Original Article

Postoperative Complications of Reversal of Loop Ileostomy

Syed Asad Ali, Abdul Ghani Soomro, Abdul Sattar Memon and Noshad A. Shaikh

ABSTRACT

OBJECTIVES: To determine the morbidity associated with reversal of loop ileostomies.
METHODS: This was a prospective interventional study conducted at Liaquat University Hospital Jamshoro, from September 2005 to August 2007. All patients who had their loop ileostomies reversed during the study period were included. The various postoperative complications were noted during postoperative hospital stay.
RESULT: Seventy-nine patients fulfilled the selection criteria during the study period. Typhoid perforation was most common indication of loop ileostomy construction and reversal account for more than three-fourth of all cases majority of them were males (75.94%). Mean interval for ileostomy reversal was 90 days. Thirteen patients (15.6%) developed postoperative complications after reversal of loop ileostomy, most of these were settled on conservative treatment. Postoperative wound infection (9.6%) was the most common complication. Only four patients (4.8%) had surgical intervention to manage these complications
CONCLUSION: Loop ileostomy reversal is associated with low morbidity.

KEY WORDS: Loop ileostomy, reversal, complications.

INTRODUCTION

A loop ileostomy is a surgically designed intestinal stoma constructed for temporary feacal diversion. The normal intestinal passage is later re-established after closure of the loop ileostomy usually after a period of 90 days. Various postoperative complications are reported associated with stoma closure which includes wound infection / haematoma, leakage from the anastomosis following reversal, small bowel obstruction at the site of ileostomy closure, iatrogenic bowel injury, local abscess and post reversal peristomal dermatitis[1, 2]. Different authors have cited different morbidity rates associated with the reversal[3-6]. An adequate nutritional built up to optimize patients health is necessary before reversal of loop ileostomy. It is mandatory to apply sound surgical principles during reversal in order to achieve good results and to prevent the incidence of postoperative complications, as most of these can be avoided. An ileostomy reversal should be performed by an experienced surgeon who is technically skilled. The aim of this study was to determine the morbidity associated with reversal of loop ileostomy at Liaquat University Hospital, Jamshoro, which may be helpful in improvement of patient care.

PATIENTS AND METHODS

This was a prospective interventional study conducted at Liaquat University Hospital Jamshoro, from September 2005 to August 2007. After obtaining a well informed consent, patients who had their loop ileostomies constructed in emergency and had their loop ileostomies reversed electively were included in this study. Patient who underwent formation of loop ileostomies after resection of malignant tumors (small and large bowel) were excluded from the study. Data were recorded on predesigned proforma. In addition to any morbidity demographic information such as age, sex and length of hospital stay post reversal and the time interval between construction and reversal of loop ileostomy was recorded. All patients underwent elective surgery for ileostomy reversal by consultant after adequate nutritional built up. An elliptical incision was made around the stoma after placement of four anchoring silk sutures through the muco-cutaneous junction. The sutures' ends were grasped in individual mosquito forceps, which were held perpendicular to the anterior abdominal wall and twisted in a clockwise direction to wrap the four sutures which were held in single artery forceps. These sutures helped in maintaining traction while dissection was made around the base of stoma. Once the peritoneal cavity was entered, all adhesions to the stoma were divided under direct vision. After excising the edges of the opening in the ileum the ileostomy was closed transversely in double layer using 00 Vicryl. Patency was checked with thumb and index finger before returning the bowel to the abdominal cavity. The wound was repaired in layers using size 1/0 Vicryl, making sure to include peritoneum in the suture, this help to prevent incisional hernias. A small drain was left in extending down to the suture line in the bowel.

RESULTS

Seventy-nine patients underwent reversal of loop ileostomies during period from September 2005 to August 2007. Of these 79 patients, 60 (75.94%) were

males and 19 (24.05%) were females. The average age of the patients was 25 years (range 15-45 years). The average time between formation of loop ileostomy and reversal was 90 days. The average length of hospital stay post-reversal of ileostomy was 10 days (range 8 to 16 days) **(Table I)**. Thirteen patients (15.6%) developed complications following reversal of their loop ileostomies. Eight (9.6%) had wound infection/haematoma, all settled with conservative treatment. Two patients (2.4%) developed small bowel obstruction, one of them settled with conservative treatment while other underwent laparotomy. One patient (1.2%) had iatrogenic small bowel perforation which required re-exploration. One patient (1.2%) suffered from anastomotic leak, which required re-operation and re-construction of the ileostomy. One patient (1.2%) developed secondary haemorrhage from operative wound which required re-exploration of the wound and heamostasis was achieved. None of the patient during the study period expired after developing complications **(Table II)**.

TABLE I:

DEMOGRAPHIC PROFILE OF THE PATIENTS

Number of loop ileostomies reversed	79
Males	60
Females	19
Male: female ratio	3:1
Average age	25 years
Average interval for reversal	90 days
Average length of hospital stay post reversal	10 days

TABLE II:

COMPLICATIONS ASSOCIATED WITH REVERSAL OF LOOP ILEOSTOMY (n=13)

Complications	Number	Percentage
Wound infection / haematoma	8	9.6
Small bowel obstruction	2	2.4
Small bowel high out put anastomotic leak	1	1.2
Small bowel iatrogenic perforation	1	1.2
Secondary Haemorrhage from operative wound	1	1.2
Mortality	0	0

DISCUSSION

In last two decades positive experience with frequent construction and reversal of loop ileostomies has increased its usage and importance in our university hospital. The importance of this study further increases when we have found a low morbidity and mortality associated with both construction and reversal of loop ileostomy in our surgical department. All loop ileostomies, which were reversed electively were constructed in emergency most commonly after typhoid enteric perforation when it is not safe to perform primary closure. Temporary loop ileostomies are easier to construct but their closure require close attention and is not a simpler procedure. The common complications includes wound infection / haematoma, anastomotic dehiscence, small bowel obstruction at the site of ileostomy reversal, inter loop abscess and postoperative peristomal dermatitis[1]. The complication rates of loop ileostomy reversal in different national and international studies ranges from 5-60%[7,8]. These complications can be prevented by adequate nutritional built up to optimize patients health and sound surgical technique adopted at the time of closure. In this series the overall complication rate associated with reversal of loop ileostomy was 15.6%, which is low compared to the reports by other authors, some of whom have complication rate as high as 30%[3]. Senapati et al in a series of 310 patients and Macklin et al in a series of 55 patients reported a complication rate of 22.4% and 10% respectively[4,5]. However Toole'O et al. and Barry et al have shown complication rate of 4% and 7.7% respectively[5,6]. The rate of surgical intervention to mange these complications in our study is low (4.8%) as compared with 15% and 6.1% reported by other authors[3,4]. The mean interval for reversal of loop ileostomy was 90 days, a figure that compares with studies by Senapati et al. and Toole'O et al[4,5]. The length of interval time was not found to be a factor in the development of complications, other studies have shown similar results[9,10]. This study therefore confirms the low incidence of morbidity associated with ileostomy reversal. This may be due to adequate nutritional built up and strict adherence to standard surgical technique adopted during closure. Preoperative contrast study in selected cases showing patent distal bowel is also important factor for reduced morbidity seen in our study, which is also favored by other authors who have worked on similar procedures for large bowel[11, 12]. However Timothy et al. have advocated ileostomy reversal without contrast study in selected cases[13]. We recommend that ileostomy reversal require considerable experience on the part of surgeon with complete intra peritoneal mobilization of the stoma, lyses of all adhesions under direct vision, to ensure no inadvertent tears, and careful re-anastomosis. Haemosta-

sis should be carefully secured at each step of the reversal.

CONCLUSION

Loop ileostomy reversal is associated with low morbidity in experienced hands. We recommend a stoma closure should be performed after adequate nutritional built up and by a surgeon who is technically skilled to minimize the incidence of post operative complication.

REFERENCES

1. Williams NS, Nasmythy DG, Jones D, Smith AH, Defunctioning stomas: A prospective controlled trail comparing loop ileostomy with loop transverse colostomy. Br J Surg 1986; 73:566-70.
2. Muneer A, Shaikh AR, Shaikh GA, Qureshi GA. Various complications in ileostomy construction. World App Sci J 2007; 2 (3):190-3.
3. Winslet MC, Barsoum G, Pringle W. Loop Ileostomy after ileal pouch anastomosis – is it necessary? Dis Colon Rectum 1991; 34: 267-70.
4. Senapati A, Nicholls RJ, Ritchie JK, Tibbs CJ, Hawley PR. Temporary loop ileostomy for restorative proctocolectomy. Br J Surg 1993; 80: 628-30.
5. Toole'O GC, Hyland JM, Grant DC, Barry MK. Defunctioning loop ileostomy: A prospective audit. J Am Coll Surg 1999;188(1):6-9.
6. Barry M, Mealy K, Hyland JM. The role of defunctioning ileostomy in restorative proctocolectomy. Ir J Med Sci 1992; 161: 559-60.
7. Nugent KP. Intestinal Stomas. Recent Advances in Surgery 1999; 22: 135-49.
8. Hackman DJ, Rotstein OD. Stoma closure and wound infection: an evaluation of risk factors. Can J Surg 1995; 38: 144-8.
9. Hyman NH, Fazio VW, Tuckson WB, Lavery IC. Consequences of delayed ileostomy closure after Ileo pouch-anastomosis. Dis Colon Rectum 1992; 35: 870-3.
10. Gardner D, Tweedle D. Pathology for surgeons in training. 2nd edition. 1996, 110-3.
11. Mahmood T, Manzer S. Colostomy closure. Pak J Surgery 1997;13(3):101-1.
12. Bell C, Asolati M, Hamilton E, Fleming J, Nwariaku F, Sarosi G, Anthony T. A comparison of complications associated with colostomy reversal versus ileostomy reversal. Am J Surg 2005; 190 (5):717-20.
13. Timothy C, Andrew GH. Ileostomy closure without contrast study is safe in selected patients. ANZ J Surg: 2005;75(4):218-9.

AUTHOR AFFILIATION:

Dr. Syed Asad Ali *(Corresponding Author)*
Assistant Professor, Department of Surgery
Liaquat University of Medical & Health Sciences (LUMHS), Jamshoro, Sindh-Pakistan.

Dr. Abdul Ghani Soomro
Senior Registrar, Department of Surgery
LUMHS Jamshoro, Sindh-Pakistan.

Dr. Abdul Sattar Memon
Professor, Department of Surgery
LUMHS Jamshoro, Sindh-Pakistan.

Dr. Noshad A. Shaikh
Professor, Department of Surgery
LUMHS Jamshoro, Sindh-Pakistan.