



EARLY CLOSURE OF LOOP ILEOSTOMY: IS IT FEASIBLE AND SAFE?

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ABSTRACT A total of 144 patients of temporary loop ileostomies were treated with early closure at 4 to 6 weeks from its construction. It was found to be feasible, safe and advisable specially on select group of patients with low rate of complications and the results can be compared to classical delayed closure.

METHODS: This study was carried out in Department of Surgery, Patna Medical College on patients waiting for closure of loop ileostomies done for both in emergency and routine settings. After a careful selection of cases depending on nutritional status and absence of active infection, closure of ileostomy was done 4 to 6 weeks after the index operation. The post-operative course was closely observed and followed up.

RESULTS: A total of 144 patients underwent early closure at 4-6 weeks from the construction of ileostomy with the mean duration of closure of 38.2 days. In most of the patients the intestinal loops were mobilised without any significant difficulty and intestinal continuity restored with linear staplers. Most common post-operative complication was wound infection in 38.9% of cases. Other complications included prolonged ileus in 2.8% cases, enterocutaneous fistula in 5.6% and incisional hernia in 6.9% of the cases. None of the patients developed intra peritoneal collection or significant anastomotic leak requiring re laparotomy. No mortality was recorded in the study subjects. The patients were discharged from the hospital ranging from 7-23 days with the average of 9.2 days from the time of stoma closure. Overall, the results may be comparable to those of the delayed conventional closure but at the same time being much more convenient to the patient.

KEYWORDS : Loop ileostomy, early closure, conventional closure,

INTRODUCTION

Loop ileostomies are constructed in desperate situations and may be lifesaving in many situations but on the other hand it poses significant inconvenience to the patient. It adversely affects the daily routine, life style and even sexuality. The time for reversal of stoma is also of utmost importance. Some surgeons have tried to close the stoma as early as within two weeks of the index operation before the development of adhesions while others preferred to close it within 30 day of the index operation. In these situations, and in western world ileostomy is mainly constructed as a protective cover for distal colorectal or ileo-anal pouch anastomosis. But in our part and in other developing countries, it is commonly made for emergency surgical conditions like enteric or tubercular perforations. Patients also present late in the course of disease and as such it's a common practice to close the ileostomy 8-12 weeks later when the patient is presumed to have recovered from the initial illness. This delay allows sufficient time for patients to fully recover from their index operation and bowel oedema, friability and adhesions are also much reduced, enabling an easier ileostomy reversal. However, many surgeons have also opined that total operating time for early ileostomy closure was comparable to delayed ileostomy closure, suggesting a period of delay may not significantly improve ease of operation at all. And at the same time it carries a lot of morbidity, especially the metabolic disturbances and skin excoriation making the quality of life poor, both physical & social, especially when there are no existing stoma care services in the periphery.

In our experience, we have closed several ileostomies, done for emergency abdominal conditions with gross peritonitis, at a period ranging from 4-6 weeks since the time of initial surgery. The present study has, therefore, been undertaken to evaluate the feasibility and outcome of early reversal of loop ileostomy after 4-6 weeks after the index operation to establish local evidence-based practices for our setups.

MATERIAL AND METHODS

This is a prospective study carried over the patients of loop ileostomy attending surgical OPD of Patna Medical College and Hospital, Patna from Nov 2016 to oct 2019. The study is performed in compliance with the ethical principles of the Declaration of Helsinki and written informed consent was taken from all the participants. All the patients were investigated and selected for early closure at 4 to 6 weeks as per the inclusion criteria:

1. Patients with Haemoglobin level above 10 gm %
2. Patients with serum albumin above 2.5 gm%, and
3. Absence of active infection
4. Do not have radiologically identifiable anastomotic leakage

5. Patients found to be fit for surgery on other grounds

The exclusion criteria are:

1. Patients with diabetes, malignancy and other significant comorbid conditions,
2. patients on steroids, immuno suppressives etc.
3. non co-operative patients and patients with expected low compliance.
4. Patients with complication with stomas and those with multiple stomas

In anaemic patient's preoperative blood transfusion were given to raise Hb level above 10gm%. All the selected patients were subjected to distal contrast study using water soluble contrast to ascertain the distal patency of the intestinal tract. After proper preoperative work up and preparation on usual ways all the patients were operated under general anaesthesia and intestinal continuity restored with the help of linear staplers. In all the patients abdominal drain was given and post-operative course was closely followed up with special reference to complications and return of bowel activity.

Observations in the study are represented by the mean and range for the age and median and interquartile range for all other data, which were not normally distributed. Tests of statistical significance have not been used because it is not considered appropriate in a clinical series where differences may have arisen as a consequence of differences in treatment policy.

OBSERVATION AND RESULTS

A total of 144 patients underwent early closure at 4-6 weeks from the construction of ileostomy with the mean duration of closure of 38.2 days. Most of the patients in this study were young with mean age of 24 years (13-42 years) with male predominance (M: F ratio of 3.2:1). All the patients belonged to the rural background or far-flung areas with no proper access to optimal stoma related assistance. The indications of ileostomy are given in table 1.

Table 1: showing indications of ileostomy

Indication of ileostomy	No. of cases (%), n= 144
enteric perforation	48(33.3)
blunt abdominal trauma	32(22.2)
penetrating abdominal injuries	28(19.4)
abdominal tuberculosis	20(13.9)
appendicular perforation	8(5.6)
to protect distal colonic anastomosis	8(5.6)

40 of the patients (27.8%) had preoperative mild to moderate degree of excoriation of the skin. Patients with significant complications and with multiple stomas had not been included in this study.

The timing of early closure as defined by us is 4-6 weeks after the initial operation. In 85 patients (59%) closure was done in the 6th week, in 12 cases (8.3%) in the 4th week, and in 47 cases (32.6%) closure was done in 5th week. The earliest closure was done on 29th day and mean duration of closure was 38.2 days.

42 patients needed pre-operative blood transfusion to raise the Hb level above 10 gm %. All patients were operated under general anaesthesia and with peri stoma incision the stoma was mobilized. In 27 patients (18.8%) some difficulty was encountered in dissection and mobilization of bowel from the parities or peritoneum. However, with patience and perseverance and with both blunt and sharp dissections it was possible to free the stoma, lyse the intra-peritoneal adhesions and create sufficient space so that bowel can be safely repositioned inside the peritoneal cavity. In 11 patients' small perforations in the gut did occur, but they were easily repaired or the small segments resected. In 12 patients, stoma was very close to ileo-caecal junction and in all of them side to side ileo-transverse anastomosis was done by enlarging the incision as per the need. In none of the cases full laparotomy was needed. All the anastomosis was done with linear staplers.

Intra-peritoneal drain was put in all the patients and wound was primarily closed. Naso-gastric suction was used in all the patients ranging from 2-7 days with the mean of 3 days.

As far as early post-operative complications were concerned wound infection was seen in 56 patients (38.9%). Return of bowel sounds were observed by 3-5 post-operative days in most of the patients. 4 patient (2.8%) developed prolonged ileus which resolved by 8th post-operative day on conservative therapy of electrolyte correction, nasogastric aspiration and watchful waiting. 8 of the patients (5.6%) developed minor enterocutaneous fistula, all of which healed on conservative treatment within 3 weeks. None of the patients developed intra peritoneal collection or significant anastomotic leak requiring relaparotomy. 10 patients (6.9%) were subsequently detected to have developed incisional hernia necessitating further surgery. No mortality was recorded in the study subjects.

Complications	No. of cases (%)	Management
Minor wound infection	48(33.3)	Dressings, drainage, antibiotics, All healed
Major wound infection	8(5.6)	Wound dehiscence, secondary suturing and antibiotics; healed
Prolonged paralytic ileus	4(2.8)	Correction of electrolyte imbalance, i.v. fluids, naso gastric aspiration, watchful waiting
Intraabdominal collections	-	-
Enterocutaneous fistula	8(2.8)	Healed on conservative treatment
Intestinal obstruction	1(0.7)	Improved on conservative management
Incisional hernia	10(6.9)	Needed further surgery for hernia

Table 2: showing complications and their management

The patients were discharged from the hospital ranging from 7-23 days with the average of 9.2 days from the time of stoma closure. The patients were followed up in general for a period ranging from 6 months -1 year. One patient required admission 3 weeks later after the discharge for intestinal obstruction due to bands and adhesions, but was successfully managed on conservative lines.

DISCUSSION

Majority of the surgeons like to undertake closure of loop ileostomy 8 – 12 weeks after the index operation. During this waiting period life style of the patient is adversely affected and stoma related complications may occur. It also imparts social and economic strains to the patient. They need training in stoma care and may need multiple hospitalisations and visit to local general practitioners. There had been many studies in the Western world favouring early closure, as early as after 10 to 14 days. However, these studies described early

closure of loop ileostomy in cases of colorectal anastomosis for rectal carcinoma. But there is paucity of data regarding stoma closure in other indications especially following emergency operations. We applied the similar principle of early stoma closure in select group of patients done for both emergency and planned settings and observed the results. However, we preferred to close the stoma at 4 to 6 weeks after the index operation.

In our study 40 patients (27.8%) had preoperative mild to moderate degree of excoriation of the skin. Patients with significant complications and with multiple stomas had not been included in this study. In a prospective audit of complications of loop ileostomy construction and take down, García-Botello et al. (2004) observed ileostomy related complications in 39.4% patients. The most common were skin related - dermatitis (12.6%) and erythema (7.1%) put together. In another study where ileostomy was done for enteric perforation, ileostomy related complications occurred in 63.33% of patients. They observed peristomal skin excoriation (33.3%) to be the most common complication followed by weight loss (13.3%), retraction (13.3%), fluid and electrolyte imbalance (10%), and prolapse (3.3%). These complications usually worsen with time and these factors also prompted us to consider early closure, if feasible.

In the present study 144 patients underwent closure of ileostomy after 4-6 weeks of their index operation. Only those patients were selected for study who were in good physical condition without any features of active infection. They also did not exhibit radiological signs of leakage of anastomosis verified by pre-operative aqueous contrast studies. The similar inclusion criteria were also laid down by Alves et al., 2008; Jordi et al., 2003 and Nadim et al., 2010. Majority of the patients under our study had undergone construction of loop ileostomy because of infective reasons (47.2%) or for trauma (41.6%). This was in sharp contrast to western world where defunctioning loop ileostomies were made to protect distal colorectal anastomosis.

In the present study wound infection (38.9%) was found to be most common complication. Out of which in 5.6% of the cases there was wound dehiscence which subsequently required secondary suturing along with antibiotics. There were 8 case of enterocutaneous fistula (2.8%) all of which healed on conservative measures. Nadim et al. (2010), in his series, found complications like ileus, sepsis and abscesses to be the most frequent. Nadim et. Al. (2010) found an anastomotic leak rate of 5.7% and a mortality rate of 1.2% whereas Samivillah et.al. (2010) found a leak rate of 4.5% and a mortality rate of 2.2%. In the present study there were no frank anastomotic leaks or mortality which may be attributed to strict adherence to inclusion criteria.

The timing of early closure, as defined by us, was 4-6 weeks after the initial operation. In 85 patients (59%) closure was done in the 6th week, in 12 cases (8.3%) in the 4th week, and 47 cases (32.6%) were operated in 5th week. The earliest closure was done on 29th day and mean duration of closure was 38.2 days. In the study of Samiullah et al. (2010) the mean duration of closure was 23.5 days whereas Struijs et al. (2012) recommended the early closure with a median of 39 days.

It is apparent from the study that early closure of ileostomy is feasible, safe and much more convenient to the patient than the delayed conventional closure. But to get good results we must strictly adhere to strict surgical principles together with careful selection of cases.

The limitation of the study was there were no comparison groups and a larger randomised controlled trial is needed to make routine recommendations. Even then the study clearly highlights the potential advantages of early ileostomy closure without any additional significant risks.

CONCLUSION:

Early closure of loop ileostomy after 4 to 6 weeks of its construction can be safely undertaken and it should be considered as a possible alternative to the conventional delayed closure in select group of patients without having significant adverse effects and good functional results. It should especially be considered a boon for patients with a rural background with little access to stoma care services. However, before embarking on early closure it must be ensured that the patient is in good physical condition and free of active infection.

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