

Role of Gastrointestinal Ostomies In Present Scenario – A Single Institutional Study

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ABSTRACT :

Intestinal stomas are an integral part of gastrointestinal surgery. An intestinal stoma is an opening of the intestinal or urinary tract onto the abdominal wall, constructed surgically or appearing inadvertently.

A colostomy is a connection of the colon to the skin of the abdominal wall. An ileostomy involves exteriorization of the ileum on the abdominal skin. In rare instances, the proximal small bowel may be exteriorized as a jejunostomy.[1]

Stomas may be life saving in the treatment of bowel perforation or severe sepsis. The burden of care to support and counsel these patients is considerable. Although short term support is needed for patients with temporary stoma, the impact on life is considerable.

The incidence of permanent ileostomies is decreasing because of the popularization of sphincter saving procedures for patients with ulcerative colitis and familial polyposis. The surgical procedures that eliminate permanent stomas, however, have resulted in an increasing use of temporary loop ileostomies, which are usually more difficult stomas to manage.

This study was conducted ;

- To evaluate the epidemiology of emergency gastro intestinal ostomies
- To analyse the various etiology and commonest cause for emergency ostomies
- To study the various types of ostomies made
- To study the complications of ostomies
- To evaluate the morbidity and mortality of patients after ostomy.

Keyword: - colostomy ,diversion, ileostomy, loop, stoma, trephine

I. INTRODUCTION

The first major advance in ileostomy construction came in 1912, when a surgeon from St. Louis, Dr. John Brown reported on a series of 10 patients in whom he had constructed a protruding ileostomy stoma.

Typhoid fever is a life threatening problem, especially due to the emergence of multiresistant strains of salmonella typhi. Typhoid intestinal perforation is one of the most dreaded and common complication of typhoid fever, remarkably so in the developing countries where it usually leads to diffuse peritonitis. Diverticulitis is most prevalent in developed nations. Diverticulitis occurs when diverticula become inflamed or infected. Likely cause of this infection, being inflammatory process in stool or food particles becoming trapped in the pouches. Intestinal obstruction is a disorder that is associated with significant morbidity and possible death. Causes of dynamic obstruction include adhesions, hernia, neoplasms, colonic polyps, intussusception, congenital anomalies, stricture, volvulus and idiopathic pseudo obstruction (Ogilvie's syndrome). If possible a bowel resection is performed to relieve the obstruction. If extensive bowel damage or ischemia is present a temporary or permanent ostomy may be necessary. Non gastrointestinal causes for a stoma construction include, spinal cord injury, ovarian cancer, prostate cancer etc.[2]

Even though we are well aware of the technique of constructing a stoma, either ileostomy or colostomy, we are not well versed with routine management of the stoma or the management of its complications, if they arise. All our data is based on Western textbooks. Hence, this study was undertaken to find out the epidemiology of GI ostomies and their complications in South Tamil Nadu.

II. HEADINGS

1. Introduction

2. Methodology

2.1 Materials and Methods

2.2 Inclusion

2.3 Exclusion

2.4 Data Collection

2.5 Proforma

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4. Discussion

5. Conclusion

III. STUDY

MATERIALS AND METHODS

This is a prospective study of 42 patients for whom emergency gastrointestinal ostomy was done, in the Department of General Surgery, Government Rajaji Hospital, Madurai Medical College, Madurai.

All the patients who underwent emergency gastro intestinal ostomy were studied prospectively, their demographic details, clinical features, past medical history, indications for surgery and type of ostomy performed, post operative complications, duration of stay in hospital and outcome.

The study period was 18 months from February 2017 to September 2018.

Admissions were carried out from outpatients department or through the casualty department as cases of acute abdomen. Majority of these patients (86.60%) presented with abdominal distention, tenderness and abdominal rigidity. There was marked dehydration and toxemia especially in those who presented late in the course of illness. Immediate resuscitative measures were taken in all the patients regardless of age and sex. This comprised maintenance of intravenous line, nasogastric suction, catheterization, intravenous broad spectrum antibiotics and intravenous fluids. The principal diagnostic tools in all the patients were a detailed history and examination, basic blood biochemistry investigations, x-ray chest and x-ray abdomen erect and supine view. The other sophisticated investigations would not be done as majority of patients were taken up for emergency surgery, after due resuscitations laprotomy was performed by a midline incision, and depending upon the intraoperative findings and severity of contamination, type of ostomy was decided.

Inclusion

All patients who required gastrointestinal ostomy in emergency abdominal surgery were included in the study

Exclusion

Elective surgeries in which ostomies made were excluded

Emergency/Elective procedures like feeding jejunostomy/gastrostomy were excluded.

Data collection

The data of each patient was collected on a proforma specially designed for this study and included demographic details, clinical features, past medical history, interval between onset of symptoms and admission, operative findings, procedures performed post operative complications and duration of stay in the hospital.

Performa

NAME	:	
AGE	:	
SEX	:	
IP NO	:	
DATE OF ADMISSION	:	
DATE OF SURGERY	:	
DATE OF DISCHARGE	:	
COMPLAINTS	:	
H/O. PRESENT ILLNESS	:	
PAST H/O	:	
PERSONAL H/O.	:	
FAMILY H/O.	:	
TREATMENT H/O.	:	
GENERAL EXAMINATION	:	
SYSTEMIC EXAMINATION	:	Abdomen

P/R :

INVESTIGATIONS

- BLOOD BIOCHEMISTRY
- URINE ANALYSIS
- BLOOD TC, DC, Hb%
- WIDAL
- X-RAY CHEST PA VIEW
- X-RAY ABDOMEN – ERECT,SUPINE
- ECG IN ALL LEADS

PROVISIONAL DIAGNOSIS

INTRA OPERATIVE DIAGNOSIS

TYPE OF OSTOMY MADE

POST OPERATIVE PERIOD – COMPLICATIONS

FOLLOW UP:

IV. RESULTS

A total of 42 patients were studied. The age of the patients ranged from 14-82 years. . In this, the majority of patients belonged to 41-50 years, followed by 21-30 age group.(TABLE 1; Fig 1)

There were 30 males and 13 females in this group.(TABLE 2). This gives a male to female ratio of 2.5:1. Mean stay of patients in hospital was 28 days.

Out of the 42 patients studied, 22 patients had features of peritonitis for which emergency laprotomy was done, 19 patients presented with features of intestinal obstructions, 2 patients with blunt injury abdomen with pelvic fracture. (TABLE 3; Fig 2).

Of the 22 patients presented with peritonitis 11 patients had ileal perforation for which, 6 patients were done split ileostomy primarily during the initial surgery due to severe contamination, rest 5 patients developed anastomotic leak from resection and anastomosis or primary closure of ileal perforation for which split ileostomy done during redo laprotomy.(TABLE 4).

Six patients presented with small bowel gangrene, jejunostomy was done in 3 patients and split ileostomy was done in 3 patients. Two patients developed anastomotic leak after resection and anastomosis done for strangulated inguinal hernia for which split ileostomy was done. Three patients had ileocaecal mass with perforation, resection of mass with ileostomy and mucous fistula of transverse colon was done in two patients due to severe sepsis, and one patient developed leak after initial resection and anastomosis for which ileostomy and mucous fistula was done in redolaprotomy.(TABLE 5)

Of the 18 patients presented with features of intestinal obstruction for which ostomy was done(TABLE 6, Fig 3) , 12 patients had malignancy of which 6 patients had sigmoid growth, in 2 patients the tumor was inoperable diversion transverse loop colostomy was done. For 2 patients, Hartmann's procedure was done with transverse end colostomy. For 2 patients, after resection of sigmoid growth, primary anastomosis was done, with defunctioning loop transverse colostomy.(TABLE 7).

Of the three patients with sigmoid volvulus, for two patients sigmoid end colostomy was done and for 1 patient transverse end colostomy was done.

Of the three patients with carcinoma rectum, two patients were inoperable and diversion transverse loop colostomy was done, for one patient resection and anastomosis with defunctioning transverse loop colostomy was done.

One patient had carcinoma anal canal, diversion sigmoid loop colostomy was done for that patient. One patient had carcinoma caecum, right hemicolectomy with ileotransverse anastomosis was done with defunctioning loop ileostomy. One patient had hepatic flexure growth; right extended hemicolectomy was done with ileotransverse anastomosis and defunctioning loop ileostomy.

One patient had multiple ileal strictures with perforation; split ileostomy was done for that patient. Two patients had ileocaecal mass, for which limited resection with split ileostomy was done due to contamination.

Two patients presented with Road traffic accident and pelvic fracture, both patients had rectal injury for which diversion loop transverse colostomy was done.

Out of the 42 patients studied, 22 split ileostomy, 9 transverse loop colostomy, 3 transverse end colostomy, 3 jejunostomy, 2 loop ileostomy, 2 sigmoid end colostomy and 1 sigmoid loop colostomy was done.(TABLE 8).

Out of the 27 patients who had ileostomy (split ileostomy, loop ileostomy including jejunostomy), 18 patients (66.66%) had skin irritation like excoriation and peristomal ulceration, 10 patients (37.03%) had

abscess either peristomal abscess or wound infection, 5 patients (18.51%) had retraction, 3 patients (11.11%) had prolapse, 1 patient had peristomal fistula (3.70%) and 2 patients (7.40%) had stomal necrosis. (TABLE 9; Fig 4)

Out of the 15 patients who had colostomy (including transverse loop colostomy, transverse end colostomy, Sigmoid end colostomy and sigmoid loop colostomy), 4 patients (26.66%) had skin irritation, 2 patients (13.33%) had peristomal abscess, 2 patients (13.33%) had prolapse and 4 patients (26.66%) had retraction. (TABLE 10; Fig 5)

During the hospital stay, two patients who were done ileostomy, one for patient with ileal perforation and another patient with caecal perforation died due to severe sepsis. Two more patients who were done ileostomy died due to denutrition and cachexy, 20 days after the surgery.

The mortality among the patients who had malignancy could not be followed up as the study period was short and some patients could not be followed up after discharge, but no patients with malignancy died during their hospital stay.

For patients with temporary ostomies restoration of bowel continuity was usually done 8-12 weeks after the previous surgery. Patients with malignancy were treated after further evaluation and staging the disease.

V. DISCUSSION

In the total of 42 patients studied, majority of cases were male predominant, with male to female ratio 2.5:1, comparable with **Ambreen Muneer et al study**, where the ratio was 2:1.[3]

Majority of cases requiring ostomy was due to severe sepsis presenting late in the course of illness, the majority being ileal perforation requiring split ileostomy.

Intestinal perforation resulting from a complication of typhoid fever has always been a concern because of its high morbidity and mortality rates. Ileostomy is a life saving procedure, particularly in those cases where there is fulminant enteritis and peritonitis of long duration. Ileostomy remains a necessary procedure mainly on a temporary basis.

Gangrene bowel becomes the next most common indication for ostomy, for patients presenting with peritonitis.

For patients developing anastomotic leak either from primary closure of perforation or resection and anastomosis, ostomy conversion is a life saving procedure. In our study 7 patients (16.66%) had anastomotic leak, all were done split ileostomy and all the patients could be saved. The rate of occurrence of anastomotic leak is around 12% according to literature, **Nayen and Meier study** had a mortality rate of 62% in patients with anastomotic leak, but in our study, the mortality was nil.[4]

Malignant intestinal obstruction cases presenting as emergencies, mostly results in performing an ostomy, which in acute situation becomes life saving for the patients. In our study we encountered 12 patients (28.57%) – which were treated either with defunctioning colostomy or Hartmann's procedure, and no mortality reported in the immediate post operative period. This is comparable with the **Danish study, kronberg and his colleagues**, where cumulative mortality is about 20% but the initial mortality was very low.[5]

Unfortunately, the management of stoma remains difficult in developing countries, like us because of the shortage of suitable equipment.

In this respect, peristomal ulceration remains a major problem. In our study skin irritation with peristomal ulceration is around 66.66% in cases of ileostomy and 26.66% in patients with colostomy which is high when compared with **Leong et al study** where skin problem is 34% in patients with ileostomy and 15% in patients with colostomy in **Stothest et al study**. [6]

Peristomal ulceration provokes some awful skin pain inducing the patients to self limitation of food intake, especially in patients with ileostomy. This can result in denutrition, cachexy and death. Two patients (9.09%) died from this complication in our study which is less than that of surgical experience of 64 cases study by **J. Kovame et al**. [7]

The other complications encountered in patients with ileostomy include retraction, abscess, prolapse, stenosis, peristomal fistula and stomal necrosis. The patients with colostomy developed much less complication than ileostomy which include skin irritation, peristomal abscess, prolapse and retraction.

In emergency, though most of the stomas made were temporary, stoma care is also pivotal to prevent further morbidity and mortality.

VI. FIGURES AND TABLES

Table 1- Age Distribution

AGE GROUP	NO. OF PATIENTS	PERCENTAGE%
< 10	-	-
11 -20	5	11.90
21 – 30	9	21.42
31 – 40	6	14.28
41 – 50	13	30.95
51 – 60	5	11.90
>60	4	9.52
TOTAL	42	

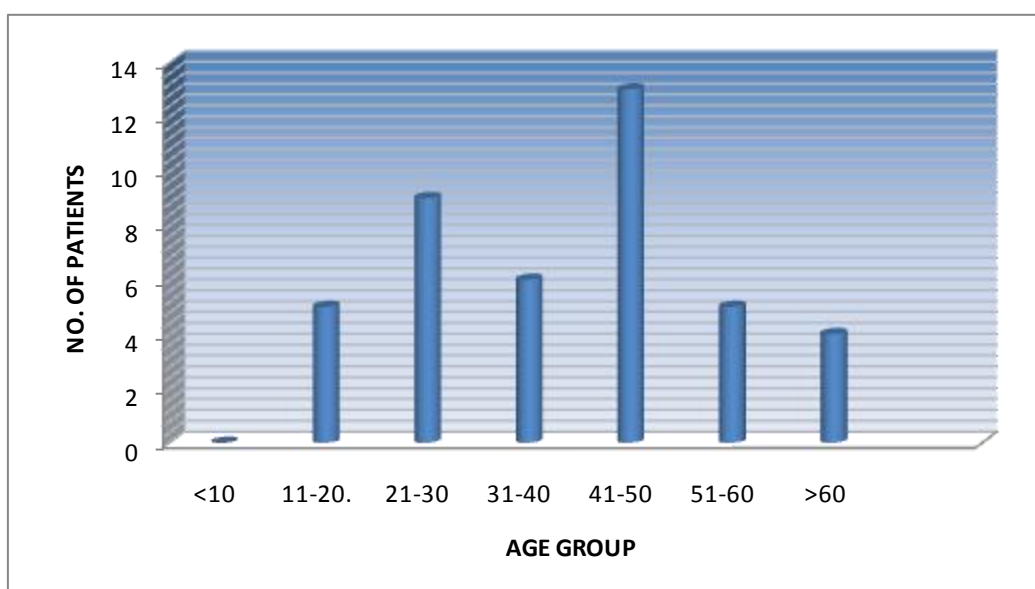


Fig 1- Age Distribution

Table 2 – Sex Distribution

GENDER	NO. OF PATIENTS	PERCENTAGE %
MALE	30	71.42
FEMALE	12	28.57
TOTAL	42	

Table 3 – Presentation of cases

PRESENTATION	NUMBER	PERCENTAGE %
PERITONITIS	22	52.38
INTESTINAL OBSTRUCTION	18	42.85
BLUNT INJURY ABDOMEN	2	4.76
TOTAL	42	

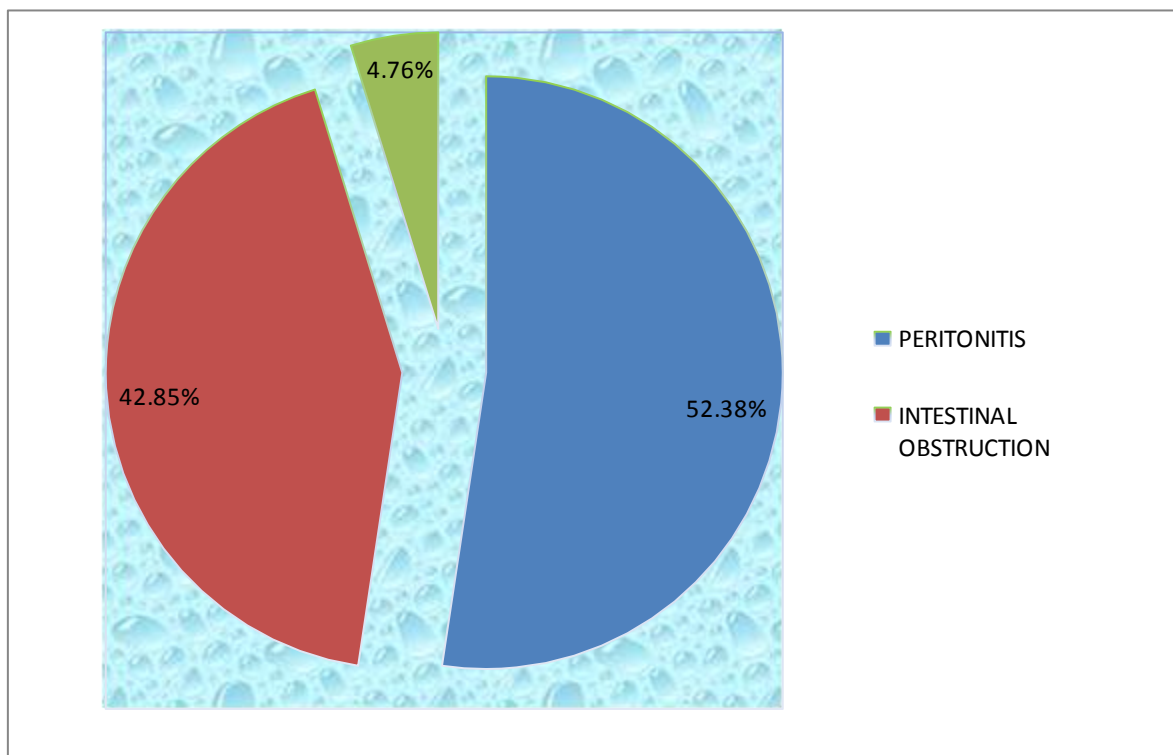


Fig 2- presentation of cases

Table 4 – Distribution of cases presenting with peritonitis

CASES	NUMBER OF PATIENTS
ILEAL PERFORATION	11
GANGRENE BOWEL	6
ILEOCAECAL MASS WITH PERFORATION	3
STRANGULATED INGUINAL HERNIA	2

Table 5 – Distribution of cases presenting with anastomotic leak after resection and anastomosis

CASES	NO. OF PATIENTS
ILEAL PERFORATION	5
ILEOCAECAL MASS WITH PERFORATION	1
STRANGULATED INGUINAL HERNIA	2

Table 6 – Distribution of Etiologies of Intestinal Obstruction

CONDITONS	NO. OF PATIENTS
SIGMOID GROWTH	6
SIGMOID VOLVULUS	3
CARCINOMA RECTUM	3
ILEOCACCAL MASS	2
CA CAECUM	1
CA ANAL CANAL	1
HEPATIC FLEXURE GROWTH	1

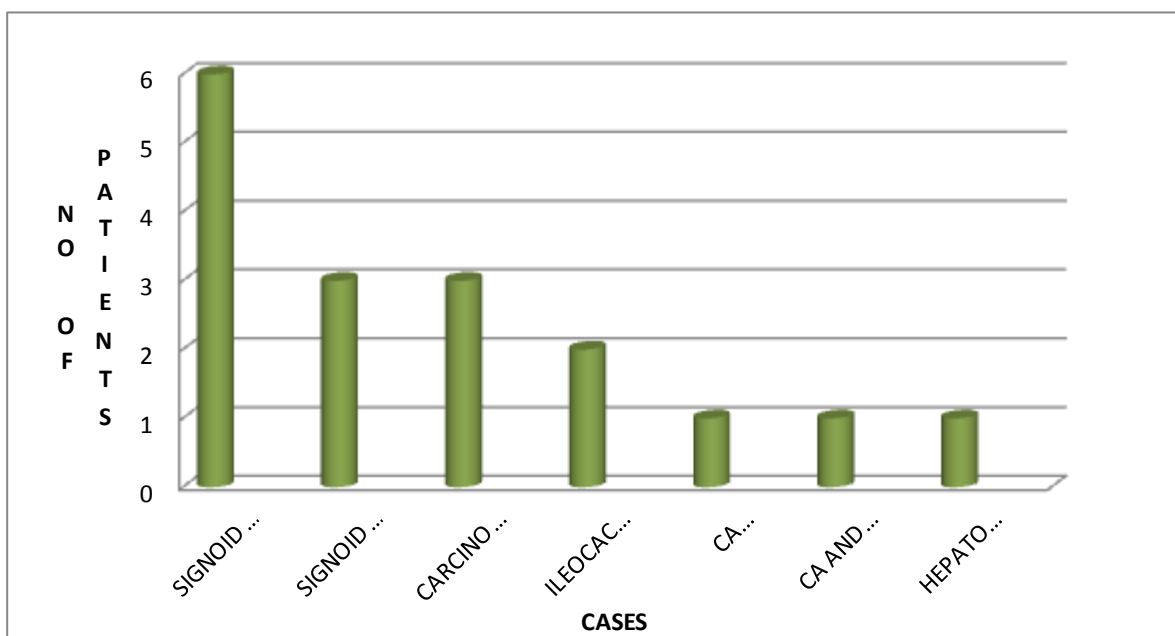


Fig 3 – distribution of etiologies of intestinal obstruction

Table 7 - Distribution of Treatment for Sigmoid growth

INOPERABLE CASES WITH DIVERSION TRANSVERSE LOOP COLOSTOMY	2
RESECTION AND ANASTOMOSIS WITH DEFUNCTING TRANSVERSE LOOP COLOSTOMY	2
HARTMANN'S PROCEDURE WITH TRANSVERSE END COLOSTOMY	2
TOTAL	6

Table 8 – Distribution of Various Ostomies performed

TYPE OF STOMA	NUMBER	PERCENTAGE%
SPLIT ILEOSTOMY	22	52.38
TRANSVERSE LOOP COLOSTOMY	9	21.42
TRANSVERSE END COLOSTOMY	3	7.14
JEJUNOSTOMY	3	7.14
LOOP ILEOSTOMY	2	4.76
SIGMOID END COLOSTOMY	2	4.76
SIGMOID LOOP COLOSTOMY	1	2.38
TOTAL	42	

Table 9 – Distribution of Ileostomy complications

TOTAL NO. OF PATIENTS – 27

COMPLICATIONS	NUMBER OF PATIENTS	PERCENTAGE %
SKIN IRRITATION	18	66.66
RETRACTION	5	18.51
ABSCCESS	10	37.03
PROLAPSE	3	11.11
STENOSIS	NIL	-
PERISTOMAL FISTULAS	1	3.70
OBSTRUCTION	NIL	-
PARASTOMAL HERNIA	NIL	-
NECROSIS	2	7.40

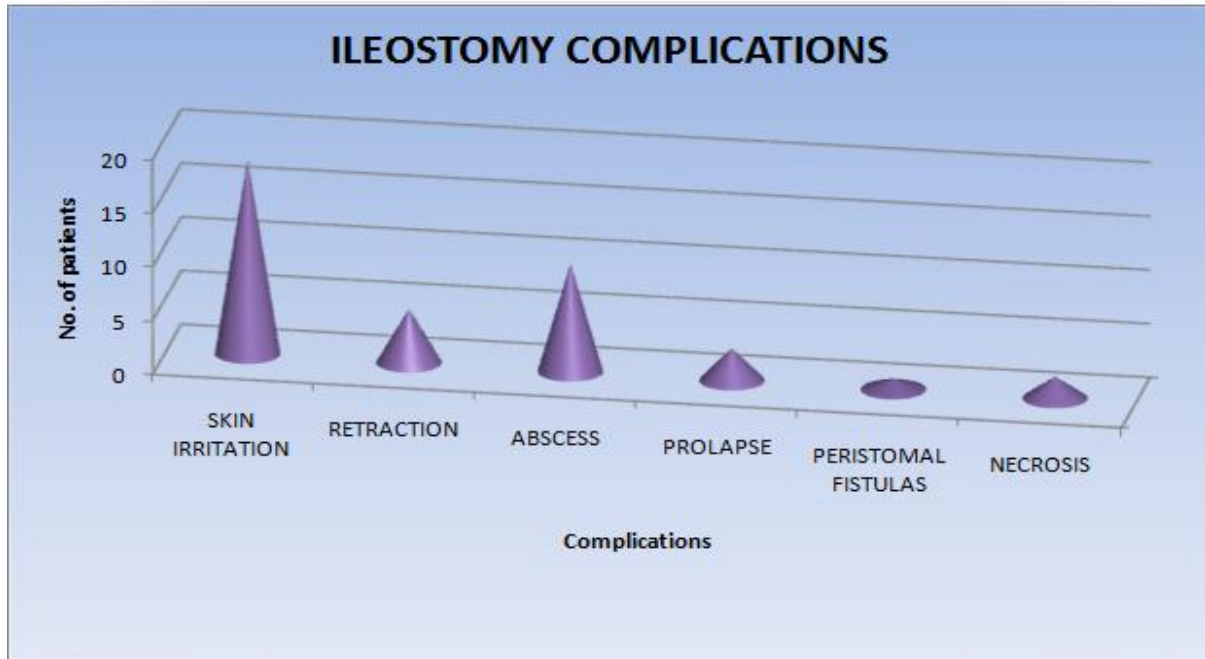


Fig 4 – distribution of ileostomy complications

Table 10 – Distribution of Colostomy complications
TOTAL NO. OF PATIENTS - 15

COMPLICATIONS	NUMBER OF PATIENTS	PERCENTAGE
SKIN IRRITATION	4	26.66%
PERISTOMAL ABSCESS	2	13.33%
STOMAL NECROSIS	NIL	-
OBSTRUCTION	NIL	-
PARASTOMAL HERNIA	NIL	-
PROLAPSE	2	13.33%
FISTULA	NIL	-
RETRACTION	4	26.66%

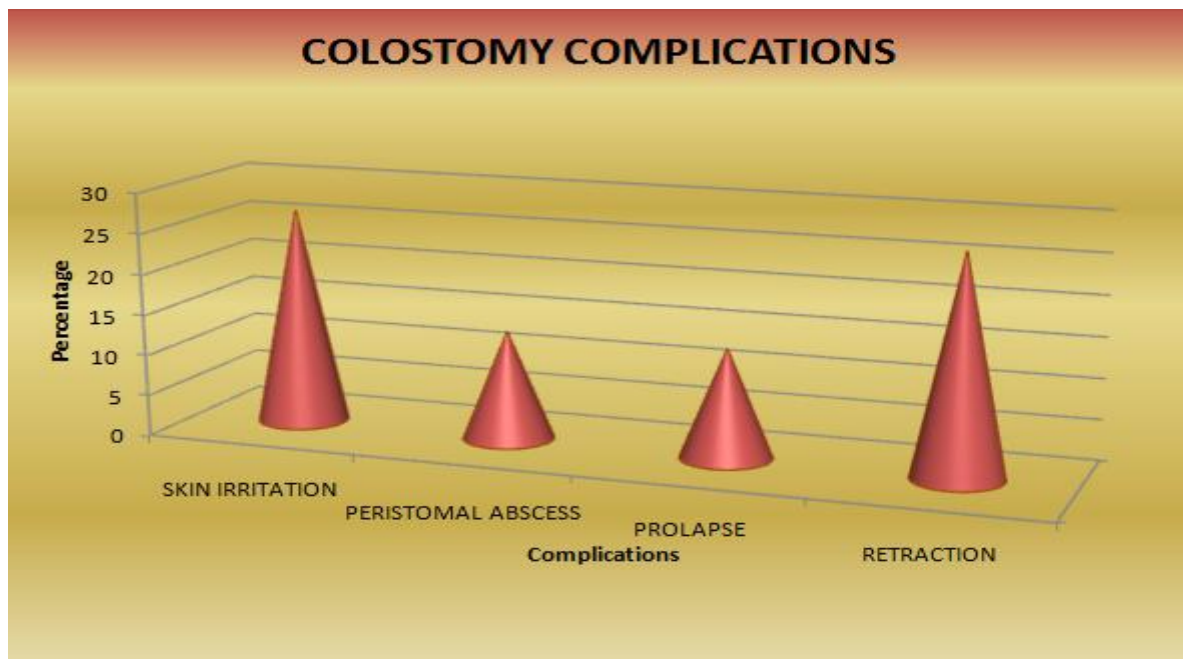


Fig 5 – distribution of colostomy complications

VII. CONCLUSION

TO CONCLUDE

Patients presenting with peritonitis and severe contamination constitute the most common indication for ostomy, followed by patients with malignancy presenting as intestinal obstruction.

Ileal perforation was found to be the most common cause for patients presenting with peritonitis who needed ostomy.

Ileostomy, especially split ileostomy, the most common ostomy performed.

Peristomal ulceration (skin irritation) – was found to be the most common complication of ostomy.

Ostomy was found to be a life saving procedure especially so in moribund patients presenting late in the course of illness.

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