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A COMPREHENSIVE STUDY ON INTESTINAL STOMAS

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ABSTRACT

BACKGROUND: Intestinal stomas are commonly constructed in an emergency as well as elective setting for a variety of indications. Historically associated with a high morbidity, evolution of skills on the part of the surgeon has lead to better understanding of the indications, technique of construction and management of a stoma. This study aims to evaluate the above-mentioned parameters and hence improve the outcome of patients undergoing a stoma.

AIM AND OBJECTIVE:

1. To study the various indications of intestinal stomas.

2. To study the techniques of intestinal stomas.

3. To study the complications of intestinal stomas and their management.

4. To study the overall compliance of patients in whom a stoma was constructed

PATIENTS AND METHODS: 50 patients admitted in M K C G Medical college and Hospital Berhampur and later operated and managed with a stoma were closely followed up from the date of admission to the date of discharge and the various parameters were studied.

RESULTS: A total of 50 patients were included in the study who underwent stoma formation at this hospital from November 2022 to October 2023. A total of 17 patients, for whom the stoma was constructed, had hollow viscous perforation. Although the site of the perforation varied, the intraoperative findings warranted a stoma in these patients. Loop ileostomy was the most commonly performed surgery (n=16) amongst patients who presented with hollow viscous perforation as the perforation was most commonly located in the ileum or the base of appendix. Only one patient (n=1) underwent a transverse loop colostomy for a perforation in the sigmoid colon. Malignant bowel obstruction was the second most common cause (n=8). Patients with malignant bowel obstruction needed a stoma either for decompression or diversion (n=4 each). All patients with decompression were done a transverse loop colostomy whereas patients requiring diversion were done a loop ileostomy, end ileostomy or an end colostomy according to the level and severity of obstruction. Benign cause of intestinal obstruction was the third most common etiological factor associated with construction of a stoma. However, it is worth noting that benign diseases accounted for 78% (n=39) of all causes of stoma placement.

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CONCLUSION: Construction and management of stoma was associated with a few complications. Most patients however tolerated the procedure well and the overall compliance was satisfactory. Loop ileostomy was the commonly constructed stoma and the one associated with most complications. Transverse 6 loop colostomy was associated with no complications and was extremely well tolerated.

KEY WORDS: Intestinal stoma, complications, end colostomy, loop ileostomy, loop colostomy, Parastomal hernia, stomal prolapse, loop-end ileostomy.

INTRODUCTION: Stomas are openings made on the surface of a part of a hollow viscus, usually a portion of the GIT in order to extrude its contents to the exterior. They can be made on a temporary or a permanent basis and can be constructed surgically on an emergency or elective basis. The various surgically constructed forms of stomas include gastrostomy, ileostomy and a colostomy. Apart from stomas constructed from a portion of GIT, there are also various different types of stomas constructed from non-GIT sites viz ureter and bladder which serve to direct a stream of urine either directly or through an intestinal conduit into an appliance fitted directly in the skin. There are many indications of a colostomy e.g.: a decompressing colostomy made to prevent further distention in a segment of a bowel with distal obstruction (e.g.: in obstructing large bowel cancers) or a diversion colostomy wherein, the stoma serves to divert the faecal contents to the exterior owing to resection of the more distal segment (e.g.: following abdominoperineal resection for rectal cancer). Similarly, the ileostomy can also be fashioned as an end ileostomy (e.g.: following total proctocolectomy for fulminant ulcerative colitis) or as a loop ileostomy (e.g.: following anileal perforation too close to the ileo-caecal junction that has been primarily closed, or to protect the distal ileal pouch anal anastomosis). The indications and techniques of stomas are thus varied and the complications depend to an extent on the technical expertise of the surgeon. Stoma is a lifesaving procedure and even though the first stoma was created more than 100 years ago, it continues as an important tool in the surgeons' armamentarium. The incidence of permanent stomas like the end colostomy and ileostomy has been decreasing due to more sphincter saving procedures and technological advancements in the form of stapling devices, however this has led to an increase in the incidence of temporary stomas like the loop ileostomy which are more difficult to manage. The surgeon's role does not end with mere construction of a stoma, but also continues in educating the patient in proper stomal care and in helping the patient deal with the emotional issues concerning it. Even though a stoma has evolved from a hastily constructed, foul smelling, unsightly structure to a more odourless, barely noticeable and a continent opening, the issues mentioned above continue to haunt patients. Hence, I hope my research regarding the proper indication, technique and management of stomas would be well received by surgeons and would help in making accurate on table decisions and device post operative management strategies which would alter the life of many patients

AIM AND OBJECTIVE OF THE STUDY:

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2. To study the techniques of intestinal stomas.
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4. To study the overall compliance of patients in whom a stoma was constructed

MATERIALS:

This is a descriptive study taking 50 patients, who are admitted to the Dept of General Surgery, M K C G Medical college Berhampur in the study period from November 2022 to October 2023.

Inclusion criteria:

All patients who were admitted and managed with a stoma were taken for study.

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Exclusion criteria:

1. Patients who were managed with a stoma done elsewhere and referred to our hospital for further care were not included in the study.

2. Paediatric cases were excluded from the study.

3. Stomas involving upper GIT – oesophagus and stomach, constructed for feeding purposes like jejunostomy and those involving non-GIT sites viz. Urethrostomy were excluded from the study

METHODS:

The data of each patient was collected in a specially designed proforma which is enclosed. Patients are subjected to routine blood investigation along with some special investigation like CECT abdomen and pelvis and MRI pelvis were done as per indication.

RESULTS AND DATA ANALYSIS:

Table1:Indicationsforsurgery

Diseases	Frequency	Percentage
Bluntabdominaltrauma	2	4.0
CARectum	3	6.0
Diverticulardisease	2	4.0
Hollow-viscusPerforation	17	34.0
Inflammatoryboweldisease	2	4.0
IntestinalObstruction–Benign	7	14.0
IntestinalObstruction–Malignant	8	16.0
PenetratingAbdominaltrauma	5	10.0
Peri-analsepsis	2	4.0
AcuteMesentericIschemia	2	4.0

Hollow viscus perforation was the main indication for surgery which accounted for nearly 34% followed by malignant intestinal obstruction

Table2:Natureofthedisease

Natureofdisease	Frequency	Percentage
Benign	39	78%
Malignant	11	22%

Ofthe50patientsforwhomastomawasconstructed,benign diseasesaccounted for 78%.

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Table3: Indicationforstoma

Indicationforstoma	Frequency	Percentage
Decompression	4	8%
Diversion	46	92%

Ofthe50patients,92%neededastomafordiversionoftheenteralcontents and only 8% needed decompression as the principle behind a stoma.

Table4: Typeofstoma

Typeofstoma	Frequency	Percentage
EndColostomy	4	8.0
EndIleostomy	4	8.0
LoopColostomy(Sigmoid)	2	4.0
LoopIleostomy	28	56.0
ProximalJejunostomyandEnd Ileostomy	2	4.0
TransverseLoopColostomy	10	20.0

Ofthe50patients,56%patientsunderwentaloopileostomy,whichwasthe commonest procedure done (n=28) followed by a transverse loop colostomy.

Table5: Natureofstoma

Natureofstoma	Frequency	Percentage
Permanent	4	8%
Temporary	46	92%

Ofthe 50patients, only8% hadapermanent stomawhile92% hada temporary stoma which was eventually reversed.

Table6:Complicationsofstoma

Complications	Frequency	Percentage
Nil	38	76
Hernia	2	4
LocalSepsis	5	10
Necrosis	3	6

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Prolapse	1	2
Retraction	1	2

Local sepsis was the commonest complication associated with a stoma which was present in 10 % of the patients. However, the majority of patients did not present with any complications (n=38)

Table7: Complicationsassociatedwitheachtypeofstoma, **Pearl RK[1] et al**

PLICATION S	END COLOSTOM Y	END ILEOSTOM Y	LOOP COLOSTOM Y(SIGMOID)	LOOP ILEOSTOMY	PROXIMAL JEJUNOSTOM Y AND END ILEOSTOMY	TRANSVERS E LOOP COLOSTOM Y
NIL	3	1	1	21	2	10
HERNIA	0	2	0	0	0	0
LOCALSEPSIS	0	1	0	4	0	0
NECROSIS	0	0	0	3	0	0
PROLAPSE	1	0	0	0	0	0
RETRACTION	0	0	1	0	0	0

Ofthe 50 patients with a stoma, Loop ileostomy was associated with maximum number of complications while transverse loop colostomy was not associated withanycomplicationat all. However, this data was not found to be statistically significant ($p<0.05$) and hence loop ileostomy cannot be assumed to be more morbid than the other procedures.

Table8: Typeofstomavscompliance

Patientcompliance	Good	Average	Poor
EndColostomy	3	1	0
EndIlleostomy	1	2	1
LoopColostomy (Sigmoid)	2	0	0
LoopIleostomy	20	4	4
ProximalJejunostomy andEndIleostomy	1	1	0
TransverseLoop Colostomy	10	0	0

Loop ileostomywascommonlyassociated with mostcomplications and this had an overall impact on the patient compliance. 4 patients with loop ileostomy showed poor compliance. This data was not shown to have any statistical significance ($p<0.05$) and hence it is safe to say that loop ileostomy although shown to be numerically associated with poor patient compliance, is not inferior to any other type of stoma constructed. It is worth noting that transverse loop colostomy wasnot associated with any complications at all.

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DISCUSSION:

Although the first stomas were described and constructed in the 19th century,theywereassociatedwithinnumerablecomplicationsandhencedid not establish themselves as afavorite amongst surgeons as well as patients. Withthe advent of better surgical techniques, asepsis and post-operative care, the traditional complications were associated with much lesser morbidity and the fieldofstoma saw a proportionalincrease inpatientacceptance ofthe procedure and its aftermath. Nevertheless, a stoma, though extremely beneficial and at times lifesaving, is a procedure which needs to be modified and its incidence minimized as the ultimate aim of a surgeon – "to perform a surgery which is without any morbidity and mortality and is well accepted by a patient", will never be fulfilled by constructing a stoma. We now stand in an era of greater scientific advancements, more so inthe field ofsurgerywhereinwe try as much as possible to minimize the construction of a stoma. This study would throw more perspective on where we currently stand in terms of a stomal construction and management.

A total of 50 patients were included in the study who underwent stoma formationat this hospital from November2022 to October 2023. The study included both emergency and elective conditions in which stoma was constructed.

- Most of the patients belonged to two age groups (36-45) and (56-65)n=26 each. Only one patient presented above the age of 65. The high incidence of cases in the above age group could be attributed to the incidence of malignancies, inflammatory bowel disorders and intestinal perforations, all of which present most commonly in the above age groups.
- 76% of patients who were included inthe studywere males (n=38). Only 24% were females. None of the parameters that were studied showed a significant variation according to the sex of the patient. A high male incidence could also be attributed to the above-mentioned conditions which also predominate amongst males.
- A total of 17 patients, for whom the stoma was constructed, had hollow viscous perforation. Although the site of the perforation varied, the intra- operative findings warranted a stoma in these patients. Loop ileostomy was the most commonly performed surgery (n=16) amongst patients who presented with hollow viscous perforation as the perforation was most commonly located in the ileum or the base of appendix. Only one patient (n=1) underwent a transverse loop colostomy for a perforation in the sigmoid colon. Malignant bowel obstruction was the second most commoncause(n=8).Patientswith malignantbowelobstructionneeded a stoma either for decompression or diversion (n=4 each). All patients with decompression weredoneatransverseloopcolostomy whereaspatientsrequiring diversion were done a loop ileostomy, end ileostomy or an end colostomy according to the level and severity of obstruction. Benign cause of intestinal obstruction was the third most common etiological factorassociatedwithconstructionofastoma. However, it isworth noting that benign diseases accounted for 78% (n=39) of all causes of stoma placement.
- Stoma was most commonly constructed on an emergency basis which accounted for 92% of the cases (n=46). Similarly, diversion was the most common indication for stoma accounting for 92% (n=46). This is similar to Leenen LPH[2]study.
- Loop ileostomy was the commonly constructed stoma which accounted for 56% (n=28). Most common indication for loop ileostomy was hollow viscous perforation which was seen in 16 patients. Penetrating abdominal trauma and intestinal obstruction were seen in 4 patients each. Loop ileostomy was primarily constructed for diverting the enteric contents. In most cases, it was done along with a resection and primary anastomosis (n=12) followed by primary closure of the perforated bowel, most commonly ileum (n=9). Following loop ileostomy, transverse loop colostomy was the second most commonly constructed stoma (n=10). Predominant indication of transverse loop colostomy was a malignant bowel obstruction. The need for transverse loop colostomy was primarily to divert the entry contents (n=6), and decompression as an indication for a stoma was seen only in 4 patients.

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- Amongst the 50 patients, complications were reported only in 12 patients (24%), while 38 patients (76%) were asymptomatic throughout their course of treatment. The complications reported were local sepsis (n=5), necrosis (n=3), hernia (n=2), prolapse and retraction (n=1 each). Most of the complications were reported in patients for whom a loop ileostomy was constructed (n=7) followed by end ileostomy (n=3). Local sepsis predominated in the above two groups of stomas also. This is of no surprise as an ileostomy has traditionally been associated with more complications than a colostomy. It is worth noting that a transverse loop colostomy was not associated with any complications at all. This is similar to Park JJ[3] et al study.
- Amongstthe variouscomplications encountered, two majorcomplications in terms of hernia and prolapse were associated with elective surgeries, whereas most of the local complications which could be related to improper surgical technique or positioning of stoma were associated only with emergency surgeries. Our findings are consistent with those by Saghir JH[4] et al, who reported over 50% morbidity and 18% mortality following emergency surgery resulting in a stoma.
- Most of the complications were managed non-surgically. Two patients needed surgical repair - One patient with a parastomal hernia required operative management in the form of mesh repair and another patientwith local sepsis was managed by repositioning of stoma in the left iliac fossa. Most of the patients with local sepsis were howevermanaged withtopical application of Zinc Oxide and daily dressing of the wound alone and they responded adequately to this form of conservative treatment. Interestingly, patient compliance was good to average in nearly 90% of the patients. It is worth noting that few ofthese patients (n=7) in fact had major complications in the form of prolapse, hernia, retraction and even necrosis. This is similar to Steele SR[5] et al study
- Compliance was graded as good, average and poor based on patients' acceptance of the procedure as a life saving measure and whether he would consent to the same if needed again. Patients who had no complications had consented for the same and most of the patients with longtermcomplications also had consented. Onlypatients who had local sepsis were unwilling to consent for the same in future, if presented with the same clinical scenario. Hence, poor compliance was seen only in 5 patientsandallhad localsepsisasacomplication. Thisclearlyshowsthat a condition that hindered with the day to day living of the patient in a bigger scale affected the overall acceptance of the procedure. Most of the cases had factors such as age, urgency of diagnosis and intra-operative findings as possible contributing factors for local complications, nevertheless a poorly constructed stoma and improper positioning of the stoma, primarily owing to obese body habitus still persist as the major causative factors for local complications. Hence, adhering to measures such asmarking the stoma preoperatively,improving surgical techniqueandprovidingbetterpostoperativecarewould improvepatientacceptance and hence success of the procedure. These results are not in concordance with those obtained by other studies which primarily emphasize that patient factors determine the outcome in a major way.

CONCLUSION:

Stoma was most commonly constructed in males in the age group of 36-45 and 56-65. It was most commonly constructed for diversion of enteric contents on an emergency basis. Overall, benign disorders accounted for most cases and hollow viscus perforation, commonly involving the ileum and appendicular base was the commonest cause. Predictably, temporary stomas were most commonly constructed with loop ileostomy being the commonest. 76% of the patients did not have any complications and in the remaining few, local sepsis was the most commonly encountered. Patient compliance ranged from good to poor and the single most important factor which predicted a uniformly poor outcome was local sepsis. The type of stoma did not influence the advent of complications, although it is worth noting that patients with transverse loop colostomy did not have any complications.Most patients with poor compliance were managed conservatively and only two patients, with a hernia and a prolapse needed an operative interference. Overall, most patients tolerated the surgery and post operative period well.

BIBLIOGRAPHY:

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1. Pearl RK, Prasad LM, Orsay CP, et al: Early local complications from intestinal stomas. Arch Surg 1985; 120:1145.
2. Leenen LPH, Kuypers JH: Some factors influencing the outcome of stoma surgery. Dis Colon Rectum 1989; 32:500
3. Park JJ, Del Pino A, Orsay CP, et al: Stoma complications: The Cook County Hospital experience. Dis Colon Rectum 1999; 42:1575.
4. Saghir JH, McKenzie FD, Leckie DM: Factors that predict complications after construction of a stoma: A retrospective study. Eur J Surg 2001; 167:531-534.
5. Steele SR, Lee P, Martin MJ, et al: Is parastomal hernia repair with polypropylene mesh safe?. Am J Surg 2003; 185:436