

Outcome of Ileostomy Reversion by Sero-serosal, Muco-mucosal Single Layer Suture without Nasogastric Tube Suction in a District Level Hospital Under Spinal Anaesthesia

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Abstract

Objectives: To evaluate the outcome of loop ileostomy reversal in terms of hospital stay, morbidity, and mortality in our set up.

Methodology: This retrospective study was conducted on 19 patients, in the surgery unit of General Hospital Tangail, June 2011 to June 2018.

Results: Out of the total 19 patients, 13 (68.42 %) were males and 6 (31.57 %) were females. The age range was from 10 to 60 years with an average age of 33.57 years. The duration of surgery was 70 to 90 minutes with an average duration of 76.31 minutes. The average hospital stay after operation was 3.94 days ranging from 3 to 10 days. The morbidity rate was 15.78% (n=3/19) and no mortality was observed in the series. The commonest complication was surgical site infection in 2 (10.52%) patients, followed by post operative ileus in 1 (5.84%) patients.

Conclusion: Reversal of loop ileostomy is a safe procedure having good outcome in terms of low morbidity, no mortality and short period hospital stay.

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Keywords: Loop ileostomy, reversal of ileostomy, small bowel obstruction, surgical site infection, anastomotic leak, intestinal anastomosis, postoperative ileus.

Abbreviations and Acronyms: OPD= Out Patient Department; SSI= Skin and Soft tissue Infection; S/A = Spinal Anaesthesia; SHMC= Sheikh Hasina Medical College

Introduction

A loop ileostomy is an opening which is constructed surgically in intestine, meant for temporary fecal diversion and is usually closed after a period of time.^{1,2} It is a common constituent component of laparotomy being performed in patients who presents late or seen with severe abdominal sepsis, profound shock and major multiple abdominal injuries

particularly involving large intestine. It is basically fashioned to buy time for the pathological process distal to the stoma to heal, but is usually associated with morbidity.³ This safe procedure has dramatically changed the disease process with its improved survival in common indications like typhoid, traumatic or tubercular perforation or as fecal

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diversion for protection of distal primary anastomoses performed for Crohn's disease or ulcerative colitis. Although ileostomy is a life saving procedure on one hand but on the other hand it causes physical and emotional trauma to patient with additional economic burden. But reversal done after adequate nutritional build up of the patient, at a suitable time with proper technique is associated with minimal morbidity. Ileostomy closure techniques range from simple hand sewn technique to stapled. Although stapled ileostomy closure is expensive but decreases the operative time.⁵ While hand sewn anastomosis is simple and cost effective but is time consuming. Multiple factors influence the stoma closure and its sequel like surgeons experience, perioperative treatment including use of bowel preparation and antibiotic prophylaxis, the interval between primary surgery and closure and surgical technique.^{6,7,8} Ileostomy reversal is associated with various complications and overall morbidity rate ranges from 10.8 to 69%.⁹ Different postoperative complications reported after ileostomy reversal are wound infection, hematoma, anastomotic leak, small bowel obstruction (SBO) at the site of anastomosis, iatrogenic bowel injury, local abscess and post reversal peristomal dermatitis.^{10,11} These postoperative complications have ill effects on patient's health; increase the hospital stay leading to increased costs.¹² Around the world various studies have been conducted on outcome of loop ileostomy closure with variable results. However, no such study has been conducted in our local set up so we planned this study with the objective to evaluate the outcome of loop ileostomy reversal in terms of hospital stay, morbidity and mortality which will be helpful to improve the patient health care of our patients.

Methods

This study was conducted in the Surgery Unit of Sheikh Hasina Medical College Hospital, Tangail from June 2011 to June 2018. A total

of 19 patients were included in the study. The survey comprised of all the patients of either sex with temporary loop ileostomy performed previously for various reasons, and came for reversal in the follow up. Data was collected from the patients on a structured proforma including indication of ileostomy, duration of surgery, length of hospital stay and post operative complications. All the patients included in the study were evaluated by taking detailed history, physical examination and relevant investigations including routine baseline investigations, serum electrolytes, and distal loopogram in order to confirm distal patency of the gut by using water soluble contrast media (Barium sulphet). The past record of every patient was reviewed in order to determine the indication of ileostomy and the date of operation.

Technique of Reversal

All the reversal procedures were performed on elective list. Reversal of loop ileostomy was performed after 12 weeks of initial procedure by sero-serosal muco-mucosal single layer intermittent technique using round body 2/0 silk after doing preoperative distal loopogram to detect the distal patency. All the cases were operated by professors and consultants under spinal anesthesia after taking informed written consent. Three days gut preparation done in all patients by Cap. Amoxicillin 500 mg 8 hourly, Tab. Metronidazole 400 mg 8 hourly, Tab. Laxenna 2 tab at bed time. All patients were offered a clear liquid diet the night before surgery. Prophylactic antibiotics (inj. Ceftriaxone 1 gm I/V and Metronidazole 500 mg I/V) were administered before induction of anesthesia. No laparotomy was done in any patient. An elliptical incision was made just around the stoma and dissection was continued around the stoma till the peritoneal cavity was approached and opened. After entering the peritoneal cavity all the adhesions were released under direct vision by blunt and

sharp dissection. The loop was mobilized outside the parietal wall and excision of proximal 5 cm and distal 5 cm of ileum from ileostomy stoma was done. Continuity of divided ileum were restored by 2/0 round body silk in single intermittent layer by sero-serosal muco-mucosal technique. Gross apparent leak was checked per-operatively by squeezing the contents of the gut and luminal patency with the thumb and index finger. To avoid Stammers hernia gap with in the mesentery were closed by 2/0 Catgut. The bowel was returned into the peritoneal cavity and placed just under the wound. Wound was closed in layers by 1/0 Vicryl. Skin was closed with 2/0 cutting body silk. Patient was kept nil by mouth for 48 hours till resumption

of bowel sound and passage of flatus. All the operated patients were regularly followed up postoperatively on 10th POD, three weeks and five weeks after discharge for any short term complications.

Results

Out of total 19 cases 13 (68.42 %) were males and 6 (31.57 %) were females with male to female ratio of 2.1:1. The age range was from 10 to 60 years with an average age of 33.57 years. The commonest indication for which the stoma was fashioned was burst appendix with cecal gangrene where the base of the appendix could not be repaired and the rest of the indications are shown in Table I

Table I: Indications for loop ileostomy (n=19)

Indications	No. of cases(n=19)	Percentage
Burst appendix with cecal gangrene	5	26.31
Typhoid ulcer perforation	4	21.05
Ileocecal TB	4	21.05
Ca. ascending colon	3	15.78
Strangulated small gut	2	10.52
Rectal foreign body	1	5.26

The duration of surgery ranged from 70 to 90 minutes with an average duration of 76.31 minutes. The average hospital stay of the patients was 3.94 days ranging from 3 to 10 days. Postoperatively, 3(15.78%) patients *developed* complications. The commonest complications were the surgical site infections

in 2 (10.52%) patients (Table II). The patients with superficial SSI were managed conservatively by stitch removal, daily dressings and antibiotics according to culture and sensitivity report. Postoperative ileus was treated conservatively. No mortality was found in this study.

Table II: Early postoperative complications associated with ileostomy reversal (Less than 30 days)

Complications	No. of cases(n=19)	Percentage
Surgical site infection	2	10.52
Post operative ileus	1	5.84
Small bowel obstruction	0	0
Anastomotic leak	0	0

Discussion

Loop ileostomy was for the first time reported in 1999 by Turnbull and Weakley.¹³ Since then it gained popularity as it is technically

simple with excellent fecal diversion, there is liquid discharge with no smell, and has decreased rate of local complications.¹⁴ In addition to these advantages, its reversal as

compared to loop colostomy is associated with minimal morbidity and mortality.¹⁵

Although ileostomy construction is relatively easy but its closure is not a simple procedure as it is associated with complications. So in order to minimize the post operative complications and to improve the outcome of ileostomy reversal requires adequate nutritional rebuilt of patient, adequate control of primary gut disease, proper time of closure after initial surgery, proper preoperative preparation and technically skilled surgeon having considerable experience of the procedure. Critical analysis of the findings of our study shows that good results were achieved in cases of loop ileostomy closure in terms of mean hospital stay, postoperative complications and mortality. This survey was conducted on 19 cases showing mean hospital stay of 3.94 days, morbidity rate of 15.78 % and no mortality. In our study, mean age of the patients was 33.57 years, consistent with studies from west but with different causation like ulcerative colitis and crohn's disease.¹⁶

In our study no such case was observed as these diseases are uncommon in this territory.¹⁷ Burst appendix with cecal gangrene, typhoid ulcer perforation, ileocecal tuberculosis was the most common cause of loop ileostomy in our series. Here there is some dissimilarity with prevailing literatures.^{18,19,20} The complications rate reported in various national and international studies ranges from 5 to 60 percent.^{14,21} In our series the overall rate of complication was 15.78%, which is low compared to the reports of other as high as 30%.² Senapati et al in a series of 310 patients reported a complication rate of 22.4%. However Toole'O et al³ and Barry et al² have shown complication rate of 4% and 7.7% respectively. The rate of surgical intervention in our study is nil. Complications can be prevented by adequate nutritional built up to optimize patients health, adequate preoperative preparation, sound surgical

technique adopted, adequate control of primary gut disease, proper time of closure after initial surgery. The most common complication observed in our study was surgical site infection which occurred in 2(10.52%) cases. Van de Pavoordt et al⁴ and Wexner SD et al⁵ observed surgical site infection in 3% and 1.3% of cases respectively, in which skin incision was left open and was secondarily closed. In all our patients we closed the wound primarily so this may be a contributory factor to the comparative higher rate of wound infection in our study. Majority of wound infections in our series were of minor type and managed by drainage of the infection through a small opening made by removal of few stitches in the wound and a course of broad-spectrum antibiotics according to culture and sensitivity. Primary closure produced a better cosmetic scar in majority of the cases. Small bowel obstruction is another commonly observed complication in post-ileostomy reversal. Most of the times it is transient and can be appropriately termed as postoperative ileus which resolves with conservative measures like keeping the patient nil per mouth and intravenous fluid replacement and correction of electrolyte. In our series we observed postoperative ileus in 1(5.26%) cases and managed conservatively. A review of the literature shows similar rates of paralytic ileus.^{25,26} Anastomotic leak is another dreadful complication and it is literally synonymous with failure of the operation. Many factors can be attributed to this complication include malnutrition, primary gut disease, improper timing of ileostomy reversal and faulty surgical technique. Fortunately, in our study, no anastomotic leakage developed. Williams et al conducted a study on 50 patients and reported anastomotic leak in 2% cases.¹³ Iqbal P et al, conducted a study in Karachi, reported anastomotic leak in 1.3% cases which required reoperation.¹⁸ Duration of Hospital stay in our study was

ranging from 3 to 10 days with average of 3.94 days. The reason behind the short postoperative hospital stay is the low rate of complication associated with reversal of loop ileostomy. These figures correlate well with the prevailing literatures.^{3,19} In our series, all patients transfused at least one unit of fresh whole human blood to boost up health status. Operation done under spinal anesthesia in all patients. No patient need general anaesthesia. All patients were managed without nasogastric suction. Catheterization were not done in any patient. So chance of post operative urinary tract infection was zero. Suture material was 2/0 round body silk. Suture technique was sero-serosal, muco-mucosal single layer interrupted suture. Spinal anesthesia is not a good agent for under fifteen patient. One of our relatively taller patient of around 10 years old was frightened and agitated in operation table after S/A. Patient was managed by Diazepam and low dose ketamin. Psychiatric patient underwent ileostomy reversion under general anesthesia and excluded from this study. It was another disadvantage in our series. Some patient complained itching in their wound scar during follow up time. Main limitation of our study was lack of long term follow up to see the late postoperative complications.

Conclusion

It is concluded that ileostomy closure by sero-serosal muco-mucosal intermittent single layer technique without nasogastric suction under S/A is a safe procedure with good outcome in terms of duration of hospital stay, morbidity, and mortality. However, similar studies with long term follow up and comparative studies between stapled versus hand sewn closure and silk versus vicryl closure can be done.

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