

## A Study on Relation between Specific Complications and Intestinal Stoma Type

Girish Noola\*, Nitin Tengli\*\*, Ramesh K.\*\*\*

\*Professor, \*\*Assisatnt Professor, Department of Surgery, Khaja Bande Nawaz Institute of Medical Sciences, Kaluburgi.  
\*\*\*Associate Professor, Dept. of Community Medicine, Vijayanagara Inst. of Medical Sciences (VIMS) Ballari - 583104 Karnataka.

### Abstract

*Introduction:* The formation and closure of diverting stomas is associated with an appreciable morbidity. The most important preventive measure is recognizing the magnitude of the potential problems that can develop and, with these in mind, paying strict attention to technical detail. When a complication does arise, it should be recognized promptly and dealt with in an appropriate manner. *Methodology:* This was a prospective study on 40 patients undergoing intestinal stoma construction as an elective procedure or as an emergency procedure. *Results:* Complications were seen more in loop colostomies as compared to other stoma types. End ileostomy seemed to have more complications as compared to loop ileostomy. *Conclusion:* Most common colostomy associated complication was local sepsis followed by parastomal hernia.

**Keywords:** Intestinal Stomas; Complications; Sepsis.

### Introduction

Over the past several years, many of the previously absolute indications for diverting stomas have been challenged. A loop or end-loop ileostomy was often created to protect an ileal pouch anal anastomosis in a patient with chronic ulcerative colitis or familial adenomatous polyposis coli. However, some centers

have recently described comparable results of ileal pouch anal anastomosis procedures with or without diversion [1,2]. Many surgeons now take a selective approach to this issue, tailoring the use of an ileostomy to the individual patient, taking into account body habitus (pelvic shape and length, mesenteric thickness, or total length of remaining bowel), steroid use, and anastomotic tension. Diverting ileostomy has also been used as a temporizing measure in patients with fulminant inflammatory bowel disease, although most surgeons would probably opt for a more definitive procedure if the patient's condition permits. A diverting colostomy is used most frequently to provide proximal fecal diversion in patients with a large bowel obstruction or pelvic sepsis when a malignant tumor, diverticulitis, colorectal trauma, radiation injury, or a complication of inflammatory bowel disease is present. Recently, such a colostomy has been used to protect a coloanal anastomosis as part of a sphincter-saving procedure for midrectal cancer, radiation-induced stricture, or fistulas. Fecal diversion for colon trauma was initially recognized for high-velocity military-related penetrating trauma. This was extrapolated to civilian penetrating colon injuries. Since then, there has been a progressive trend away from diverting stomas for low-velocity civilian penetrating colon injuries to the point that some surgeons do not divert even left-sided colon trauma [3].

We should caution against performing a "blind" transverse loop colostomy in cases of large bowel obstruction without manually exploring the abdomen to ascertain the site and resectability of the obstructing lesion. This type of diverting stoma has no value in relieving an obstruction at the ileocecal region or an obstruction due to a sigmoid volvulus. A tube

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**Corresponding Author: Ramesh K.**, Associate Professor, Dept. of Community Medicine, Vijayanagara Inst. of Medical Sciences (VIMS) Ballari - 583104 Karnataka.  
E-mail: [ramspms@gmail.com](mailto:ramspms@gmail.com)

cecostomy has often been recommended as a convenient and rapid method of decompressing obstructed large bowel. However, regardless of the diameter of the tube's lumen, a tube cecostomy is relatively ineffective in diverting the fecal stream. It is also prone to leakage of liquid stool from around the tube, which may result in wound complications or intra-abdominal sepsis.

The formation and closure of diverting stomas is associated with an appreciable morbidity. The most important preventive measure is recognizing the magnitude of the potential problems that can develop and, with these in mind, paying strict attention to technical detail. When a complication does arise, it should be recognized promptly and dealt with in an appropriate manner [4].

Metabolic complications are more common with the formation of a loop ileostomy than with a loop colostomy. The volume of fluid lost from an established ileostomy averages 500 mL/day, including about 60 mEq of sodium. In cases of ileostomy dysfunction, significant sodium and water losses can occur and can lead to rapid dehydration. In one study, 23 of 117 patients with loop ileostomies (20%) required hospital admission because of dysfunction. Another metabolic complication of ileostomy is the formation of urinary calculi. This complication occurs in 3–13% of patients and is related to chronic dehydration and sodium depletion. To avoid dehydration, patients with an ileostomy should be encouraged to drink several glasses of water daily. Cholelithiasis occurs in up to 30% of patients with ileostomies. Gallstones form in these individuals because resection of terminal ileum interrupts the enterohepatic circulation, resulting in malabsorption or depletion of bile acids – conditions that favor the precipitation of cholesterol stones.

One of the most common problems associated with the formation of a loop ileostomy is local irritation and breakdown of peristomal skin, which occurs in about 15% of patients. This complication usually results from improper location of the stoma or other technical problems associated with stoma construction.

Small bowel obstruction occurs in approximately

10% of patients with loop ileostomies yet is noted much less frequently with loop colostomies. This situation is probably so because the intact transverse or sigmoid mesocolon walls off the small bowel and prevents it from twisting. In contrast, a segment of small intestine can rotate around the base of a loop ileostomy at the point of fixation to the anterior abdominal wall, resulting in obstruction [5].

## Methodology

This was a prospective study on 40 patients undergoing intestinal stoma construction as an elective procedure or as an emergency procedure. Data were collected from patient records maintained prospectively, supported by information from operation notes and patient case records. Follow up of the patient was also done by patient interview in person or over the phone at 4, 8, 12, 14, 28 wks.

### Inclusion Criteria

1. All patients male and female above the age of 18 years.
2. All emergency and elective cases undergoing intestinal stoma construction.

### Exclusion Criteria

1. Patients undergoing urinary stoma construction.
2. Patients undergoing stoma construction as indication for gynaecological disorders.

## Results

Out of 40 patients 14 underwent stoma construction as an elective procedure, whereas 26 patients underwent stoma construction as an emergency procedure. Complications were more when the patients underwent stoma construction under emergency circumstances (n=12 out of 26, 46.15%) as compared to those undergoing stoma formation as an elective procedure (n=8 out of 14,

**Table 1:** Age distribution of patients

Age Groups (Years)	Frequency	Percentage
10-20	3	7.5
20-30	8	20
30-40	5	12.5
40-50	10	25
50-60	5	12.5
60-70	8	20
<b>TOTAL</b>	<b>40</b>	

**Table 2:** Elective v/s emergency procedures

Elective	Emergency
14	26

**Table 3:** Specific complications in each stoma type

Complications	Loop colostomy (n=8)	End colostomy (n=4)	Loop ileostomy (n=25)	End ileostomy (n=2)	Jejunostomy (n=1)
Local sepsis	3(37.5%)	0	5(20%)	1(50%)	1(100%)
Stenosis	2	0	0	0	0
Retraction	1	0	2	1	0
Parastomal hernia	1	0	0	0	0
Mucosal prolapse	0	1	0	0	0
Necrosis	0	2	0	0	0

## Discussion

The aim of the study was to study various complications of the intestinal stomas and their effective management. Both emergency and elective procedures were included in the study. Urinary stomas and stomas created as indication for gynaecological procedures were not included in the study. Data were collected from patient records maintained prospectively by stoma therapy department supported by information from operation notes and patient case records. Follow up of the patient was also done by patient interview in person or over the phone at 4, 8, 12, 14, 28 wks.

The most common indication for stoma construction was malignancy followed by bowel perforation. Loop ileostomy was the most common type of stoma created. Most of the patients undergoing stoma formation were between 40-50 years of age. Complications were seen in 20 of the patients out of 40 patients that underwent stoma construction. Complications were maximum in patients undergoing loop colostomy. The result from this study shows that local sepsis was the most common type of complication seen following intestinal stoma formation treated conservatively. Parastomal hernia is a serious common complication seen in study group, which is a difficult problem to treat. They are best managed by prevention during construction of the stoma. Also loop colostomy was the most common type of stoma that had complications during the course of study.

Complications were more in the patients who underwent stoma formation as an emergency procedure as compared to those undergoing stoma formation as an elective procedure.

Among diverting stomas loop ileostomy had fewer complications as compared to loop colostomy, so loop

33.33%). Complications were seen more in loop colostomies as compared to other stoma types. End ileostomy seemed to have more complications as compared to loop ileostomy. Most common colostomy associated complication was local sepsis followed by parastomal hernia.

ileostomy should be favoured over loop colostomy in defunctioning low colorectal anastomoses.

When comparing stoma type, the loop ileostomy was found to have a lower complication rate than loop colostomy. This is consistent with most current trials [6,7] and adds weight to the recommendation that loop ileostomies are to be favoured over loop colostomies in defunctioning low colorectal anastomoses. Although others [8] have found no difference in complication rate between the two defunctioning stomas, the quality of life in patients with an ileostomy is enhanced over those with a colostomy [9].

Emergency surgery resulted in a higher stoma complication rate than elective surgery, and a significantly higher morbidity for the patient. Our findings are consistent with those by Stothert et al [10], who reported over 50% morbidity and 18% mortality following emergency surgery resulting in a stoma.

## Conclusion

Complications were more when stoma was created in emergency procedures. Parastomal hernia was a common serious type of complication seen. As a defunctioning stoma, loop ileostomy appeared to have lesser complications when compared to loop colostomy.

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