

# Enteric Ileal Perforation Primary Repair versus Loop Ileostomy

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## ABSTRACT

**Objectives:** The aim of this study was to record the outcome of enteric ileal perforation, managed by primary repair versus ileostomy in terms of post-operative complications, mortality rate and hospital stay. **Design and Duration:** Quasi experimental study from January, 2009 to August, 2010. **Setting:** Surgical Unit-V, District Headquarters (Teaching) Hospital, Punjab Medical College, Faisalabad. **Methodology:** During the period of study 46 patients of enteric ileal perforation were divided in two groups on consecutive sampling basis. Detailed data of each patient including presentation, operative findings, procedures performed, post-operative outcome and histopathology was entered on a specially designed proforma. The main outcome measures found significant were post-operative complications, hospital stay and mortality rate. The data was compiled and analyzed by using SPSS-1B. **Results:** 46 Patients of enteric ileal perforation were studied during the period of 20 months, divided equally in 2 groups. Group A (loop ileostomy) and Group B

(primary repair). An increased rate of post-operative complications was seen in Group B (primary repair) when compared with Group A (loop ileostomy) with 21.74% patients landed up in peritonitis secondary to leakage from primary repair and 17.39% ended up with controlled feecal fistula formation. Mortality rate was twice higher in Group B (primary repair) when compared with Group A (loop ileostomy). A ratio of 1:2.75 days was observed between hospital stay of Group A (loop ileostomy) to Group B (primary repair). **Conclusion:** Enteric ileal perforation still represents a disastrous complication of enteric fever and constitutes a good number of patients presenting in surgical emergency with acute abdomen. Exteriorization of perforation in the form of loop ileostomy is more appropriate option for such patients as compared to primary repair of the perforation when compared in terms of post-operative complications, hospital stay and mortality rate. **Key Words:** enteric perforation, loop ileostomy, primary repair.

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## INTRODUCTION

Typhoid fever is a febrile disease caused by *Salmonella typhi*, a Gram-negative bacillus, which does not present as a significant health issue in developed countries, but continues to be an important problem in tropical regions<sup>1,2</sup>. Typhoid fever is a protracted disease that includes bacteremic phase with fever and chills during the first week, wide spread reticuloendothelial involvement with rash, abdominal pain and prostration in the second week, and ulceration of Payer's patches with intestinal bleeding and perforation during the third week. Although intestinal hemorrhage is the most common complication of typhoid fever, intestinal perforation continues to be the most frequent reason

behind high morbidity and mortality<sup>2</sup>. There are longitudinal ulcers on antimesenteric border, situated within 45 cms of ileocaecal valve in majority of patients<sup>3</sup>. Mortality rates in typhoid intestinal perforation (TIP) is reported to be between 5% and 62% . Perioperative mortality increases to 80% in patients delayed perforations<sup>4,5,6</sup>. The current surgical options include primary double layered closure<sup>7</sup>, segmental resection and end-to-end anastomosis<sup>8</sup> and primary ileostomy<sup>9</sup>. Blood culture is the most important diagnostic method. Faeces may also contain organisms, which can be cultured. A serological test, widal reaction detects antibodies formed against bacteria. This study was conducted to

compare the results of 2 different procedures used for the management of enteric ileal perforation, i.e; primary repair and ileostomy in terms of post operative complications, hospital stay and mortality rates.

## METHODS AND MATERIALS

This study was conducted at Surgical Unit-V, District Headquarters (Teaching) Hospital, Punjab Medical College, Faisalabad. All patients presenting to Surgical Emergency with acute abdomen, proven to be a case of enteric ileal perforation, on the basis of widal test, operative findings and histopathology, were included in the study. All patients underwent a complete history and clinical examination by the surgical team and pre-operative evaluation by lab and radiological investigations. Patients of enteric perforation were included in the study who had a positive widal test and plain x-ray abdomen showed free gas under diaphragm. Diagnosis was supported by operative findings of anti-mesenteric perforation in terminal ileum. Patients were divided in 2 groups, **Group A** = Loop ileostomy, **Group B** = Primary Repair. Consecutive patients were entered in subsequent groups and followed up closely for post-operative complications, mortality rate and hospital stay. Prior to surgery, all patients were resuscitated with correction of fluid and electrolyte balance, had a nasogastric tube placed for decompression of gastric contents, and received a loading dose of intravenous quinolone and proton pump inhibitors. An informed consent was taken for the surgery and for the possibility of stoma. Final diagnosis was confirmed by histopathological examination of the operative specimens according to the protocol instructions.

## RESULTS

During the 20 months period of study, 46 patients presented to surgical emergency who turned out to be cases of enteric ileal perforation according to criteria discussed above. Age distribution was from 19 years to 43 years, with highest 45.65% falling in the age group ranging from 26-31 years as depicted in Table I.

**Table-1**  
**Age Distribution Among Patients Of Enteric Ileal Perforation, n = 46**

Age group	No.	%
19-25 years	08	17.39
26-31 years	21	45.65
32-37 years	10	21.73
38-43 years	07	15.22

A male to female predominance was observed with 29 male patients to 17 female patients, making a male to female ratio of 1.7:1.

Post-operative complications were divided into 8 classes and results were compared between patients of both groups. The results are shown in Table II.

**Table-2**  
**Post-operative Complications Among Patients of Group A and Group B**

Post-Operative Complications	Group A (Loop Ileostomy) n=23		Group B (Primary Repair) n=23	
	No. of Patients	%	No. of Patients	%
Minor Wound Infection	7	30.43	11	47.83
Major Wound Infection	3	13.04	9	39.13
Peritonitis	-	-	5	21.74
Controlled Faecal Fistula	0	0	4	17.39
Intrabdominal Abscess	3	13.04	7	30.43
Peristomal Ulceration	6	26.09	-	-
Septicemia	2	8.69	3	13.04
Death	1	4.35	2	8.69

Overall mortality was 5.07% with 4.35% mortality observed in group B and 8.69% was observed in Group B. The average hospital stay for patients in Group A was 3.35 days ranging from 2 to 5 days (not including the period of second admission for ileostomy reversal) and that for Group B was 9.22 days ranging from 5 to 16 days (including 2<sup>nd</sup> surgical intervention for patients with primary repair leakage). This makes a average hospital stay ratio of 1:2.75 days between Group A and Group B.

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## DISCUSSION

Enteric ileal perforation is not an uncommon finding among patients presenting to surgical emergency with acute abdomen<sup>10</sup>. Onset of symptoms and time of presentation in hospital are important prognostic factors. An early presentation holds a good prognosis even with primary repair of perforation. Unfortunately, in developing countries like ours, the presentation to hospital is usually late with fully blown peritonitis, some cases may present with septicemia and multi-organ. Current literature strongly favors the surgical management only of enteric ileal perforation<sup>11</sup>. Surgical procedures described for enteric ileal perforation includes wedge/sleeve resection, resection- anastomosis, simple closure with or without proximal ileostomy. Ileostomy of the site of perforation, ileotransverse colostomy, and exteriorized anastomosis<sup>12</sup>. In this study, we compared two surgical options for management of enteric ileal perforation by dividing patients in two groups. A male to female predominance was observed in the study which is quite in accordance with other studies as well<sup>13</sup>. Highest number of patients was found to lie in group ranging from 26-31 years which is contrary to another study conducted in Pakistan in which it was 31-30 years<sup>11</sup>. Regarding post-operative complications, primary repair holds the higher rate of complications when compared to exteriorization of perforation as loop ileostomy. This result is also in consistence with other studies, one of which being held in Pakistan previously<sup>14</sup>. Comparison of mortality rate also showed a better prognosis with loop ileostomy when compared with primary repair, in that, a double mortality rate was observed in patients of primary repair<sup>15</sup>. Hospital stay is another important factor when taking into account the cost on state and family of patient. Observing the first admission stay in hospital, the average duration was found to be shorter for patients with loop ileostomy, reason being the decreased complication rate compared to primary repair. The same results were observed in another international study<sup>16</sup>.

## CONCLUSION

In the cases of enteric ileal exteriorization of perforation as loop ileostomy holds the best results

in terms of post-operative complications, mortality rate and hospital stay.

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