



PROSPECTIVE STUDY OF COMPLICATIONS AND MANAGEMENT OF INTESTINAL STOMA IN EMERGENCY LAPAROTOMY AT DEPARTMENT OF SURGERY G.R. MEDICAL COLLEGE GWALIOR.

Surgery

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ABSTRACT

Objectives - To identify various complications which are encountered after the formation of intestinal stomas and to assess the ways in which these complications can be minimised and managed in a better way to improve the quality of life in these patients.

Background - In surgical emergencies with complaints requiring emergency laparotomy underwent stoma formation, loop ileostomy has least complications in compare to colostomy.

Material & Method- 100 cases who have admitted either through OPD or in Emergency in department of surgery and in whom the emergency surgery was performed and stomas were made were included in the study. Patients undergoing stoma construction as an indication for urinary stoma, gynaecological disorder, psychological and biochemical complications were excluded for study.

Result- Out of 100 patients 70 were males and 30 were females ranging from age 18-70 years. No specific comorbid condition was found associated in 44% patients. An analysis of the causative factors showed that in fifty-two cases infections like typhoid, TB causing perforations as the basic cause. Loop ileostomy was preferred in 36 patients. Another 20 patients had resection with end ileostomy while 22 patients underwent double barrel ileostomy. 07 patients had end colostomy and 15 patients had a loop colostomy. In this study almost half of the patients developed complications. It was found that 46.1% developed complications following ileostomy whereas 59.09% developed complications post colostomy.

Conclusion- It is clear from this study, that the complication rate arising from stoma (ileostomy/ colostomy) formation remains high. Loop ileostomy has least complications as compared to colostomy. Also some preventive measures taken in preoperative phase like preoperative education, stoma site marking, adequate technical considerations are helpful in bringing down complications.

KEYWORDS

stoma, ileostomy, colostomy,

INTRODUCTION

Stoma is a surgically created opening of the intestine (large/small) in the anterior abdomen wall. The purpose of stomas are to divert the feces away from the distal bowel loops in order to relieve obstruction or protect anastomotic leakage or reduce risk of pelvic sepsis. Stomas are classified as temporary stoma or permanent stoma based on the need.

History of stomas dates back to 1710 when **Littre of Paris** made first ventral colostomy for imperforate anus.¹

After world war I, a mortality rate of 60% which was due to primary repair of colonic injury was dropped to 30% after world war II due to the introduction of colostomy.² Complications are divided into early complications (up to 30 days after surgery) - Ischemia/necrosis, mucocutaneous separation, retraction and fluid and electrolyte imbalance.

Late complications (more than 30 days after surgery) - parastomal hernia, stomal prolapse, parastomal pyoderma gangrenosum.³⁻⁴⁻⁵

In spite of surgical expertise, complications after stoma formation still occur and often cause social isolation and a significant reduction in quality of life. Factors affecting type and frequency of complications include surgeon experience, appropriate preoperative marking and education, and patient issues such as age, obesity, diabetes and other co-morbid conditions and ability to care for stoma.

The aim of our study is therefore to evaluate our own experience and determine the complications and the type and location of stoma.

The overall incidence of retraction of a stoma—either an ileostomy or colostomy— ranges from 1.4–9.0%.⁷⁻⁸⁻¹⁰ It can develop either in the early post-operative period, or as a late complication. These retracted loop stomas are problematic, because the stoma's ability to fully divert the faecal stream is compromised. Retraction in acute settings can result in dehiscence of the mucocutaneous junction and later subcutaneous and even intraperitoneal contamination. Moreover,

retraction may develop due to mucocutaneous separation as a result of ischaemia, necrosis of the stoma, inadequate approximation of the mucosa to the dermal layer of skin, peristomal infection, or lack of maturation due to malnutrition.⁷⁻⁸⁻⁹⁻¹⁰ On the other hand, late retractions are known to occur through increased thickness of the abdominal wall with weight gain.⁶⁻⁷⁻¹¹

In the present study, an attempt was made to identify common indications and complications associated with intestinal stoma in a tertiary care set up. This insight will help us decrease the problems associated with this commonly performed general surgical procedure.

AIMS AND OBJECTIVES

1. To identify various complications which are encountered after the formation of intestinal stomas.
2. To assess the ways in which these complications can be minimized.
3. To manage the complication in a better way.
4. To improve the quality of life in these patients after better management.

MATERIAL AND METHODS

Prospective study was done on all cases of intestinal stomas in exploratory laparotomy patient admitted in emergency in Department of surgery in J.A. Group of Hospitals, Gajra Raja Medical College, Gwalior from January 2019 to June 2020.

Place of study- Department of Surgery, J.A. Group of Hospitals, Gajra Raja Medical College, Gwalior.

Sample size: 100 cases

Study tool: All patient admitted in emergency in Department of Surgery, J.A. Group of Hospitals, Gajra Raja Medical College, Gwalior

INCLUSION CRITERIA-

1. All patients male and female undergoing stoma construction.
2. All emergency cases undergoing intestinal stomas construction.

EXCLUSION CRITERIA

1. Patients undergoing urinary stoma construction.
2. Patients undergoing stoma construction as an indication for gynecological disorder.
3. Psychological and biochemical complications were excluded for study.

OBSERVATION AND RESULTS

Following observations can be concluded from our study-

Table 1: Age wise distribution of ileostomy/colostomy complications

Age (In years)	No. of patients	No. Of Patients Without complications	No. Of patients with Complications	% of patients with Complications
<20	15	12	3	20%
21-30	15	12	3	20%
31-40	20	16	4	20%
41-50	20	14	6	30%
51-60	15	5	10	66.6%
61-70	15	3	12	80%
Total	100	62	38	38%

Table 2: Gender wise distribution of ileostomy /colostomy complications

Sex	No. Of Patients	No. Of Patients Without complications	No. Of Patients With complications	% of Patients With complications
Male	70	42	28	40%
Female	30	20	10	33%

Table 3: Comorbidities associated with ileostomy / colostomy

Comorbidit y	No. Of patients	% of patients
Diabetes	13	13%
Hypertensio n	18	18%
Obesity	25	25%
No comorbidity	44	44%

Table 4: Indications of ileostomy and colostomy

Indications	No. Of patients	% of patients
Typhoid	40	40%
SAIO	21	21%
Koch's Abdomen	12	12%
Perforation (traumatic)	15	15%
Volvulus	8	8%
Colon cancer	4	4%

Table 5: Analysis of vital parameters in patient group

Parameters	Within Range		Outside Range	
	Number of Patients	Perce n t (%)	Number of Patients	Perce n t (%)
SBP (in mm Hg)	53	53	47	47
PR (in per min)	39	39	61	61
Hb (in gm%)	87	87	13	13
TC	64	64	36	36
Urea	59	59	41	41
Na+	92	92	8	8
K+	70	70	30	30

Table 6: Distribution of patients according to the type of surgery performed in the stoma group

Type of Stoma	Number	Percentage (%)
Double barrel ileostomy	22	22
Loop ileostomy	36	36
Loop Colostomy	15	15
End ileostomy	20	20
End colostomy	7	7
Total	100	100

Table 7: Analysis of specific complications for each stoma type

	Double Barrel ileostomy n=22	Loop ileostomy n=36	End ileostomy n=20	Loop colostomy (n=15)	End colostomy (n=7)
Skin excoriation	7 (31.8%)	10 (27.7%)	5 (25%)	2 (13.3%)	2 (28.5%)
Necrosis	1 (4.5%)	0%	0%	1 (6.6%)	1 (14.2%)
Retraction	1 (4.5%)	1 (2.7%)	1 (5%)	2 (13.3%)	1 (14.2%)

Stenosis	1 (4.5%)	0%	1 (5%)	1 (6.6%)	0 (0%)
Prolapse	0%	1 (2.7%)	2 (10%)	0 (0%)	1 (14.2%)
Parastomal hernia	1 (4%)	0%	0%	1 (6.6%)	0
Peristomal abscess	2 (9%)	1 (2.7%)	0%	0%	1 (14.2%)
Pyoderma gangreosum	0%	1 (2.7%)	0%	0%	0%

Table 8 : Comparative analysis of complications of ileostomy vs colostomy

	Ileostomy (n = 78)	Colostomy (n = 22)
Skin excoriation	22 (28.2%)	4 (18.1%)
Necrosis	1 (1.2%)	2 (9.0%)
Retraction	3 (3.8%)	3 (13.6%)
Stenosis	2 (2.5%)	1 (4.5%)
Prolapse	3 (3.8%)	1 (4.5%)
Parastomal hernia	1 (1.2%)	1 (4.5%)
Peristomal abscess	3 (3.8%)	1 (4.5%)
Pyoderma gangreosum	1 (1.2%)	0%
Total	36 (46.1%)	13 (59.09%)

Table. 9: Showing complications compared with other study.

	DA HARRIS et al ¹² .	This study
Skin Excoriation.	10-35%	26%
Stoma Retraction.	1-9%.	6%
Stoma prolapse.	1-4%	4%
Parastomal Hernia	1-3%	2%
Stenosis	1-10%	3%
Necrosis.	1-5%	3%
Peristomal Abscess.	1-4%	4%
Pyoderma Gangreosum	1-2%	1%

DISCUSSION

The selected age of 100 patients ranged from 18-70 years. The patients were nearly equally distributed among all the age groups with slightly more preponderance in patients over 30 years of age.

On analyzing the comorbid factors, no specific comorbid condition was found associated in 44% patients, whereas obesity was seen in 13 (13%) patients, with hypertension seen in 18 (18%) patients and diabetes mellitus seen in 13 (13%) patients.

An analysis of the vital parameters, when the patient presented to the emergency department, showed that as expected more than 61% of patients had tachycardia while nearly 47% patients had systemic hypotension. Elevated total count indicative of peritonitis was seen in sixty patients (60%) while evidence of pre-renal failure, indicated by elevated urea levels was seen in 41% of patients. Around thirty eight percent of the patients had electrolyte abnormalities.

An analysis of the causative factors showed that in fifty-two cases infections like typhoid, TB causing perforations as the basic cause. Blunt or penetrating trauma to the abdomen is the cause in fifteen patients. Obstructive cause (small bowel more than large bible obstructions). Malignancy especially of the colon was the cause in four patients.

Regarding the procedures performed, 78 patients underwent ileostomy whereas 22 patients underwent colostomy.

Loop ileostomy was preferred in 36 patients. Another 20 patients had resection with end ileostomy while 22 patients underwent double barrel ileostomy. 07 patients had end colostomy and 15 patients had a loop colostomy.

In this study almost half of the patients developed complications which is almost same as quoted in the literature¹²⁻¹³.

On comparing specific complications, stoma retraction rate was 6% in our study which is also in accordance with that reported (1-9%). The rate stoma prolapse was 4% which also falls in the reported range of 1-4%. Also, parastomal hernia was found in 2% patients and falls within the reported range of 1-3%.

LIMITATIONS OF OUR STUDY

The present study was done on 100 patients, who presented in the surgical emergency with complaints requiring emergency laparotomy

underwent stoma formation in emergency laparotomy.

However, it is recommended that replication of this study should be done in larger samples and a greater number of factors affecting outcome should be considered. This can help to give a better information in understanding complications, to assess a way in which these complications can be minimized after stoma formation and improve the quality of life of patients.

No comorbid condition was identified as a statistically significant risk factor for the development of a high complication rate. This is possibly due to the small sample size or the fact that there were too many variables and few major complications.

CONCLUSION

It is clear from this study, that the complication rate arising from stoma (ileostomy/colostomy) formation remains high. So, patient should be well counselled about the complications and high risk of the surgery. In addition to this, it is evident that loop ileostomy has least complications in compare to colostomy.

Also some preventive measures taken in preoperative phase like preoperative education, stoma site marking, adequate technical considerations are helpful in bringing down complications. Post stoma formation, it is very important to educate the patient. Nutrition level also plays a very important role in reducing the risks.

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