48 hours of their symptoms, 32 (53%) within 48-72 hours and 20 (34%) patients presented after 72 hours of their symptoms.

Presenting signs and symptoms

Abdominal pain was present in all the patients (100%). Fever and peritonitis was present in 56 (94%) of the patients, vomiting in 42 (70%), diarrhoea in 15 (25%), constipation in 45 (75%), abdominal distension in 42 (70%). 19 (32%) patients were in shock at the time of presentation. [Table 1]

On X-ray abdomen AP erect 57 (95%) of the patients had gas under diaphragm. 13 (22%) patients had multiple air fluid levels which was due to mechanical obstruction or paralytic ileus after perforation peritonitis. 10 (18%) had ground glass appearance suggestive of some kind of peritoneal contamination, 3 (5%) patients had dilated gut. In our study, out of 60 patients 12 (20%) patients had hemoglobin level <8gm%, 32 (54%) patients had hemoglobin level between 8gm%-10gm% and 16 (26%) patients had hemoglobin level more than 10gm%.

Intra operative findings On exploring the abdomen, 58 (97%) patients had peritoneal contamination with either pus, faecal matter or gangrenous gut. 24 (40%)

patients had gangrenous changes in the small bowel. 36 (60%) had adhesions in the form of interloop, parietal, postoperative band adhesions, 3 (5%) had non-passable stricture in the ileum. [Table 2]

Site and size of perforations: Out of these 60 patients, 15 (25%) patients had their perforations within 1 feet from the ICJ, 31 (52%) within 1-2 feet and 14 (23%) had their perforation within 2-3 feet from the ICJ. Out of the total perforations, 48 (80%) perforations were 0-10 mm in size and 12 (20%) were >10 mm in size. [Table 3]

Type of Surgery

In 29 (49%) of patients, the perforation was exteriorized as a loop ileostomy. In 19 (31%), the perforation were repaired primarily in 2 layers with interrupted stitches and proximal ileum was exteriorized as a loop ileostomy. In 12 (20%) of patients, the gangrenous bowel segment was resected and the two cut ends were exteriorized as a double barrel ileostomy. [Table 4]

Ileostomy Complications

In our study 19(31.6%) patients developed complications in post operative period .During the hospital stay and in the follow up period, we observed complications like skin excoriation which was the most common i.e. in 8 (42.1%)patients, followed by stomal retraction in 3 (15.7%) patients. There was

prolapse in 1(5.3%) patient, superficial bleeding in 2 (10.5%), muco-cutaneous separation occurred in 2(10.5%) patients, stomal stenosis occurred in 1 (5.3%) of the patients. 1 (5.3%) mortalities were also recorded in the study time. [Table 5]

Out of 60 patients, 60 (60%) had enteric perforation, 30 (30%) had tubercular perforation, 10 (10%) had non-specific causes. [Table 7]

In early post operative period i.e. within 7 days, 7 patients developed complications. Most common complication observed was superficial stomal bleeding in 2 (10.5%) and retraction of stoma in 2 (10.5%) patients. 1 (5.3%) patient developed ischaemia of ileostomy. [Table 6] In intermediate post operative period i.e. after 7 days and upto 1 month, 8 patients were affected by ileostomy complications; most common of which was skin excoriation seen in 5 (26.4%) patients followed by stomal retraction in 1(5.3%) patient and mucocutaneous separation in 1 (5.3%) patient. [Table 6]. In late post operative period i.e. after 1 month and upto 2 month, 4 patients were affected by ileostomy complications; most common of which was skin excoriation seen in 2(10.5%) patients followed by stomal stenosis in 1(5.3%) and stomal prolapse in 1(5.3%) patient. [Table 6].

Table 1: Presenting signs and symptoms (n=60)

Presenting sign and symptom	No. of patients	Percentage
Abdominal pain	60	100
Fever	56	94
Peritonitis	56	94
Vomiting	42	70
Diarrhoea	15	25
Constipation	45	75
Abdominal distension	42	70
Shock	19	32

Table 2: Intra-operative findings. (n=60)

Findings	No. of patients	Percentage
Peritoneal contamination	58	97
Gangrenous gut	24	40
Adhesions	36	60
Stricture (non-passable)	3	5

Table 3: Details of perforation. (n=60)

Distance from Ileo-caecal junction(feet)	No. of patients	Percentage
0-1	15	25
1-2	31	52
2-3	14	23
Size (mm)		
0-10	48	80
>10	12	20

Table 4: Type of surgery performed (n=60)

Type of Surgery	No. of Patients	Percentage of patients
Loop Ileostomy	29	49
Proximal loop ileostomy with distal primary repair	19	31
Double barrel ileostomy	12	20

Table 5: ileostomy complications (n=19)

Complications	Number of patients	Percentage
Peristomal skin excoriation	8	42.1
Retraction	3	15.7

Mucocutaneous separation	2	10.5
Stomal stenosis	1	5.3
Prolapse	1	5.3
Superficial bleeding	2	10.5
Ischaemia	1	5.3
Peristomal hernia	0	-
Death	1	5.3

Table 6: Comparison of post operative ileostomy complications according to time of presentation. (n=19)

Complications	Early complications (within 7 days)		Intermediate complications (7 days to 1 month)		Late complications (1 month to 2 month)	
	No. of Patients	%	No. of patients	%	No. of patients	%
Peristomal skin excoriation	1	5.3	5	26.4	2	10.5
Retraction	2	10.5	1	5.3	0	-
Mucocutaneous separation	1	5.3	1	5.3	0	-
Stomal stenosis	0	-	0	-	1	5.3
Prolapsed	0	-	0	-	1	5.3
Superficial bleeding	2	10.5	0	-	0	-
Ischaemia	1	5.3	0	-	0	-
Peristomal hernia	0	-	0	-	0	-
Death	0	-	1	5.3	0	-

Table 7: Histopathological report

Aetiology/HPE	No. of patients	Percentage
Typhoid	36	60
Tubercular	18	30
Nonspecific inflammation	6	10

DISCUSSION

Mean age of ileostomy formation for perforation peritonitis was 38.9 years. The most common stoma made in our study was loop ileostomy (49%) followed by primary repair of perforation with proximal ileostomy (31%) and double barrel ileostomy (20%) [Table 4] with most of them being formed in males 81%. Similarly in a study by Ahmed Z et al,^[11] loop ileostomy was the most common stoma formed (64%). Ileostomy accounted for 70% stomas in another study by Ghazi MA et al.^[12] Many surgeons consider loop ileostomy as preferred method for temporary fecal diversion. Loop ileostomy is considered generally easier to manage and is not associated with a greater rate of complications (in its construction and closure). In our study, 68.4% cases remained free of complications while 31.6% cases developed some sort of complication. This percentage is near to the study by Muneera et al,^[13] Del Pino et al,^[14] and Park et al,^[15] who reported complications in 42% patients, 35% patients and 34% patients respectively. We observed in our study that skin excoriation was the most common complication that occurred in 8 out of 19 patients (42.1%), 5 patients (26.4%) of these occurred in intermediate post operative period (from 7 days upto 1 month). These results are similar to study Pearl et al,^[16] who showed peristomal skin erythema as the most common complication in 42%. In our study retraction of the stoma was seen in 15.7% patients out of which 10.5% were reported in early post operative period (within 7 days) and 5.2% in intermediate post operative (from 7 days upto 1 month) period. Del Pino et al,^[14] observed stomal retraction in 11% cases. In our study mucocutaneous separation was also observed in 2(10.5%) cases (half in early post

operative period and half in intermediate post operative period) of total ileostomy complications. In our study, stomal stenosis was there in 5.3% cases in late post operative period. Del Pino et al,^[14] and Park et al,^[15] also revealed similar results in their study. Stoma prolapse is full-thickness protrusion of bowel through a stoma. In our study it presented as a late complication (from 1 month upto 2 months) in 5.3% cases. The results were near to study by Park et al,^[15] Muneer et al,^[17] and Sher-uz-zaman et al¹⁸. In these studied incidences of stomal prolapsed was 6%, 7% and 7% respectively. In our study 5.3% cases were observed developing ischemia of ileostomy. Same incidence was reported in study by Ahmad Z et al.^[11] In our study there was a mortality rate of 9% where patients died due to primary disease; which is comparable to the mortality rate of 18% reported by Joseph C et al.^[19]

Limitation Of Study: Limitation of our study is age of patients >18 years and < 60 years, and poor follow up by some patients in study.

CONCLUSION

Ileostomy is a life saving procedure in cases of perforation peritonitis. Around 32% patients developed post operative ileostomy complications. Peristomal skin excoriation is the leading cause of morbidity in ileostomy patients accounting for 42 % of total ileostomy complications. Temporary defunctioning protective ileostomy in moribund cases of peritonitis due to ileal perforation is a lifesaving procedure. Apart from reducing mortality, it plays a vital role in decreasing the incidence of complications like faecal fistula. In the construction of an intestinal stoma extreme care should be taken

to avoid all situations associated with risks for future stomal complications.

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