

Outcome of Stoma Takedown in Adults

NAZIR AHMAD, SADAQAT ALI KHAN, KHALID JAVED ABID

ABSTRACT

Aim: To highlight the indications of temporary intestinal stoma and outcome of stoma takedown in adults.

Study design: The prospective interventional study comprised of 100 consecutive patients with temporary intestinal stoma.

Settings: West Surgical Ward, Mayo Hospital, Lahore.

Duration: January 2012 to December 2013.

Methods: All the patients above 12 years of age with temporary intestinal stoma either loop or double barrel admitted through Out Patient Department in the West Surgical Ward, Mayo Hospital, Lahore were included in the study.

Results: Male to female ratio was 2:1 with the mean age of 39±18 years in the series. Major indications of intestinal stoma were trauma in 38(38%), abdominal/intestinal tuberculosis in 29(29%) and enteric fever perforation in 25(25%) patients. Ileostomy was the major form of stoma, created in 58(58%) patients, colostomy in 27(27%) and ileocolostomy in 15(15%). Operative procedures adopted for stoma takedown were simple enterostomy closure in 74(74%) and resection and end-to-end anastomosis in 26(26%) patients. Postoperative complications observed in the series were surgical site infection in 7(7%) patients and anastomotic leakage in 3(3%).

Conclusion: Trauma, abdominal/intestinal tuberculosis and enteric fever perforation are the major indications of intestinal stoma in adults. Coexisting medical illnesses definitely affect the outcome. Primary skin closure of stoma wound though has high morbidity but allows rapid wound healing and is cost-effective. Stoma takedown is associated with a definitive morbidity but a low mortality.

Keywords: Ileostomy, colostomy, stoma takedown, primary skin closure, surgical site infection.

INTRODUCTION

An intestinal stoma is an artificial opening made in the intestine to divert faeces and flatus outside the abdomen where they can be collected in an external appliance¹. Commonly applied temporary diverting stomas are the ileostomy and the colostomy, either end or loop stomas. Stoma formation is considered a valuable and frequently used tool in intestinal surgery to bypass a diseased or anastomosed segment^{2,3}. The first recorded surgical creation of stoma was in 1776 by the French surgeon Pillore.

Major indications of ileostomy include diffuse bowel injury which precludes primary anastomosis like longstanding peritonitis, intestinal obstruction, radiation enteritis, ischemia, inflammatory bowel disease and rectal pathologies. Colostomy is employed in colonic obstruction (primarily due to colorectal cancer), perforation with peritonitis, rectovaginal fistula and perianal sepsis⁴.

Despite the advantages provided by the use of stomas, up to 48% of the patients with stoma face complications such as high output, skin irritation,

pain, unpleasant odors, prolapse, retraction, parastomal hernia, difficulties with stoma bag appliances, aesthetic complaints, limitations on physical activity and decreased quality of life⁵⁻⁶. The best method for resolving these problems faced by patients with stoma is the closure of the stoma which is performed in about two-third of the temporary stomas⁷.

However, stoma closure carries an often underestimated rate of morbidity and mortality, with complications such as bowel obstruction, wound infection and anastomosis leakage, occurring in 20-27% of the patients⁸.

Primary skin closure after stoma takedown leads to rapid healing but is associated with higher incidence of surgical site infection ranges from 2-41%, a rate higher than expected for a clean contaminated wound⁹.

PATIENTS AND METHODS

The prospective interventional study was carried out in West Surgical Ward, Mayo Hospital, Lahore for a period of two years. A total of 100 consecutive patients above 12 years of age with temporary either loop or double barrel intestinal stoma were admitted through Out Patient Department, Mayo Hospital,

Department of Surgery, King Edward Medical University/ Mayo Hospital, Lahore, Pakistan.

Correspondence to: Dr Nazir Ahmad Assistant Professor of Surgery. Email: na_surgeon@yahoo.com

Lahore for stoma takedown. Haematological investigations like haemoglobin, total leukocyte count, blood sugar, serum electrolytes, urea and creatinine, hepatitis screening, x-ray chest and electrocardiogram (where indicated) and specific investigation i.e distal loopogram to rule out any pathology of distal segment were advised in all patients preoperatively. Gut was prepared in all patients by chemical method with three oral doses of neomycin/erythromycin and metronidazole. An intestinal stoma was mobilized by parachute technique and was taken down either by simple enterostomy closure or resection and end-to-end anastomosis. Skin in full thickness of the stoma wound was primarily closed in all patients by interrupted sutures with prolene 2/0. Manual dilatation of anas was performed in all patients. All the patients were kept nil per oral with intravenous fluids per needs. Antibiotics and analgesics were given to all patients postoperatively. All the patients were observed closely in the ward and during follow up in Out Patient Department for the detection of earlier postoperative complications and their prompt management. Hospital stay varied from 4-11 days with the mean of 6.1 days. Data was collected on a prescribed proforma individually and analyzed by SPSS 16.

RESULTS

The study included 100 consecutive patients with temporary intestinal stoma either loop or double barrel expanded over a period of two years. . Male patients were 66(66%) and female 34(34%) in the series. The age of the patients ranged from 13-68 years with the mean of 39±18 years. Comorbid medical illnesses were found in 15(15%) patients including diabetes mellitus in 4(4%), hypertension in 3(3%), cardiorespiratory diseases in 3(3%), Anti-HCV in 4(4%) and HBsAg in 1(1%) patients in the study. In the series, abdominal/intestinal tuberculosis and firearm injury were the main indications of stoma formation, in 29(29%) and 23(23%) patients respectively as in table 1.

Table 1: Indications of the intestinal stoma

Indication	n	%age
Intestinal tuberculosis	29	29
Enteric perforation	25	25
Firearm injury	23	23
Stab injury	5	5
Blunt trauma	7	7
Intestinal obstruction	8	8
Post D & C rectal injury	3	3

Loop ileostomy was the commonest type of the intestinal stoma, made in 33(33%) patients and double barrel ileocolostomy in 15(15%) as in table 2.

Table 2: Types of the intestinal stoma

Type of stoma	n	%age
Loop ileostomy	33	33
Double barrel ileostomy	25	25
Loop colostomy	19	19
Double barrel colostomy	8	8
Double barrel ileocolostomy	15	15

In the study, the most common surgical procedure performed for stoma takedown was simple enterostomy closure in 74(74%) patients as in table 3.

Table 3: Surgical techniques for stoma takedown

Operative procedure	n	%age
Simple enterostomy closure	74	74
Resection and end-to-end anastomosis	26	26

Postoperatively, all the patients were observed keenly for earlier detection of complications and their immediate management as in table 4.

Table 4: Postoperative complications with their amangement

Postoperative complication	n	Management
Surgical site infection	7(7%)	Opened, culture sensitivity of pus and dressings
Anastomotic leakage	3(3%)	Re-stoma formation in two and one conservative
Prolonged ileus	2(2%)	Conservative.

There were two deaths in the series. One was sudden death on perioperative day and second was known cardiac patient developed arrhythmias on 1st postoperative day and shifted to intensive care unit where she died on 4th postoperative day.

DISCUSSION

An intestinal stoma is an opening of the intestine in the anterior abdominal wall made surgically¹⁰. Formation of the intestinal stoma is frequently a component of surgical intervention for diseases of the small bowel and colorectal pathology. The ileostomy and the colostomy are the commonly made intestinal stomas in surgery which serve the purpose of decompression, diversion, lavage or exteriorization. However, the number of the intestinal stomas made each year is declining. This decrease in ileostomies is more marked in United Kingdom, where less than 100,000 patients now have an ileostomy¹¹. Closure of the intestinal stoma is often perceived to be a relatively minor surgical procedure. Nonetheless, it may be associated with an appreciable morbidity, the

commonest of which is superficial surgical site infection¹².

In the study, male to female ratio was 2:1 with age ranged from 13-68 years which is in comparison with the study reported by Schreinemacher MHF et al¹³ where male to female ratio was 1:1 and age ranged from 18-84 years.

Surgeons used to perform the intestinal stomas as a life saving procedures since a longtime. Temporary stoma creation is an essential part of an emergency surgery. The major indications of temporary stoma creation in the series were trauma in 38%, intestinal tuberculosis in 29%, enteric perforation in 25% and intestinal obstruction in 8% patients which is in comparison with the study conducted by Ahmad QA, et al¹⁴ where stoma was made because of trauma in 40%, intestinal tuberculosis in 25%, intestinal obstruction in 16% and enteric fever perforation in 13% patients.

The temporary intestinal stoma takedown can be done safely requiring minimal access to the abdomen without expecting serious complications or readmissions. In the study, the procedures adopted for stoma takedown were simple enterostomy closure in 74% and resection and end-to-end anastomosis in 26% patients which is in comparison with the study carried out by Shah J, et al¹⁵ where resection and end-to-end anastomosis was done in 60% and enterostomy closure in 26% patients.

Morbidity after stoma closure however is not negligible and the most common complication is superficial surgical site infection following stoma wound closure. In the study, the overall morbidity was 12% with a mortality rate of 2% which is showing better results than the study carried out by Pokorny H et al¹⁶ where the overall morbidity was 20% with mortality rate of 3%.

CONCLUSION

Trauma, abdominal/intestinal tuberculosis and enteric fever perforation are the leading causes for stoma formation in the adults which is alarming and needs evaluation. Comorbid medical diseases are also among the factors affecting both morbidity as well as mortality. Primary skin closure of stoma wound though associated with high incidence of surgical site infection but leads to rapid wound healing, cost-effective and for patient satisfaction.

SUGGESTIONS

- Commandment of law and order, licensed weapons and easy and earlier delivery of justice to reduce the violence in the society.

- Measures to reduce the incidence of road traffic accidents.
- Earlier and correct diagnosis along with effective and standard medical therapy for tuberculosis and enteric fever to prevent surgical complications.
- Evaluation of drug resistance against tuberculosis and enteric fever.
- Health education programs for public awareness.
- Stoma site skin preparation, wound lavage with haemostasis securing and full thickness skin closure with interrupted sutures.

REFERENCES

1. Carlson G, Epstein J: The small and the large intestine: Stomas. Bailey and Love's Short Practice of Surgery. 26th ed 2013: 1143-1180.
2. Matthiessen P, Hallbook O, Rutegard J, et al: Defunctioning stoma reduces symptomatic anastomotic leakage after low anterior resection of the rectum for cancer: a randomized multicentre trial. *Ann Surg* 2007; 246: 207-214.
3. Forgione P, Cataido P: Colostomy. *Oper Tech Gen Surg* 2003; 5: 264-272.
4. Brand MI, Dujovny N: Preoperative consideration and creation of normal ostomies. *Clin Colon Rectal Surg* 2008; 21: 5-16.
5. Duchesne JC, Wang YZ, Weintraub SL, et al: Stoma complications: a multicentre analysis. *Am Surg* 2002; 68: 961-966.
6. Carne PW, Robertson GM, Frizelle FA: Parastomal hernia. *Br J Surg* 2003; 90: 784-793.
7. Kairaluoma M, Rissanen H, Kultti V, et al: Outcome of temporary stomas: a prospective study of temporary intestinal stomas constructed between 1989 and 1996. *Dig Surg* 2002; 19: 45-51.
8. Chow A, Tilney HS, Paraskeva P, et al: The morbidity surrounding reversal of defunctioning ileostomies: a systemic review of 48 studies including 6107 cases. *Int J Colorectal Dis* 2009; 24: 711-723.
9. Wong K, Remzi F, Gorgun E, et al: Loop ileostomy closure after restorative proctocolectomy: outcome in 1504 patients. *Dis Colon Rectum* 2005; 48: 243-250.
10. Irving MH, Hulme O: Intestinal stomas. *Br Med J* 1992; 304: 1679-1681.
11. Down GM, Leaper DJ: Abdominal stomas. *Surgery* 1994; 12: 1-7.
12. Konishi T, Watanabe T, Kishimoto J, et al: Elective colon and rectal surgery differ in risk factors for wound infection. *Ann Surg* 2006; 244: 758-763.
13. Schreinemacher MHF, Vijgen GHEJ, Dagnelie PC, et al: Incisional hernias in temporary stoma wounds. *Arch Surg* 2011; 146: 94-99.
14. Ahmad QA, Saeed MK, Muneera MJ, et al: Indications and complications of intestinal stomas-a tertiary care hospital experience. *Biomedica* 2010; 26: 144-147.
15. Shah J, Subedi N, Maharjan S: Stoma reversal, a hospital-based study of 32 cases. *The Int J Surg* 2009 vol 22.
16. Pokorny H, Herkner H, Jakesz R, et al: Mortality and complications after stoma closure. *Arch Surg* 2005; 140: 956-960.

