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Post operative complications associated with Intestinal Stomas construction.

Prof. Dr. Jishan Ahmed[1], Dr. Siddhartha Sankar Konwar[2],
Dr. Akshay Kumar Verma[3]

[1](*Professor and Head of Department, Department of General Surgery, Assam Medical College and Hospital/ Srimanta Sankaradeva University of Health Sciences, Assam, India)*
[2](*Assistant Professor, Department of General Surgery, Assam Medical College and Hospital/ Srimanta Sankaradeva University of Health Sciences, Assam, India)*
[3](*Junior resident, Department of General Surgery, Assam Medical College and Hospital/ Srimanta Sankaradeva University of Health Sciences, Assam, India)*

Abstract:
Background*: Stoma is a life saving procedure and is an important tool in Surgeon's armamentarium. The aim of this study was to assess the various complications encountered following intestinal stoma surgery.*
Materials and Methods*: A Hospital based prospective observational study was conducted on 47 patients in Department of General Surgery, Assam Medical College, Dibrugarh over a period of one year from 1st June 2020 to 31st May 2021. Patients who underwent intestinal stoma construction on emergency and elective basis were included and were followed up for 8 weeks postoperatively. The various complications were documented, analyzed and conclusion was drawn .*
Results*: Colorectal carcinoma was the most common indication for stoma construction. The most common complication was Peristomal skin conditions (pyoderma gangrenosum, excoriations, allergic dermatitis etc.) followed by Diarrhoea.*
Conclusion: *Preoperative counselling of patients regarding stoma, proper surgical technique and postoperative stomal care by patients and surgeons are necessary and a must to minimize the complication rate in cases of intestinal stoma.*
Key Word*: Intestinal stoma, Colorectal carcinoma, Peristomal skin condition.*

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I. Introduction

Stoma is a Greek word meaning "mouth" or "opening". An intestinal stoma is an opening of the intestinal tract onto the abdominal wall constructed surgically or appearing inadvertently. Colorectal Cancer is regarded as the biggest indication behind stoma construction as per most studies done on stomas. According to American Institute for Cancer Research, Colorectal Cancer is the 3rd most common cancer worldwide. 1.8 million cases of Colorectal Cancer were reported worldwide in 2018. According to American Society of Clinical Oncology 2020, in India the Incidence Rates of Colorectal Cancer had increased by 20% from 2004 to 2014. Stoma is a life saving procedure and is an important tool in Surgeon's armamentarium. In recent times there is a shift in frequency of permanent stomas to temporary stomas like Loop Ileostomy. Loop ileostomies are difficult to manage. The various complications one encounters following stoma construction are Peristomal skin excoriation, Mucocutaneous separation, Diarrhoea, Retraction, Bleeding and Parastomal hernia. Therefore the Surgeon's role is not only limited to stoma construction but also includes preoperative counselling and postoperative stoma care.

II. Material And Methods

After getting Ethical clearance, a Hospital based Prospective Study was conducted in Assam Medical College and Hospital, Dibrugarh over a period of 1 year from 1st June 2020 to 31st May 2021. The sample size consisted of 47 patients that underwent intestinal stoma construction as an elective and emergency procedures.
Study Design: Hospital based Prospective study.
Study Location: This was a tertiary care teaching hospital based study done in Department of General Surgery, at Assam Medical College & Hospital, Dibrugarh, Assam.
Study Duration: 1st June 2020 to 31st May 2021 .
Sample size: 47 patients.

Subjects & selection method: All patients who underwent intestinal stoma construction on emergency and elective procedures.

Inclusion criteria:

1. All patients male and female aged 18 years and above.
2. All emergency and elective cases that underwent intestinal stoma construction during the study period.

Exclusion criteria:

1. Patients who underwent urinary stoma construction.
2. Patients who underwent stoma construction as an indication for gynaecological disorder.
3. Immunocompromised patients and patients with advanced diseases.
4. Patients who did not give consent to be included in the study.

Procedure methodology

All patients who underwent intestinal stoma construction were put on Direct interview. After taking a well informed verbal and written consent from patients participating in study, a detailed history was taken. A thorough physical and clinical examinations were done and recorded as per a structured predesigned proforma. Baseline blood investigations and radiological investigations were done. Pre anaesthetic check up of patients were mandatory before Surgical interventions . The Operative procedure and Intraoperative findings were noted. Specimens were sent for Histopathological Examination. Postoperatively all patients were closely monitored regarding blood pressure, pulse rate, oxygen saturation, urine output and functioning of stoma. During their Hospital stay, patients and their relatives were repeatedly educated regarding stoma and management. Functioning of stomas and any complications of stomas during Hospital stay or Follow up period were recorded in a predesigned proforma. The complications were managed conservatively or surgically according to the need. Patients were followed up by interview in person at the end of 1^{st} week, 4^{th} week and 8^{th} week.

Statistical analysis : All the datas were compiled and analyzed on Microsoft Excel using Fisher test & SPSS version 16 and presented in form of tables.

III. Result

Table no 1 : Shows Age distribution in Present Study.

Age group	Frequency	Percentage
18-27	8	17.02
28-37	9	19.15
38-47	7	14.89
48-57	11	23.40
58-67	7	14.89
68-77	3	6.38
>77	2	4.26
Total	47	100

A total of 47 patients were included in study. The maximum number of patients were in the age group 48-57 years (n=11). The mean age of patients studied was 46.02 ± 17.09 years.

Table no. 2: shows Frequency of elective and emergency cases in Present study.

Procedure	Frequency	Percentage
Elective	11	23.40
Emergency	36	76.60
Total	47	100

Of the total 47 patients, 11 (23.40%) underwent stoma construction as an elective procedure whereas 36 (76.60%) underwent as an emergency procedure.

Table no. 3: shows Indications of Stoma construction in the Present study.

Indication	Frequency	Percentage
Colorectal cancer	25	53.19
Sigmoid volvulus	3	6.385
Intestinal perforation	7	14.89
Small bowel volvulus	2	4.26
Perineal injury	3	6.38
Anal cancer	1	2.13
ECF	1	2.13
Strangulated hernia	1	2.13
Iatrogenic injury	2	4.25

Penetrating injury	1	2.13
Intestinal TB	1	2.13
Total	47	100

Of all the 47 patients undergoing stoma construction, main indication was Colorectal carcinoma (53.19 %) followed by intestinal perforation (14.89%).

Table no 4: Shows different types of stomas that were constructed.

Types of Stomas	**Frequency**	**Percentage**
Transverse loop colostomy (TLC)	14	29.79
End colostomy (EC)	6	12.76
Sigmoid loop colostomy (SLC)	6	12.76
Total Colostomy	26	55.32
Loop ileostomy (LI)	19	40.43
End ileostomy (EI)	1	2.13
Double barrel ileostomy (DBI)	1	2.13
Total ileostomy	21	44.68

Colostomy (n=26) were constructed more often than ileostomy (n=21). Loop ileostomy (n=19) was the most common type of stoma constructed followed by followed by Transverse loop colostomy (n=14).

Table no 5 : shows various complications of Stomas that were encountered.

Complications	**Frequency**	**Percentage**
Parastomal skin conditions (PSC)	7	29.14
Mucocutaneous separation (MCS)	2	6.90
Prolapse	3	10.34
Diarrhoea	5	17.24
Retraction	4	13.79
Bleeding	3	10.34
Necrosis	1	3.45
Parastomal hernia (PH)	2	6.90
Stenosis	1	3.45
Intestinal obstruction	1	3.45
Total	29	100

The most common complication was parastomal skin condition (29.14%) followed by diarrhoea (17.24%).

Table no. 6 : shows Frequency of complications in different types of stomas.

Types of Stoma	**No. of complications**	**Percentage**
TLC (n=14)	10	71.43
EC (n=6)	2	33.33
SLC (n=6)	3	50.00
LI (n=19)	12	63.15
EI (n=1)	1	100.00
DBI (n=1)	1	100.00
Total (n=47)	29	61.70

The maximum number of complications seen in colostomy patient was 57.59% and in ileostomy was 66.67%.

Table no. 7 : shows Specific complications that were encountered in different types of stomas.

Complications	**TLC (n=14)**	**EC (n=6)**	**SLC (n=6)**	**LI (n=19)**	**EI (n=1)**	**DBI (n=1)**
Parastomal skin conditions (PSC)	2 (14.29%)	0	1 (16.67%)	4 (21.05%)	0	0
Mucocutaneous separation (MCS)	1 (7.14%)	0	0	1 (5.26%)	0	0
Prolapse	3 (21.49%)	0	0	0	0	0
Diarrhoea	0	0	0	4 (21.05%)	0	1 (100%)
Retraction	2 (14.29%)	1 (16.67%)	0	1 (5.26%)	0	0
Bleeding	0	0	2 (33.33%)	0	1 (100%)	0
Necrosis	0	1 (16.67%)	0	0	0	0
Parastomal hernia (PH)	2 (14.29%)	0	0	0	0	0
Stenosis	0	0	0	1 (5.26%)	0	0
Intestinal obstruction	0	0	0	1 (5.26%)		0
Total	10 (71.44%)	2 (33.34%)	3 (50%)	12 (63.14%)	1 (100%)	1 (100%)

Transverse loop colostomy had most complications in colostomy patients (71.44%).

Table no. 8 : shows Frequency of complications in emergency and elective procedure.

Procedure	**Complication**	**Percentage**	**p value**
Emergency n=36	27	75%	
Elective	2	18.18%	**0.001***

N=11			
Total =47	29	61.70%	

*p value is calculated by Fisher test.

Complications were more in emergency cases (75%) as compared to elective cases (18.18%). P value is significant indicating emergency procedure with stoma construction is associated with significance morbidity and complications as compared to elective procedures.

IV. Discussion

In the present study mean age is 46.02 ± 17.04 years which is similar to studies of Ali G. Mohammed Radhe et al[1] where mean age is 42.5 years and Shabab Husaain et al[2] where mean age is 46.33 years. The most common indication for stoma construction in studies of P.J. Arunugam et al[3], M. Caricato et al[4] , J Cottam et al[5] is Colorectal carcinoma which is similar to the present study. In the studies of John J. Park et al[6], P.J. Arunugam et al[3], Ali G. Mohammad Radhe et al[1], J. Cottan et al[5] colostomies were constructed more than ileostomies due to higher incidence of colorectal carcinoma in their studies which is similar to the present study. A high incidence of stoma related complications (61.70%) was recorded in present study. Complications were more in emergency cases (75%) as compared to elective cases (18.18%). P value (0.001) is significant indicating emergency procedure with stoma construction is associated with significance morbidity and complications as compared to elective procedures which is similar to other studies. It is difficult to compare these studies as they vary widely in different methodological aspects. The most common stomal complication was Peristomal skin conditions (n=7, 29.14%) followed by Diarrhoea (n=5, 17.24%). Peristomal skin conditions are preventable by using skin appliances of correct size which can fit closely and firmly to the skin around stoma with help of latex mixture. A correct surgical technique of stoma construction prevents most of stomal complication. Diarrhoea was found more in ileostomy patients and was managed conservatively by oral and IV fluids. Retraction of stoma developed in 4 patients by the end of 8th week. One was managed conservatively whereas the other 3 needed revision due to complications following peritonitis. Bleeding from bowel mucosa due to repeated trauma by stomal appliances was found in 3 patients. Patients did well after ligation of bleeding points. Prolapse was found in 3 patients and were mild and asymptomatic. It was managed conservatively like manual reduction of prolapse and use of stool softener. Patients were advised for further follow up or for revision of stoma if needed. Mucocutaneous separation was found in one patient each of Transverse loop colostomy and Loop ileostomy which were minor and required conservative approach. Necrosis was noted in only one patient of End colostomy by end of 1st week. This required Laparotomy and stoma revision which was done on emergency basis. Parastomal hernia was noted in 2 cases of permanent palliative transverse loop colostomy at the end of 8th week. Local repairs with prosthetic mesh were done. Stomal stenosis was found in one patient of Loop ileostomy at the end of 4th week for which local revision was done. Intestinal obstruction was seen in only one patient of Loop ileostomy at the end of 8th week due to post operative adhesion causing obstruction in proximal loop which was treated surgically to release obstruction and a new stoma was created after laparotomy. Out of 47 patients only 1 patient of Loop ileostomy who was diagnosed to be a case of Intestinal tuberculosis expired due to septicaemia on 11th post operative day.

V. Conclusion

It has been observed that maximum postoperative complications have been associated with emergency surgical interventions as compared to that of the elective surgeries. This is due to shortage of time for preoperative preparations of the patients undergoing emergency procedures. It is an acknowledged fact that certain factors like age, urgency of surgery and diagnosis of disease influence mortality and morbidity rate related to stoma construction. Some of these factors are beyond Surgeon's control and may explain why even meticulous surgical technique cannot always prevent complications. Therefore preoperative counselling of patients regarding stoma and stoma care, appropriate surgical technique by surgeons and meticulous post operative care are necessary for a good quality of life.

References

[1]. Redha AG, Abdul AY, Hassan A. Intestinal Stomas and their Complications: A Descriptive Study. Basrah Journal of Surgery. 2003;9(1):23-30.
[2]. Shabab H, Viqar A, Sajjad Muhammad K, Waqar Alam J. Ileostomies and colostomies; common reasons and complications of construction: one year study. Professional Med J 2015;22(11):1499-1503.
[3]. Arumugam PJ, Bevan L, Macdonald L, Watkins AJ, Morgan AR, Beynon J, Carr ND. A prospective audit of stomas- analysis of risk factors and complications and their management. Colorectal Disease. 2003 Jan;5(1):49-52.
[4]. Caricato M, Ausania F, Ripetti V, Bartolozzi F, Campoli G, Coppola R. Retrospective analysis of long- term defunctioning stoma complications after colorectal surgery. Colorectal Disease. 2007 Jul;9(6):559-561.
[5]. Cottam J, Richards K, Hasted A, Blackman A. Results of a nationwide prospective audit of stoma complications within 3 weeks of surgery. Colorectal Disease. 2007 Nov;9(9):834-838.
[6]. Park JJ, Del Pino A, Orsay CP, Nelson RL, Pearl RK, Cintron JR, Abcarian H. Stoma complications. Diseases of the colon & rectum. 1999 Dec;42(12):1575-1580.