Original Article

Comparison between Primary Repair Versus Loop ileostomy in ileal Perforation

Primary Repair VS Loop ileostomy

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ABSTRACT

Objective: Objective: 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 Bakhtawar Amin Medical and Dental College, Multan and Ghazi Medical College Dera Ghazi Khan. Study was completed in one-year duration from January 2019 to January 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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INTRODUCTION

In medical profession surgical problem that need to urgent care is gastrointestinal perforation. In Egyptian era gastrointestinal perforations were found documented[1]. Perforation was documented when peritoneal contamination occurs due to intraleminal contents and extends through the full thickness of hollow viscous[2]. 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 emergency[3]. Due to high incidence of tuberculosis and enteric fever of this region it is labelled as fifth common emergency of abdomen.

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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 regimes[4]. 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, mefanimic 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 repair[9], primary ileostomy, repair with ileotransverse colostomy, resection and anastmosis and single layer repair with Omental patch[10]. In this we compare the outcomes of primary repair with loop ileostomy in ileal perforated cases.

MATERIALS AND METHODS

This controlled trial was conducted in general surgery department of Bakhtawar Amin Medical and Dental College, Multan and Ghazi Medical college Dera ghazi Khan. Study was completed in one-year duration from 5th January 2019 to 4th January 2020. Ethical approval was taken from Hospital ethical board and informed written consent was obtained from patients. 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 Ceftazidim, 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 dehisence, wound infection, fecal fistula, intra-abdominal abscess, septicimia, 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 prognosis[11]. 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 cases[12].

Wani et al[13] 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 anastmosis (42%) and simple closure (49%). Another study was conducted by Adesunkanmi et al[14] 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 al[15] 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 al[16] 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 al[17] 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 al[18] conducted a study on this topic and managed all cases with loop ileostomy and reported a high incidence of ileostomy related complications.

Ashraf et al[19] 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 al[20] 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.

Author's Contribution:

Concept & Design of Study:	Rab Nawaz Malik
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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