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Original Research Article

"A CLINICAL STUDY ON POSTOPERATIVE COMPLICATIONS OF INTESTINAL STOMAS"

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ABSTRACT:

Background:A surgically created or unintentionally formed opening of the intestinal or urinary system onto the abdominal wall is known as intestinal stoma. The connection between the colon and the skin of the abdominal wall is known as a colostomy and when ileum is externalized on the abdomen skin is known as ileostomy.

OBJECTIVES:

1) To study different types of intestinal stomas, their indications.

2) To study various complications that occurred after the construction of intestinal stomas.

3) To study the ways how these complications can be minimized and managed in a better way

Material & Methods: Study Design: A prospective observational study. **Study area:** The study was done at surgery department, Subbaiah Institute of Medical Sciences, Shimoga.**Study Period:**Sep.2021 – March 2022. **Study population:** Patients who underwent intestinal stomas either ileostomy or colostomy either in elective or emergency setting with postoperative complications of intestinal stomas.**Sample size:** 30 cases were included in our study.**Sampling method:** Simple Random sampling method.**Study tools and Data collection procedure:** Patients who underwent intestinal stomas either ileostomy or colostomy either in elective or emergency setting with postoperative complications of intestinal stomas were included in the study. The indications for the stoma, temporary, permanent, end or loop or double barrel, ileostomy or colostomy and their complications were recorded. Patients were followed up in the postoperative period for about 6 months or till the revision of stoma for early and late postoperative complications and their complications were recorded and analyzed.

Results: Ileostomy was the most common type of stoma (23 out of 30) 76.66% and then colostomy (7 out of 30) 23.33%. Among ileostomy,loop ileostomy was done 10 patients followed by end ileostomy done in 7 patients then double barrel was done in 6 patients. Among colostomy, end colostomy was most commonly done in 6 patients followed by descending loop colostomy done in 1 patient.

CONCLUSION: Preoperative stoma site marking for optimal stoma location and proper preoperative education by WOC nurses will increase the patient's independence in stoma care

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and resumption of normal activities, estimate pouching system wear times, and prevent postoperative complications.

Keywords: colostomy and ileostomy, management complications, peristomal hernia prolapse, retraction, necrosis

INTRODUCTION:

A surgically created or unintentionally formed opening of the intestinal or urinary system onto the abdominal wall is known as intestinal stoma. The connection between the colon and the skin of the abdominal wall is known as a colostomy and when ileum is externalized on the abdomen skin is known as ileostomy. In rare circumstances, the proximal small bowel can be externalized by a jejunostomy. The conduit can be an intestinal segment or, in some situations, a direct implantation of the ureter or even the bladder on the abdominal wall.

Because the disorders for which the stomas are made are not specified as reportable in India, information on the types and frequency of stomas that have been made, and stoma complications, and the resulting impairment of an individual's life has been restricted. Both ileostomy and colostomy are made for a variety of reasons. Decompressing colostomies, for example, are commonly used to treat distal obstructive lesions that cause significant proximal colon dilatation without ischemic necrosis. Because the colon's distal portion was entirely removed as a part of APR done for rectum cancer, a diverting colostomy was used to divert intestinal contents.

Stomas have a long history dating back to ancient times, and the first deliberate stoma was created only about 200 years ago. A stoma is a life-saving technique, and as surgeons, we must recognize and deal with the functional and emotional impairments that a patient with a stoma experiences, especially in the early stages after surgery. Patients and surgeons alike appreciate any ideas for stoma maintenance or surgical technique changes that appear to have validity in reducing the difficulties of transitioning to a colostomy necessitating further research into the various stomas, their complications, and their management.

Hence the present study was undertaken to study the postoperative complications of intestinal stomas in the study population.

OBJECTIVES:

1) To study different types of intestinal stomas, their indications.
2) To study various complications that occurred after the construction of intestinal stomas.
3) To study the ways how these complications can be minimized and managed in a better way

Material & Methods:

Study Design: A prospective observational study.

Study area: The study was done at surgery department, Subbaiah Institute of Medical Sciences, Shimoga.

Study Period: Sep.2021 – March 2022.

Study population: Patients who underwent intestinal stomas either ileostomy or colostomy either in elective or emergency setting with postoperative complications of intestinal stomas.

Sample size: 30 cases were included in our study.

Sampling method: Simple Random sampling method.

Inclusion Criteria:1) Patients above 18 years of age.

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2) Patients who underwent intestinal stoma either in emergency or elective settings with postoperative complications of intestinal stomas.
3) Patients who have given informed consent.
Exclusion criteria:1) Patients below 18 years.

2) Patients with intestinal stomas constructed outside the institute.
3) Patients undergoing the construction of a urinary stoma.
4) Patients who are having a stoma made as a result of a gynaecological disorder.
5) Patients who have not given consent.
Ethical consideration: Institutional Ethical committee permission was taken prior to the commencement of the study.
Study tools and Data collection procedure:
Patients who underwent intestinal stomas either ileostomy or colostomy either in elective or emergency setting with postoperative complications of intestinal stomas were included in the study. The indications for the stoma, temporary, permanent, end or loop or double barrel, ileostomy or colostomy and their complications were recorded. Patients were followed up in the postoperative period for about 6 months or till the revision of stoma for early and late postoperative complications and their complications were recorded and analyzed.
Data analysis:
The data was entered in excel sheet and analyzed using SPSS (Version 20). Descriptive statistics with mean, standard deviation and proportions (%) were calculated for quantitative variables. To test the hypothesis Chi Square test and independent sample t tests were used. p value <0.05 was considered as statistically significant.
Observations & Results:
Table 1: Age wise distribution of the study participants

AGE GROUPS	FREQUENCY	PERCEN TAGE
18 – 29	0	0
30 – 39	3	10
40 – 49	6	20
50 – 59	6	20
60 – 69	9	30

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>70	6	20
TOTAL	30	100

The age range 60 to 69 had the highest number of cases. The study's youngest patient was 30 years old, while the oldest was 84 years old.

Table 2: Proportion of participants based on gender

Table 3: Elective vs emergency in the study group

ELECTIVE	EMERGENCY
27	3

Out of the 30 patients, 27 had stoma construction done as an elective procedure, whereas 3 had it done as an emergency procedure.

Table 4: Indication for stoma construction

INDICATION	FREQUENCY	PERCENTAGE

SEX	FREQUENCY	PERCENTAGE
FEMALE	12	40
MALE	18	60

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INTESTINAL OBSTRUCTION - Gangrenous bowel	**20**	**66.66%**
- Rectal carcinoma	5	16.66
- Carcinomacolon	5	16.66
- TBabdomen	4	13.33
- Adhesions	3	10
- Sigmoidvolvulus	1	3.33
- Intussusception	1	3.33
	1	3.33
INTESTINAL PERFORATION - IleaIperforation	**9**	**30%**
- Ceacalperforation	5	16.66
- Ascending colon perforation	1	3.33
- Descendingcolon	1	3.33
- Sigmoid colon	1	3.33
	1	3.33
Enterocutaneous fistula	**1**	**3.33%**

In this study most common indication for stoma construction is intestinal obstruction followed by acute intestinal perforation and the enterocutaneous fistula.

Table 5: Different types of stomas constructed

PROCEDURE	**NUMBER**	**PERCENTAGE**

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ILEOSTOMY - Endileostomy - Loopileostomy - Double barrel	**23** 7 10 6	**76.66%**
COLOSTOMY - Endcolostomy - Loopcolostomy	**7** 6 1	**23.33%**

Ileostomy was the most common type of stoma (23 out of 30) 76.66% and then colostomy (7 out of 30) 23.33%. Among ileostomy,loop ileostomy was done 10 patients followed by end ileostomy done in 7 patients then double barrel was done in 6 patients. Among colostomy, end colostomy was most commonly done in 6 patients followed by descending loop colostomy done in 1 patient.

Table 6: Various postoperative complications of stoma

COMPLICATIONS	NUMBERS	PERCENTAGE
Peristomal skin irritation	18	60%
Ischemia and necrosis	6	20%
Retraction of stoma	4	13.33%
Stomal prolapse	1	3.33%
Parastomal hernia	1	3.33%

Table 7: Specific complication in each stoma

Complications	Loop colostomy (n=1)	End colostomy (n=6)	Loop Ileostomy (n=10)	End ileostomy (n=7)	Double barrel ileostomy (n=6)

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Skin irritation	0	0	8(80%)	5(71.42%)	5(83.33%)
Ischemia and necrosis	0	4(66.66%)	1(10%)	1(14.28%)	0
Retraction	0	1(16.66%)	1(10%)	1(14.28%)	1(16.66%)
Prolapse	1(100%)	0	0	0	0
Parastomal hernia	0	1(16.66%)	0	0	0

Peristomal skin irritation is most common complication among all types of stomas 18 out of 30 that is 60% followed by ischemia and necrosis 6 out of 30 that is 20% then retraction 4 out of 30 that is 13.33%, prolapse and parastomal hernia with 1 each.

Table 8: Various early and late complications.

	Early complication(n= 21)	**Late complication (n=9)**
Skin irritation	12	6
Ischemia and necrosis	6	0
Retraction	3	1
Prolapse	0	1
Parastomal hernia	0	1

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Stoma related complications may be classified as those occur early (within 1 month) or late (more than one month postoperatively).

In this study early complications seen in 21 patients of which

- Peristomal skin irritation seen in – 12 patients.
- Ischemia and necrosis seen in – 6 patients.
- Retraction seen in – 3 patients.

Late complications seen in 9 patients of which

- Peristomal skin irritation seen in – 6 patients.
- Retraction seen in 1 patient.
- Parastomal hernia seen in 1 patient.
- Stomal prolapse seen in 1 patient.

In this study most early complication is peristomal skin irritation and most common late complication is also skin irritation.

DISCUSSION:

Despite modest advances in surgical technique and enterostomal therapy, complications after stoma creation remain extremely common. The rate of stoma specific complications in literature varies quite widely, ranging from 10% to 70%, depending on methodology of the study, the length of follow up and definition of the complication [1, 2].

Stoma related complication was classified as those that occur early (within one month of surgery) or late (more than one month after surgery). In the literature the most common early complications was are peristomal skin irritation, leakage, high output, and ischemia and most commonly reported late complication include peristomal hernia, prolapse, obstruction, and stenosis.

Among 30 patients who were included in the study, the maximum numbers of patients who had stoma were in range of age group between 60 – 69 that is 9 patients (30%). The youngest patient in the study was 30 years old and the eldest was 84 years old. Paediatric age group (0-18 years) patients were not included in the study.

A similar study done by Waradamohayuddinet al[3] shown maximum no of patients were between range of 60 – 80 years (50.65%). Another study done by Sumathiet al[4] shown maximum no of patients between range of 56 – 65 years – 32%.

Another study done by Pandirajaet al[5] shown that maximum range is between range of 26 – 35 years and 46 – 55 years total of 50%.

Among 30 patients of present study 18 were male(60%) and 12 were female (40%) which shown stoma and its complications was more in males compared to females. The present study was in accordance with study done by WaradaMohayuddinet al[3] which shown that stoma was made more in males (60.52%) compared to females (39.47%).A similar study done by Pandirajaet al[5] which shown that stoma was made more in males (61%) when compared to female (39%).A similar study done by Zeeshanuddinahmad et al[6] which shown that stoma was constructed more in males (70%) when compared to females (30%).A similar study done by Sumathiet al[4] shown that stoma was made more in males (72%) when compared to females (28%).

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In the current study, 27 patients (90%) had a stoma created as an emergency procedure, while only 3 patients (10%) had a stoma created as an elective procedure. During an emergency, there is a higher number of stoma formations, according to this study it is because of hemodynamic instability and the difficulty to perform a definitive surgery in the presence of peritoneal contamination. According to the findings of this study, well- planned surgeries are less likely to result in a stoma. As a result, greater preoperative planning lowers the number of stomas created. When opposed to a stoma made in an emergency situation, the elective stoma has less complication.

A similar study done by Pandirajaet al[5] showed stoma creation is more in emergency setting – 79% than elective setting – 21%.A similar observation was done in another study done by Zeehsnauidahmad et al[6] which showed stoma was done more in emergency setting – 97% than in elective setting – 3%.A similar observation was done by Sumathiet al[4] showed stoma created more in emergency setting – 54% compared to elective setting – 45%.

In this study an ileostomy (76.66%) was the most prevalent form of stoma in this study, with 23 patients out of 30 patients. Loop ileostomy is the most prevalent ileostomy in 10 patients (33.33 percent), followed by end ileostomy in 7 patients (23.33 percent), and then double barrel ileostomy in 6 patients (20 percent). Within the colostomy, end colostomy is more commonin 6 patients (20%), followed by loop transverse colostomy in 1 patient (3.33 percent).Similar findings were reported by Pandirajaet al[5] which showed ileostomy in 80% of patients and colostomy in 20% of patients among which loop ileostomy was common that is in 60% of patients followed by end ileostomy in 20% of patients.

Similar finding noted in the study done by Zeeshanauidahmad et al[6] which showed ileostomy in 76% of patients followed by colostomy in 21% of patients among which loop ileostomy was common stoma done in 64% of patients and end ileostomy was done in 5% of patients.In contrast, to this a study done by Waradamohay et al[3] reported a high incidence of colostomy (79.60%%) and a low incidence of ileostomy (20.39%%) among this high incidence is seen in end colostomy followed by loop ileostomy then loop colostomy followed by end ileostomy.Similarly another study done by Sumathi et al[4] showed results in contrast to the present study that is colostomy in 82% of patients and ileostomy in followed by ileostomy in 18% of patients, among those cases loop colostomy was more then followed by end colostomy.

WaradaMohay et al.[3] published a similar study that revealed the most common causes of stoma formation was colorectal cancers 62(40.78%), followed by colon cancer 30 (19.73%), intestinalobstruction 24 (15.78%), gangrenous sigmoid volvulus 13(8.55%),abdominal injuries 9 (5.92%), Rectal prolapsed 8 (5.26%), while Colonobstruction was 6 (3.94%).Pandiraja et al.[5] published a similar study that revealed the most common causes of stoma formation was gastrointestinal malignancy (25.0%) followed by abdominal trauma (22.0%), hollow viscus perforation (12.0%),enteric fever(8.0%) TB abdomen (6%) enterocutaneous fistula (4%) intestinal obstruction due to adhesions (4%).

In this study complications were seen more in ileostomy as compared to colostomy. Loop ileostomy have highest number of complications 10 followed by end ileostomy 7 then double barrel ileostomy with 6. Among colostomy end colostomy 6 is associated with more complications than loop1. Peristomal skin irritation is most common complication among all types of stomas 18 out of 30 that is 60% followed by ischemia and necrosis 6 out of 30 that is

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20% then retraction 4 out of 30 that is 13.33%, prolapse and parastomal hernia with 1 each.A similar study done by Waradamohay et al[3] showed that the most common complication in all stoma was skin problems associated with stoma followed by parastomal hernia and wound infection then mucocutaneous separation then ischemia and necrosis. Skin excoriation is the most prevalent complication, followed by surgical site infections, according to a comparable study done by Pandiraja et al.[5] then followed by stomal retraction thenintestinal obstruction then ischemia and necrosis and parastomal hernia.

A similar study done by Zeeshnauid et al[6] showed that the most common complication reported in our study was peristomal skin irritation and erythema followed by laparotomy wound infection and peristomal skin infection, abscess formation and fistula formation then stoma ischemia and necrosis then parastomal hernia and then stomal retraction.Another study done by Sumathi et al[4] showed that skin excoriation and dermatitis is the most frequent complication followed by stomal prolapse then retraction of stoma then parastomal hernia and ischema necrosis.

In contrast to the present study, a study done by Waradamohay et al[3] showed that colostomy was associated with more complications than ileostomy and similar observation was seen in a study done by Sumathi et al[4] in which colostomy was associated with more complications compared to ileostomy, among colostomy end colostomy was associated with more complications followed by loop ileostomy then loop colostomy then end ileostomy.

Preoperative education enables shorter hospital stay of the patients after stoma surgery due to enhanced recovery after surgery (ERAS) **(7)**.

CONCLUSION:

Preoperative stoma site marking for optimal stoma location and proper preoperative education by WOC nurses will increase the patient's independence in stoma care and resumption of normal activities, estimate pouching system wear times, and prevent postoperative complications.

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