

## ORIGINAL RESEARCH

# Comparative evaluation of early and conventional ileostomy closure following bowel loop surgery in enteric perforation: An observational study

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### ABSTRACT

**Background:** Comparison of early and conventional ileostomy closure following bowel loop surgery in enteric perforation. **Materials & methods:** All the patients between the age group of 20 to 60 years who underwent temporary ileostomy following bowel surgery for enteric perforation were enrolled in the present study. 30 subjects were randomized into two study groups as follows: Early ileostomy group and Conventional ileostomy group. Early ileostomy closure group comprised of subjects in whom ileostomy closure was done between 4-6 weeks following index surgery while conventional ileostomy closure: This group comprises of those in whom the closure of temporary ileostomy was carried out as per unit protocol after 8-12 weeks. All the results were recorded in Microsoft excel sheet, compared and were subjected to statistical analysis using SPSS software. **Results:** Preoperative stoma bag used among patients of early and conventional closure group was 6.1 and 10.9 respectively ( $p$ -value  $< 0.05$ ). Mean operative time was comparable among the two study groups (Early closure group: 59.3 minutes; Conventional closure group: 61.7 minutes). Mean time to feed was comparable among the two study groups (Early closure group: 4.9 days; Conventional closure group: 5.4 days). Non-significant results were obtained while comparing the peri-operative complications among the study groups. **Conclusion:** The potential safety of early closure of ileostomy without any added morbidity or mortality was observed in present study.

**Key words:** Stroma, Early, Late

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### INTRODUCTION

Enteric fever remains a health concern in third-world and more recently the emergence of drug resistant strains of Salmonella Typhi has challenged diagnostic, and treatment capabilities of existing health system.<sup>1</sup> Despite global efforts at its eradication, it is still prevalent due to lack of access to clean drinking water, unhygienic living conditions and poor health care delivery systems.<sup>2</sup> Prolong period of febrile illness followed by complications of intestinal perforation are causes of high morbidity and mortality. Enteric perforations pose a great challenge for surgeons to manage.<sup>3,4</sup>

Perforation of terminal ileum is a cause for acute obscure peritonitis, heralded by exacerbation of abdominal pain associated with tenderness, rigidity and guarding, most pronounced over right iliac fossa. However, for many patients in a severe toxic state, there may be obscured clinical features with resultant

delays in diagnosis and adequate surgical intervention. While early surgical procedures are regarded as definitive treatments along with pre-operative resuscitation and post-operative intensive care, the methods that should be used in surgery are still contentious.<sup>4-6</sup> Hence this study was conducted to compare early and conventional ileostomy closure following bowel loop surgery in enteric perforation.

### MATERIALS & METHODS

The present study was conducted to compare early and conventional ileostomy closure following bowel loop surgery in enteric perforation. All the patients between the age group of 20 to 60 years who underwent temporary ileostomy following bowel surgery for enteric perforation were enrolled in the present study. Also, inclusion criteria included Widal and/or Biopsy and/or Blood Culture proven enteric perforation cases. Sample size for the present study

included 30 subjects which were randomized into two study groups as follows: Early ileostomy group and Conventional ileostomy group. Early ileostomy closure group comprised of subjects in whom ileostomy closure was done between 4-6 weeks following index surgery while conventional ileostomy closure: This group comprises of those in whom the closure of temporary ileostomy was carried out as per unit protocol after 8-12 weeks. All the results were recorded in Microsoft excel sheet, compared and were subjected to statistical analysis using SPSS software.

**RESULTS**

Among patients of early and conventional closure group, mean age was 43.5 years and 41.9 years

respectively. Both the groups were comparable in terms of age and gender-wise distribution of patients. Preoperative stoma bag used among patients of early and conventional closure group was 6.1 and 10.9 respectively (p-value < 0.05). Mean operative time was comparable among the two study groups (Early closure group: 59.3 minutes; Conventional closure group: 61.7 minutes). Mean time to feed was comparable among the two study groups (Early closure group: 4.9 days; Conventional closure group: 5.4 days). Non-significant results were obtained while comparing the peri-operative complications among the study groups.

**Table 1: Pre-operative Stoma Bag Used**

| Group              | Mean                | SD  |
|--------------------|---------------------|-----|
| Early group        | 6.1                 | 1.9 |
| Conventional group | 10.9                | 1.8 |
| p- value           | 0.001 (Significant) |     |

**Table 2: Operative time (mins)**

| Group              | Mean operative time | SD   |
|--------------------|---------------------|------|
| Early group        | 59.3                | 13.2 |
| Conventional group | 61.7                | 14.7 |
| p- value           | 0.082               |      |

**Table 4: Mean time to feeding postoperatively**

| Mean time to feeding postoperatively (days) | Early group | Early group |
|---|-------------|-------------|
| Mean  | 4.9         | 5.4         |
| SD  | 1.1         | 1.3         |
| p- value                                    | 0.112       |             |

**DISCUSSION**

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. It is generally transmitted by the fecal-oral route and may occasionally lead to an epidemic. Typhoid fever remains a notable public health issue in regions having no adequate and proper infrastructure. 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. Generally, hemorrhage and perforation occur in the terminal ileum secondary to necrosis of Peyer’s patches at 2-3 wk after the onset of the disease. Frequency of perforation varies between 0.8% and 18%.<sup>7- 11</sup>Hence this study was conducted to compare early and conventional ileostomy closure following bowel loop surgery in enteric perforation.

In a similar study conducted by Prasad B, authors compare early and conventional ileostomy closure following bowel loop surgery in enteric perforation. While analyzing statistically, it was seen that mean preoperative stoma bag among patients of group B was significantly higher in comparison to patients of

group A. Mean operative time among the patients of group A and group B was 61.5 minutes and 68.5 minutes respectively. Non-significant results were obtained while comparing the mean operative time among patients of group A and group B. Among patients of group A, bleeding and intra-abdominal collection were seen in 10 percent of the patients each. Among patients of group B, bleeding and intra-abdominal collection were seen in 30 percent of the patients and 20 percent of the patients respectively. Mean time to feeding postoperatively among the patients of group A and group B was 4.6 days and 5.1 days respectively. Non-significant results were obtained while comparing the mean time to feeding postoperatively.<sup>11</sup>

Aljorfi AA et al, in another analysis, reviewed the available literature in order to ascertain the benefits behind early closure of loop ileostomy. The literature was searched for all studies that included a comparison between the outcomes of early and late closure of loop ileostomy in terms of morbidity, mortality, or quality of life, where available. Early closure of loop ileostomy is defined as closure less than three months and late as more than three months, in accordance with conventional literature. The resultant articles were filtered using our inclusion and

exclusion criteria. Finally, the remaining articles were assessed for quality and their results were compared to one another. The results were slightly inclined toward early closure of loop ileostomy.<sup>12</sup> K Vishal Vikas et al assessed conventional ileostomy closure outcome in enteric perforation. 50 patients were enrolled. All the patients underwent the closure of temporary ileostomy was carried out as per unit protocol after 8-12 weeks. Closure of temporary ileostomy was done under general/spinal anesthesia with a peristomal skin incision, mobilization, and a sutured anastomosis. Procedures were carried out under spinal anesthesia in 70 percent of the patients. Mean operative time was 76.2 minutes. Perioperative bleeding was the most common perioperative complication found to be present in 20 percent of the patients. While postoperative pain was seen in 30 percent of the patients. Mean time to feeding postoperatively was 5.5 days.<sup>13</sup>

### CONCLUSION

The potential safety of early closure of ileostomy without any added morbidity or mortality was observed in present study.

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