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INDICATIONS AND COMPLICATIONS OF INTESTINAL STOMAS – A TERTIARY CARE HOSPITAL EXPERIENCE

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ABSTRACT

Introduction: An intestinal stoma is an opening of intestine on the anterior abdominal wall made surgically. The commonly performed procedures include colostomy and ileostomy. The purpose of the present study was to identify indications for commonly performed intestinal stomas and to study complications related to it.

Subjects and Method: An observational study was carried out in Services Hospital Lahore, over a period of two years from Feb. 2007 – 09. A total of 85 patients needing intestinal stomas, ileostomy or colostomy, were included in the study. Patients under 12 years, with enterocutaneous fistula and urinary conduits were excluded from study. Indications, immediate and late complications of stomas were recorded. Reversal of stoma usually performed after 12 weeks and complications of reversal were also recorded.

Results: Majority (73%) of patients were males. There were 36 ileostomies and 49 cases of colostomy making a total of 85 patients. Main indications of Ileostomy were intestinal tuberculosis (58%), enteric perforation (31%) and penetrating injuries (5.5%). Colostomy was mostly required in penetrating injuries (33%), blunt trauma (23%) and intestinal obstruction (28%). In a total of 35 stomas local complications appeared in 54 (41.77%). General problems included anxiety, psychological and social isolation. Skin excoriation and ulceration were the most common (25%); they were worse in ileostomy than colostomy. In laparotomy wound infection (9.4%), stoma diarrhea (7%), stoma retraction (6%) and prolapse (6%) were other notable comp-lications. A mortality rate of 1.6% was found in cases of ileostomy. Hospital admission ranged from 10 – 62 days. 62 stomas including 25 ileostomies and 37 colostomies were closed on an average of 3 months after primary operation. There were 9 cases of wound infection, three anastamotic leakages and a single mortality (1.6%) in the stoma reversal group.

Conclusion: Common indications for intestinal stomas were abdominal trauma, intestinal tuberculosis and enteric perforation. Main complications included local skin problems, stoma diarhoea, prolapse and retraction. Early identification and treatment of tuberculosis and enteric fever can reduce stoma formation and its associated complications.

Key words: Colostomy, Ileostomy, Indications, Complications.

INTRODUCTION

An intestinal stoma is an opening of intestine on the anterior abdominal wall made surgically.[1] The commonly performed procedures include colostomy and ileostomy. Littre of Paris was the first to make a ventral colostomy in 1710 for a baby with imperforate anus.[2] In World war I, a mortality rate of 60% for primary repair of colonic injuries dropped to 30% in World war II due to the introduction of colostomy.[3] Between 1893 to 1913, ileostomy was suggested for treating of small bowel obstruction, peritonitis due to ruptured appendix and appendicular abscess.[4] Shock, marked blood loss, significant faecal contamination, associated injuries, time till presentation and multiplicity of injury are important factors favouring stoma formation than primary repair.[5] However, the number of abdominal stomas made each year is declining. This decrease in ileostomies is more marked in UK, less than 100,000 patients now have an ileostomy.[6] Stoma may serve the purpose of decompression, lavage, diversion and exteriorisation. It may be temporary or permanent. Major indications of ileostomy include diffused bowel injury which precludes primary anastamosis like longstanding peritonitis intestinal obstruction, radiation enteritis ischemia and inflammatory bowel diseases and rectal causes. Colostomy is employed in colonic obstruction (primarily due to cancer of distal colon / rectum), perforation with peritonitis, rectovaginal fistulas and perianal sepsis.[7]

A troublesome stoma produces social, domestic and psychological upsets. These can be early inclu-

ding metabolic derangements, skin irritation, ischaemia and stoma retraction. Late complications are parastomal hernia, prolapse and stenosis. A thorough preoperative preparation with special reference to nutritional status, attention to the operative details on timely management of complications usually give gratifying results.[8]

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

MATERIALS AND METHODS

It was a descriptive observational study carried out in a surgical unit of Services Hospital Lahore, over two years, from Feb. 2007 – 09. Eighty five patients were selected using a convenient sampling. In them some sort of intestinal stoma like ileostomy or colostomy were included in the study. Patients under 12 years with enterocutaneous fistula and urinary conduits were excluded from the study. Data was collected on proformas. On arrival in emergency / OPD, routine lab tests were performed. Final diagnosis and operative procedure were decided by a surgeon who then operated. Operative findings, procedure done, immediate and late complications were recorded. Final diagnosis was made after a report of histopathology. The details about stoma, appliances, complications and its management were recorded. Usually Hollister or Convatec colostomy bags with wafers and Stomahesive paste was used and bags were applied by a trained doctor or a dispenser. During stay in the ward, attendants were briefed about management of stoma and related problems. Hospital stay and patient's follow up in out – patient clinic at 1, 6 and 10 weeks were carried out. Reversal of stoma after proper gut preparation was done after 12 weeks on elective list. Any associated complications were also recorded.

In loop colostomies and ileostomies, either perforation was exteriorised as such (posterior gut wall intact) or posterior wall repaired and then exteriorised at the same place. The afferent limb of loop ileostomy was everted to minimise local skin complications. Double barrel ileostomy was essentially an end ileostomy with mucous fistulae (two ends at same site) done after limited right hemicolectomy (Table 1).

RESULTS

There were 23 (27%) females and 62 (73%) males ranging from 12 – 70 years of age, commonest age group for ileostomies was 12 – 20 years and 21 – 30 years for colostomies. There were 36 cases of ileostomy and 49 cases of colostomy in the study (Fig. 1). About 56 (66%) stomas were made in emergency and 29 (34%) in main operating theatres. Hospital stay ranged from 10 – 62 days**.**

A total of 62 stomas including 25 ileostomies and 37 colostomies were closed on an average after 3 months of primary operation. Twenty five Ileostomies were reversed with 4 cases of wound infection and two cases of anastamotic leak (intestinal tuberculosis). Eleven patients lost to follow by the end of study. There were 37 patients of colostomy reversal including having 7 Hartman's procedure. There were 5 cases of wound infection and an anastamotic leak. There was a single mortality of an old patient with Hartman's colostomy reversal.

Seven end colostomies did not require reversal, whereas 5 cases; (3 Hartman's procedure and 2 loop colostomies) lost to follow up.

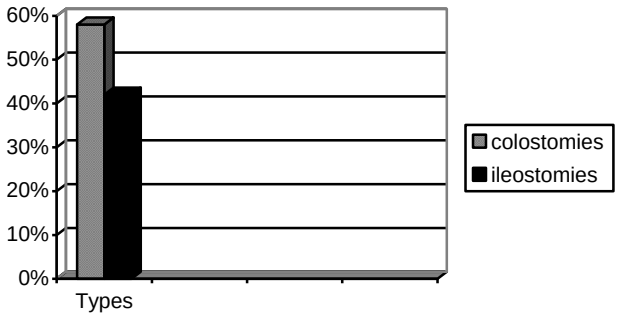

Fig. 1: *Types of Stomas.*

DISCUSSION

Faecal diversion remains an effective option to treat a variety of gastrointestinal and abdominal conditions.[9] Ileostomy and colostomy are commonly made intestinal stomas in surgery. In the present study main indications and complications of these common intestinal stomas were identified and discussed.

Males were three times more common to have stoma than females. Compared to ulcerative colitis in western world, the main indications of ileostomy were intestinal tuberculosis (58.4%) and enteric perforation (30.6%).[7] This was in contrast to a study reported from Karachi in which main indication was typhoid perforation, accounting for two third of all cases. Other less common included iatrogenic perforation, rectal cancer, tuberculosis, blunt abdominal trauma and anastamotic leakage.[10] Tuberculous abdomen is quite common in this part of the world. The incidence of perforated tuberculous ulcer in operated cases varies from 10.5 – 39% whereas the incidence of intestinal stricture and ileoceacal mass were 66% and 20% respectively.[11] In the present study, loop or double barrel ileostomy were procedures of choice in perforated tuberculous ulcers or ileoceacal mass with stricture formation.

Typhoid ileal perforation usually occurs in 2nd or 3rd week of illness. Simple as compared to lengthy surgery improves survival.[12] In the present study, loop ileostomy for multiple typhoid perforations and simple closure with proximal ileostomy were performed. The high incidence of unrecognized abdominal tuberculosis and typhoid leading to acute abdomen in our subcontinent is alarming and requires further research.

In case of colostomies, main indication was penetrating injury (32.6%), representing increasing violence in our society. (Table 2) untrained midwives. Blunt trauma by roadside accidents resulted in 22.4% colostomies. In a report by Bugis et al,[3] blunt trauma resulted in 2 – 15% colonic injuries. In the present study colostomy was made in 14% cases of anorectal malignancy, 12% sigmoid volvulous and only 2% cases of adhesive obstruction study. This is in comparison to a study done by Memon et al[5] and they reported colostomy formation in 9.7% cases of acute intestinal obstruction.[5] Stomas have risks and costs of their own including local, systemic complications and a second hospitalisation for closure. Major complications like sepsis, intraabdominal abscesses, wound infection or dehiscence and pneumonia are important indicators of clinical outcome but gut related complications are often used to gauge effectiveness and risks of gut procedures.

In the present study 35 stomas (42%) developed 54 stoma related complications (Table 3). In one patient with ileostomy diarrhoea presented late and died within a few hours due to dehydration and electrolyte imbalance. An ileostomy prolapsed (Fig. 2) appeared at 2.5 months and stoma reversed electively. Excoriation of skin and ulceration (25%) were the most common problems, worse in ileostomy than in colostomy. Mostly patients were worried regarding frequent bag change and local skin problems due to financial constraints and lack of proper stoma care backup. Painful oozy skin with ulceration hinder ostomy bag application and poses problems in handling ostomy effluent.

This was in accordance with a study performed on 150 patients and local skin problems were there in 24 (16%) patients. Stoma stenosis in 9 (6%) and prolapse in 7 (4.6%) patients.[13] Early application of stomahesive methyl cellulose paste with appropriate size bag were used to avoid it. Management included Zinc oxide paste,

Table 1: *Type of ileostomies and colostomies.*

Type	Patients	Percent
Ileostomies	*n : 36*	
Loop Ileostomy	28	78
Double barrel	8	22
Colostomies	*n : 49*	
Loop Colostomy	29	60
Colostomy with Mucus fistula	3	06
Hartman's procedure	10	20
End Colostomy distal gut encised	7	14

Table 2: *Indications of stomas.*

Indications of Stoma	Patients	Percent
Ileostomy	*n = 36*	
Penetrating injury (gunshot)	2	5.5
Intestinal Tuberculosis	21	58
Typhoid ileal perforation	11	31
Diversion (Carcinoma Colon)	2	5.5
Colostomy	*n = 49*	
Injury		
(a) Blunt Injury (Trafic accidents)	11	23
(b) Penetrating Injury (stab / firearm)	16	33
(c) Others		
i) Iatrogenic colonic injury	3	6
ii) Anal sphincter injury	2	4
iii) Rectal Foreign body	2	4
Intestinal Obstruction		
(a) Sigmoid Volvulus / Adhesive	6+1 = 7	14
(b) Anorectal malignancy	7	14
Rectovaginal fistula	1	2

Table 3: *Comparison of stoma related problems.*

No.	Complications	Ileostomy		Colostomy	
		n =36	%	n =49	%
1.	Stoma bleeding	1	2.7	3	6
2.	Stenosis	-	-	1	2
3.	Necrosis	-	-	1	2
4.	Retraction	3	8.3	2	4
5.	Local skin problems	14	39	7	14
6.	Lap. wound infection	5	14	3	6
7.	Prolapse	3	8.3	2	4
8.	Parastomal Hernia	-	-	2	4
9.	Stoma Diarrhea	6	16.6	-	-

Fig. 2: *Prolapsed Ileostomy.*

Rashnil cream, egg white and keeping it dry till the ulceration is healed. Proper stoma care requires patient training and services of stoma care specialist.

Most of the complications in the present study appeared in stomas constructed by residents or less experienced senior registrar in emergency. A surgeon trained in stoma formation observing all technical details usually give good results.[14] In reversal of 62 stomas, these were three anaestomatic leakage and nine cases of wound infection. This was in accordance with a study that showed a morbidity of 16% including extra abdominal complications.[15] There was one mortality not related to closure, but occurring due to comorbid conditions.

In **conclusion**; main indications of stoma included abdominal trauma, intestinal tuberculosis and enteric perforation. Important complications include local skin problems, stoma diarrhoea, prolapse and retraction. Avoidance of trauma, early identification and treatment of tuberculosis and enteric fever can reduce stoma formation and its associated complications.

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