



CODEN [USA]: IAJPBB

ISSN : 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**

SJIF Impact Factor: 7.187

<http://doi.org/10.5281/zenodo.4259333>Available online at: <http://www.iajps.com>

Research Article

**STUDY TO COMPARE THE OUTCOMES OF PRIMARY REPAIR
VERSUS LOOP ILEOSTOMY IN ILEAL PERFORATION**¹Dr Hafiz Muhammad Faraz Hassan, ²Dr Muhammad Mashhood Ahmad Shad¹Punjab Medical College Faisalabad²King Edward Medical University, Lahore**Article Received:** September 2020 **Accepted:** October 2020 **Published:** November 2020**Abstract:**

Objective: Objective: Surgical problem that needs to urgent care is gastrointestinal perforation. In Egyptian era gastrointestinal perforations were found documented. Perforation was documented when peritoneal contamination occurs due to intraluminal contents and extends through the full thickness of hollow viscous. The aim of the study was to compare the outcomes primary repair and loop ileostomy in ileal perforated patients.

Study Design: Randomized controlled trial study.

Place and Duration of Study: This study was conducted at the General Surgery department of Mayo Hospital Lahore. Study was completed in one-year duration from June 2019 to June 2020.

Materials and Methods: Fifty proven patients of ileal perforation were enrolled in study and divided into two (group A, B) groups by lottery method. Group A managed with primary repair and B with loop ileostomy. SPSS version 23 was used for data analysis.

Results: Clinical presentations such as pain abdomen, vomiting, fever, constipation, abdomen distension and trauma of Group A was noted as n=5 (20%), n=6 (24%), n=4 (16%), n=3 (12%), n=5 (20%) and n=2 (8%), respectively. While, clinical presentations such as pain abdomen, vomiting, fever, obstruction, abdomen distension and trauma of Group B was noted as n=4 (16%), n=4 (16%), n=8 (32%), n=2 (8%), n=4 (16%) and n=3 (12%), respectively. The difference was statistically insignificant.

Conclusion: Loop ileostomy is a better choice in management of ileal perforation as compare to primary repair. It is associated with less postoperative complications and this also helpful in reducing mortality in perforated cases.

Key Words: ileal perforation, Primary repair, Loop ileostomy, surgical management.

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Please cite this article in press Hafiz Muhammad Faraz Hassan et al, Study To Compare The Outcomes Of Primary Repair Versus Loop Ileostomy In Ileal Perforation., Indo Am. J. P. Sci, 2020; 07(11).

INTRODUCTION:

In medical profession surgical problem that need to urgent care is gastrointestinal perforation. In Egyptian era gastrointestinal perforations were found documented¹. Perforation was documented when peritoneal contamination occurs due to intraleuminal contents and extends through the full thickness of hollow viscous². There is no specific place of perforation it can occur throughout the gastrointestinal tract involving rectum or esophagus. In tropical countries and subcontinent ileal perforation after peritonitis is a usual surgical emergency³. Due to high incidence of tuberculosis and enteric fever of this region it is labelled as fifth common emergency of abdomen.

This disease has an abrupt onset cover and sharp downhill course that is responsible for high mortality rate although latest and advance diagnostic accuracy and treatment regimes⁴. Other than traumatic perforation of ileum includes viral infection (human immune deficiency virus, cytomegalovirus), bacterial infection (Hesperia, tuberculosis, salmonella) fungal infection, lumbricoids, parasitic infection and others^{5,6}. Drug related also documented like use of NSAIDs (paracetamol, ibuprofen, mefenamic acid and aspirin). Non-specific ileal perforation also found in some cases^{7,8}.

Treatment of this emergency recommended by different authors in favor of different procedures like simple primary repair⁹, primary ileostomy, repair with ileotransverse colostomy, resection and anastomosis and single layer repair with Omental patch¹⁰. In this we compare the outcomes of primary repair with loop ileostomy in ileal perforated cases.

MATERIALS AND METHODS:

This controlled trial study was conducted in the General Surgery department of Mayo Hospital Lahore. Study was completed in one-year duration from June 2019 to June 2020. Non probability consecutive sampling technique was used. Patients presented at surgical emergency unit with acute abdomen were included in the study.

Preoperative selection criteria were not defined. Patients who were suspected for perforation peritonitis on the basis of clinical examination and laboratory investigation and diagnosed as ileal perforation were enrolled. After resuscitation patients were taken for emergency laparotomy. Patients were divided into two groups (group A, B)

by lottery method. Antibiotic therapy was given in both groups with Cefotaxime, Ceftriaxone, Cefotaxime and metronidazole. Patients in group A were surgically managed with primary repair and in group B patients were treated with loop ileostomy. Surgeries were performed by senior surgeon having at least 5 years experienced in general surgery. Hand sewn method was used in all patients. Primary closure in group A was done with two-layer method. Vicryl 3/0 was used for closure of inner layer and silk 3/0 was used for closure of outer layer. Loop ileostomy was performed in group B. Post-operative complications like dehiscence, wound infection, fecal fistula, intra-abdominal abscess, septicemia, peritonitis and ileostomy associated complication like paralytic ileus, obstruction of intestine and mortality was noted. SPSS version 23 was used for data analysis. Mean and standard deviation was calculated for quantitative data like age and frequency percentages were calculated for categorical data like gender and complications. P value less than or equal to 0.05 was considered as significant.

RESULTS:

Fifty patients were included in this study. The patients were equally divided into two groups as Group A, n=25 (50%) and Group B, n=25 (50%). The mean age of Group A was 31.81±4.86 years. There were n=11 (44%) patients between 18-30 years and n=14 (56%) between 31-65 years. The mean age of Group B was 32.56±5.74 years. There were n=13 (52%) patients between 18-30 years and n=12 (48%) between 31-65 years. The difference was statistically insignificant. (Table. 1). Clinical presentations such as pain abdomen, vomiting, fever, obstipation, abdomen distension and trauma of Group A was noted as n=5 (20%), n=6 (24%), n=4 (16%), n=3 (12%), n=5 (20%) and n=2 (8%), respectively. While, clinical presentations such as pain abdomen, vomiting, fever, obstruction, abdomen distension and trauma of Group B was noted as n=4 (16%), n=4 (16%), n=8 (32%), n=2 (8%), n=4 (16%) and n=3 (12%), respectively. The difference was statistically insignificant. (Table. 2).

Complications in primary repair, ileostomy, and ileostomy closure were shown in table III. The difference was statistically significant for systemic complications (p=0.034), Intra-abdominal collections (p=0.004) and Anastomotic leak (p=0.013). (Table. 3).

Table No.1: Demographic characteristics of the patients

Variable	Group A n=25 (50%)	Group B n=25 (50%)	P-value
Age (years)	31.81±4.86	32.56±5.74	0.895
18-30 years	n=11 (44%)	n=13 (52%)	0.571
31-65 years	n=14 (56%)	n=12 (48%)	

Table No.2: Clinical presentations of both the groups

Clinical presentations	Group A n=25 (50%)	Group B n=25 (50%)	P-value
Pain abdomen	n=5 (20%)	n=4 (16%)	0.798
Vomiting	n=6 (24%)	n=4 (16%)	
Fever	n=4 (16%)	n=8 (32%)	
Obstruction	n=3 (12%)	n=2 (8%)	
Abdomen distension	n=5 (20%)	n=4 (16%)	
Trauma	n=2 (8%)	n=3 (12%)	

Table No.3: Complications in primary repair, ileostomy, and ileostomy closure among the groups

Variable	Group A n=25 (50%)	Group B n=25 (50%)	P-value
Wound infection			
Primary repair	n=13(52%)	n=10(40%)	0.477
Ileostomy	n=6 (24%)	n=5 (20%)	
Ileostomy closure	n=6 (24%)	n=10(40%)	
Wound dehiscence			
Primary repair	n=11(44%)	n=7 (28%)	0.487
Ileostomy	n=8 (32%)	n=11(44%)	
Ileostomy closure	n=6 (24%)	n=7 (28%)	
systemic complications			
Primary repair	n=10(40%)	n=4 (16%)	0.034
Ileostomy	n=11(44%)	n=9 (36%)	
Ileostomy closure	n=4 (16%)	n=12(48%)	
Intra-abdominal collections			
Primary repair	n=17(68%)	n=10(40%)	0.004
Ileostomy	n=7 (28%)	n=4 (16%)	
Ileostomy closure	n=1 (4%)	n=11(44%)	
Anastomotic leak			
Primary repair	n=21(84%)	n=11(44%)	0.013
Ileostomy	n=1 (4%)	n=4 (16%)	
Ileostomy closure	n=3 (12%)	n=10(40%)	

DISCUSSION:

Ileal perforation peritonitis is serious emergency that needs urgent attention and care at emergency department. Time of symptoms onset and presentation at hospital are two main contributing factors in prognosis¹¹. Cases presented earlier holds excellent prognosis. Primary repair of perforation also has good outcomes and prognosis if case is

presented in earlier times. Unfortunately, in developing countries presentation is late or sometimes fully blown peritonitis. Septicemia and multiorgan failure are also observed in such type of cases¹². Wani et al¹³ conducted a study on this topic and reported tuberculosis in 4% of patients, obstruction in 6% and radiation enteritis in 1% of cases main cause of perforation was found enteric

fever, patients were managed end to side ileotransverse anastomosis (42%) and simple closure (49%). Another study was conducted by Adesunkanmi et al¹⁴ in 2005 and reported morbidity rate between 8.8 to 71.3% and mortality rate was 17.5%. In our study we observed obstruction 12% in primary repair and 8% in loop ileostomy group. A study was conducted by Mittal S et al¹⁵ and reported high rate of complications in primary repair group. Patients with primary repair have 20% peritonitis secondary to leakage and in loop ileostomy group it was found in 6.67% of patients. Hospital stay ratio was 1 : 1.51 in primary repair to ileostomy group. Another study was conducted by Talwar S et al¹⁶ and reported 79.1% wound infection and 10% fecal fistula when treated with primary repair of surgical management. In our study wound infection in primary repair was 52% wound infection in primary repair group. Beniwal et al¹⁷ conducted a study and reported postoperative complications, fecal fistula (16.5%), bleeding (5.5%), wound infection (23%) and skin excoriation around ileostomy (5.7%). Bakx et al¹⁸ conducted a study on this topic and managed all cases with loop ileostomy and reported a high incidence of ileostomy related complications. Ashraf et al¹⁹ conducted a study at Mayo hospital Lahore and compare complications between primary repair and loop ileostomy in perforated cases of enteric fever. Postoperative complications were found wound dehiscence in 14% primary repair patients and 40% in loop ileostomy, wound infection 86% in group of loop ileostomy and 28% in primary repair. In our study wound dehiscence was found in 44% in primary repair and 28% in loop ileostomy.

Another study by Rehman et al²⁰ reported similar finding that postoperative complications were found mostly in primary repair group 32.14% and then in loop ileostomy group 17.85%. Mortality rate was also high in primary group 21.4% than loop ileostomy 7.14%.

CONCLUSION:

Loop ileostomy is a better choice in management of ileal perforation as compare to primary repair. It is associated with less postoperative complications and this also helpful in reducing mortality in perforated cases.

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