

COMPLICATIONS OF INTESTINAL STOMA: A PROSPECTIVE HOSPITAL BASED OBSERVATIONAL STUDY

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Abstract

Background: An intestinal stoma is an opening of the intestinal tract onto the abdominal wall constructed surgically or appearing inadvertently.

Method: This study entitled "Complications of Intestinal Stoma: A Prospective Hospital Based Observational Study" is a prospective study and was conducted at Govt. Medical College, Srinagar in the Postgraduate Department of General Surgery over a period of eighteen months. Postoperative complications were noted

Results: In our study, a total of 56 patients were included in which stomas were made for 28 (50%) benign conditions and 28 (50%) malignant conditions. Out of 28 complications in ileostomy procedures, most common complication was peristomal skin excoriation followed by electrolyte disturbance. Out of 9 complications in colostomy procedures, most common complications seen were stoma retraction and peristomal abscess.

Conclusion: Our study found, peristomal skin excoriation and electrolyte imbalance as the most common post-operative complications in intestinal stomas. Emergency procedures increased the risk of complications in intestinal stomas and Stoma related complications resulted in longer hospital stay.

Introduction

An intestinal stoma is an opening of the intestinal tract onto the abdominal wall constructed surgically or appearing inadvertently. The term "ostomy" comes from the Greek word "stoma" meaning "mouth." An intestinal stoma has long been one of the most commonly performed life saving surgical procedure worldwide and plays an important role in the management of congenital and acquired gastrointestinal conditions¹. Every step, from the indications through preparation and surgery to ostomy care, must be carefully planned in cooperation with each individual patient. The construction of an intestinal ostomy represents a major event for any patient, potentially worsening their quality of life. Despite the advances made in medicine, intestinal ostomies are an indispensable aspect of clinical practice. The most common indications for stoma formation are colorectal cancer, diverticular disease and inflammatory

bowel disease^{2,3}. Anastomotic leak after oncological resection of the rectum is associated with a 6 to 22% risk of mortality and thus represents the most serious complication of colorectal surgery⁴. A protective ostomy is routinely performed to ameliorate the consequences of anastomotic leak. In the era of increased sphincter sparing surgery for rectal cancer, increasingly distal anastomoses are being performed in the setting of neoadjuvant chemotherapy and radiation.

Complications are categorised as: immediate [including bleeding and necrosis(13%)], intermediate [including retraction (1-30%), prolapse (3% of ileostomies & 2% of colostomies), stenosis (1-9%), fistula, abscess, stricture, excoriation of skin, cellulitis, electrolyte disturbance in patients] and late [including parastomal hernia (1.8-28.3%) for end ileostomies and 0.6-2% for loop ileostomies and 4-48% for end colostomies and 0-30.8% for loop colostomies^{5,6}.

Method

This was a prospective observational study carried out in the Postgraduate Department of General Surgery, Government Medical College, Srinagar. The study was conducted over a period of one and a half year from October 2022 to April 2024.

Inclusion Criteria: Patients of age group >5 years, All elective or emergent stomas, All patients with stomas for benign or malignant conditions.

Exclusion Criteria: Patients of age group ≤5 years, Patients not consenting to take part in the study.

All the cases included in this study were evaluated meticulously for detailed symptomatic history and indication. Complete physical examination was performed during initial assessment. All the routine laboratory or radiology investigations such as complete blood count (CBC), serum electrolytes, LFT, KFT, serum albumin, ECG, X-ray chest (erect), X-ray abdomen, serum amylase, USG abdomen and CECT abdomen (if required) were done.

Routine management of patients was done as per the standard departmental protocol. Gastrointestinal decompression was done through Ryle's tube, after that patients were prepared for surgery. The site for stoma was properly marked before the procedure in standing and supine position. Postoperative complications were noted. Patients were followed up postoperatively for 6 weeks including visits at 2 weeks and 6 weeks. All the details were recorded in the proforma.

All the data collected was entered in Microsoft Excel Sheet for statistical analysis. Data were summarised as the mean ± standard deviation (SD) for numerical variables and number (percentage) for non-parametric variables. Student's t-test and Chi-square test were used to compare variables. The cut-off for significance of all used statistical analysis was rated as $p \leq 0.05$, $p = 0.001$ was rated as highly significant, and $p > 0.05$ was rated as non significant.

Results

A total of 56 patients were included in the study. Most of the patients, 39.3% (n=22) presented in the age group of 26 to 45 years followed by 46 to 65 years [32.1% (n=18)]. Mean age in our study was 42.71 ± 17.75 years. Out of 56 patients, 35 (62.5%) were males and 21 (37.5%) were females. Most of the stomas were done as emergency procedures accounting for 67.9% (n=38), while as rest of the 32.1% (n=18) were done as elective procedures.

In our study, stomas were made for 28 (50%) benign conditions and 28(50%) malignant conditions. Overall ileostomy was the most common procedure done in 62.5% (n=35) patients and colostomy was done in 37.5% (n=21) patients.

In our study, a total of 37 complications were seen (Table 1). Of these 37, the most common complication was peristomal skin excoriation accounting for 37.8% (n=14) followed by electrolyte disturbance seen in 24.3% (n=9) (Figure 1). Least common complication seen was obstruction, seen in one case. Most of the complications were observed in ileostomy procedures accounting for 75.7% (n=28), where as colostomy procedures were related to relatively less complications accounting for 24.3% (n=9). Of 37 complications, 25 (67.6%) complications were seen in emergency procedures and 12 (32.4%) complications were seen in elective procedures.

Out of 28 complications in Ileostomy procedures, most common complication was peristomal skin excoriation followed by electrolyte disturbance. Out of 9 complications in Colostomy procedures, most common complications seen were stoma retraction and peristomal abscess.

Complications	Elective		Emergency	
	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)
Peristomal Skin Excoriation	5	41.6	9	36
Retraction	1	8.3	2	8
Stenosis	0	0	2	8
Electrolyte disturbance	4	33.3	5	20
Prolapse	2	16.7	1	4
Obstruction	0	0	1	4
Bleeding	0	0	2	8
Peristomal abscess	0	0	3	12
Total	12	100	25	100

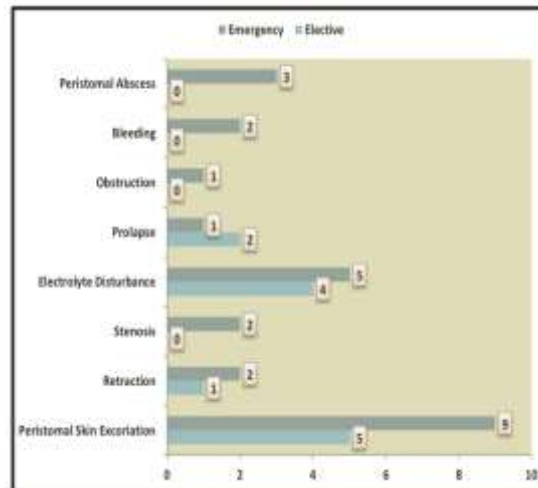


Table 1: Complications of intestinal stoma via a viz mode of surgery

Figure 1: Complications of intestinal stoma via a viz mode of surgery

Discussion

In the present study, we aimed to determine the indications for an intestinal stoma with subsequent complications at our teaching hospital over a period of one and half year. A total of 56 patients who required stoma formation were analysed. All patients who underwent elective as well as emergency stoma formation for both benign and malignant conditions were included in the study. Patients with ≤ 5 years of age were excluded. In our study of 56 patients who had intestinal stoma, 51.8% (n=29) developed complications related to stoma. The overall most common complication seen was peristomal skin excoriation in 37.8% (n=14) followed by stoma related electrolyte disturbances in 24.3% (n=9).

In our study most of the stomas were done as emergency procedure in 67.9% (n=38) patients. 32.1% (n=18) stoma formation were done as elective procedures. Other studies having high incidence of emergency stoma creation include; Qamar A et al⁷ where 66% emergency and

34% elective stomas were created. Hosamath V et al⁸ also reported incidence of emergency ileostomy of 87.5%.

Retraction of stoma, prolapse and peristomal abscess showed equal distribution in our study with each occurring in 8.1% (n=3). Stenosis and bleeding were seen in 5.4% (n=2). Least common complication seen was obstruction 2.7% (n=1). The findings were similar to Saghir JH et al⁹ reported a complication rate of 67.5% in 121 patients with intestinal stomas. Pandiaraj J et al¹⁰ reported a complication rate of 82%, among which skin excoriation was the most common. Mohammed R et al¹¹ reported skin excoriation in 45.3% of patients with stoma. Ahmad Z et al¹², Qamar A et al⁷ reported skin excoriation in 36.2% and 39% of patients with stoma respectively. A study by Ratliff et al¹³ has shown peristomal skin irritation as the most common stoma-related complication in 53% of cases.

In our study the complication rate was higher in emergency procedures accounting for 67.7% (n=25). 32.4% (n=12) of complications occurred in electively done procedures. Of 25 complications in emergency procedures, most common complications seen was skin excoriation (n=9), followed by electrolyte disturbance (n=5) and peristomal abscess (n=3). Retraction, stenosis and bleeding showed equal distribution (n=2). Prolapse and obstruction also showed equal distribution (n=1). Of 12 complications in elective procedures, the most common complications were peristomal skin excoriation (n=5) and electrolyte disturbance (n=4), followed by prolapse (n=2). Retraction (n=1) was least common complication among elective procedures. Harris D et al¹⁴ in their study reported that urgency of surgery were associated with high levels of morbidity and mortality in patients undergoing stoma formation. Stothert J et al¹⁵ reported emergency stoma formation in a series of 51 stomas with a morbidity of more than 50% of patients. Qureshi A et al¹⁶ studied 95 stomas, of which, 60 were emergency procedures and 135 stomas were elective procedures. The rate of grade 3 or 4 complications was higher in the emergency cohort of patients. Long term complication was also high in patients operated in emergency i.e. 48% compared to 25% for elective patients.

In our study, out of 37 complications, most of the complications were related to the ileostomy procedure, accounting for 75.7% (n=28/37). Complications related to colostomy procedures accounted for 24.3% (n=9). Among 28 complications in ileostomy procedures, peristomal skin excoriation was the most common (n=14/28) followed by electrolyte disturbance (n=9/28). Stenosis and prolapse had equal distribution (n=2 in each out of 28). One patient had stoma site bleeding. Of 9 complications in colostomy procedures, most common were retraction and peristomal abscess (n=3 in each out of 9). Prolapse, obstruction and bleeding had equal distribution (n=1 in each out of 9).

In our study, most of the patients had hospital stay for ≤ 10 days 82.1% (n=46) followed by 11 to 15 days of hospital stay in 14.3% (n=8). The mean days of hospital stay were 7.58 ± 8.25 days. Length of hospital stay was increased for patients with stoma related complications. Pandiaraj J et al¹⁰ observed most of the complications in patients who had hospital stay of 16 to 20 days. Ali S et al¹⁷ showed 10 to 20 days of hospital stay in most of the patients and Hosamath V et al⁸ reported mean duration of 20.21 days.

Conclusion

Our study found the peristomal skin excoriation and electrolyte imbalance as the most common complications. Emergency procedure increased the risk of complications in intestinal stomas. Stoma related complications resulted in longer hospital stay.

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