



A CLINICAL STUDY ON INTESTINAL STOMAS: ITS INDICATIONS, MANAGEMENT AND COMPLICATIONS IN A TERTIARY CARE CENTRE

General Surgery

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ABSTRACT

Stomas are apertures created on the exterior of a hollow viscus, typically a section of the GIT, to allow the contents to be extruded outward. In addition to stomas made from a section of the GIT, there are other kinds made from non-GIT locations, such as the bladder and ureter, which are used to guide a urine stream into an appliance that is placed directly into the skin or via an intestinal conduit. Thus, there are many different stoma indications and procedures, and the consequences are somewhat dependent on the surgeon's technical proficiency.

KEYWORDS

Intestinal stomas

INTRODUCTION

The word "stoma" comes from the Greek word meaning mouth or opening [1]. An enterocutaneous stoma is a surgically made fistula.[2] Stomas are used to divert faecal stream away from distal pathology or anastomosis when anastomosis is contraindicated and to relieve obstruction. It may be temporary or permanent. A temporary stoma is largely a loop stoma which can be closed without a re-laparotomy. The end stoma is commonly made in permanent situations. Although the making of a stoma is a life-saving procedure there are considerable complications associated with it. The first ever recorded surgery with creation of stoma was conducted in the year 1750 on a female patient named Margaret white by British surgeon William Cheselden.[3] The indication of the surgery was tightened 'naval break of which 55 cms of intestine was dead'. Fortunately, she managed to survive the operation in spite of the lack of proper knowledge about stoma care.

Development of stoma surgery started in the late 19th century. Dupuytren, Bryant, Maydl, Mikulicz von Radecki and Miles were distinguished in this development. The knowledge about the indications, the types and number of stomas performed and the complications of stoma in the postoperative period is crucial for every surgeon. Inappropriate stoma site and improper management of stoma can lead to significantly diminished quality of life. This thesis includes the following major sections - indications of stoma, types of stoma performed and the postoperative complications. Complications were divided into early complications (within 30 days) and late complications (after 30 days). Present study was conducted with the aim of to reestablish and determine the epidemiological and surgical knowledge about the indications, the types and number of stomas performed in elective and emergency set- up separately in a tertiary medical college and hospital. Secondary objectives were to determine the type and nature of complications faced after creating intestinal stomas and their management and to gather knowledge about the type of stoma reversals in subsequent follow up surgeries.

METHODOLOGY

This is a prospective observational study. This study was conducted on the admitted patients and in the surgery operation complex in the department of general surgery, Midnapore Medical College and Hospital, Midnapore for 12 months. All patients male and female between the age of 15-70 years, in whom a follow up of 6months is feasible and all emergency and elective cases undergoing intestinal stoma construction were included. Patients who are unfit for operation, patients undergoing urinary stoma construction, patients undergoing stoma construction as indication for gynecological disorders, patients in whom a follow up was not feasible and patients who are not interested to provide data for this study were excluded from the study.

Data Collection:

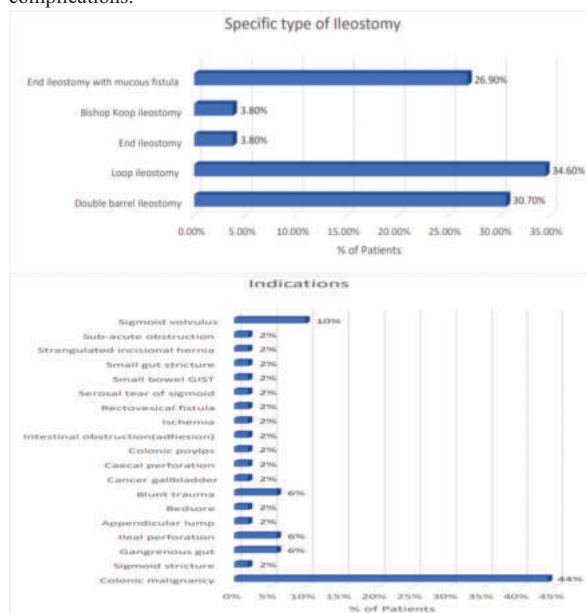
Indications, management and complications of the intestinal stoma were studied in 50 patients undergoing stoma formation in MMCH Midnapore. Both elective and emergency procedures was included in the data. Data was collected by detailed history taking including age, gender, date of operation, indication, type of stoma, type of surgery and follow up of the cases.

Statistical Analysis:

IBM SPSS Ver. 28 was used for statistics calculation. Microsoft Excelbook 2024 was used to prepare tables and graphs. Descriptive statistical analysis was performed to calculate the means with corresponding standard deviations (s.d.). Test of proportion was used to find the Standard Normal Deviate (Z) to compare the difference proportions and Chi-square (2) test was performed to find the associations. Also, One Way Analysis of variance (ANOVA) followed by post hoc Tukey's Test was performed with the help of Critical Difference (CD) at 5% and 1% level of significance to compare the mean values of more than two groups.

RESULTS:

86.0% of the patients (86.0%) were aged between 30 – 74 years which was significantly higher than other ages (14.0%) ($Z=10.18$; $p<0.0001^{***}$). Thus, in this study intestinal stoma was more prevalent among the patients with age between 30 – 74 years. The ratio of male and female (Male: Female) was 1.4:1.0. Emergency surgeries (78.0%) were significantly higher than elective surgery (22.0%). Ileostomies (52.00%) were found to be more frequently created than colostomies (48.00%). Of all the types of stoma loop ileostomy was found to be the commonest type(18%). Ileoileal anastomosis (61.1%) was the most common type of reversal which was significantly higher than other methods of reversal. 88.8% of the reversals were done within 14 months which was significantly higher than reversals done after 14 months (11.2%). Bleeding (38.9%) followed by late movements (33.3%) were significantly higher than other early complications. Problem of skin (82.8%) was significantly higher than other late complications.



DISCUSSION

Despite the advances in medical and surgical fields, intestinal ostomies are an indispensable aspect of clinical practice mainly during emergency laparotomies. Ileostomy and colostomy are the most attempted intestinal stomas. The earliest stomas were all unintentional ones like in cases of enterocutaneous fistulas resulting from penetrating abdominal injuries or complications of intestinal diseases such as incarcerated hernia. In this study of intestinal stoma conducted in Midnapore Medical College and Hospital, we arrive at a number of results. Patients undergoing stoma formation are at high risk of developing many complications. There are many factors which predispose the patients to these complications such as high body mass index, inflammatory bowel diseases, use of steroids, immunosuppressant drugs, diabetes mellitus, old age, emergency surgery, surgical technique and surgeon's experience. Among the study population of 50 patients, the maximum people were in the age group of 30-74 years (86%) of whom 45-59 years was found to be the peak age. According to a study by Dr. Massenga et al[3], the most studied age group was found to be 20 to 52 years. This is also similar to literature given by Jayarajah et al[4], in 2016 according to him, 46 year was the mean age in which intestinal stomas are created. In our study the sex ratio for stoma creation was male: female 1.4:1.0. Test of proportion showed that proportion of males (58.0%) was significantly higher than that of females (42.0%). This indicates the male population underwent more stoma creation than the female population due to a higher incidence of malignancy, abdominal trauma and intra-abdominal infections. But there is no significant correlation between type of stoma creation with sex. This is also similar to study done by Jayarajah et al[4], in 2016 who found that 56.2% were male and 43.8% of female who had undergone stoma creations. Intestinal stomas in emergency settings (78%) were found more than in elective setting (22%) in our study. This can be attributed to various factors such as hemodynamic instability, late presentation, inability to perform a definitive procedure in presence of peritoneal contamination. Patients with colorectal carcinoma presented late after development of acute obstruction. Patients with necrotizing enterocolitis and mesenteric ischemia also presented late as acute abdomen. We can come to the conclusion that well planned procedures are less likely to lead to a stoma creation. Quite similar to our study, Pandiaraja et al[5] (2021) reported emergency stomas (79) more than elective stomas (21) in their study. In our study, formation of ileostomies (52%) was found to be more than colostomies (48%) among which loop ileostomy (34.6%) was the commonest performed stoma followed by double barrel ileostomy (30.7%), End ileostomy with mucous fistula (26.9%), End ileostomy with proctocolectomy (3.8%) and bishop Koop ileostomy (3.8%). Loop ileostomy is preferred because it is associated with fewer rates of complications (in its construction and closure). In case of colostomies, end colostomy with distal resection (33.3%) was found to be the commonest followed by loop colostomy (29.2%) and sigmoid colostomy with Hartman (29.2%). Double barrel colostomy had an incidence of 8.3%. Comparing all the stomas, loop ileostomy (18%) was of highest incidence followed by double barrel ileostomy (16%) and end colostomy with distal colonic resection (16%). Similar results were reported by Ahmad Z et al[6] which showed ileostomy around 76%. A similar study conducted by Qamar A. Ahmad et al[7] showed loop ileostomy around 78%. The most common indication of intestinal stomas was found to be colonic malignancy in our study (44%) followed by sigmoid volvulus (10%). The other major indications were gangrenous gut (6%), ileal perforation (6%) and blunt trauma (6%). The indication of stoma creation varies with each study. Similar findings were reported by A.M Redha et al[8], showed a higher incidence of stoma creation for colorectal malignancy (37.5%) and P. Nastro et al[9], reported malignancy as a cause of stoma creation in 44.7%. In contrast a low incidence of stoma for malignancy was reported by Akram Rajput et al[10] (5.35%), Ahmad Z et al[6], (11%), and Qamar A. Ahmed et al[11] reported 5.5%. From our study we can observe that early diagnosis and management in cases of malignancy can significantly reduce the incidence of stomas. The lack of knowledge among the general population about colonic malignancy has led to a huge number of patients presenting with features of acute obstruction which has in turn led to increasing stoma creation in the emergency setting. Stoma creation in case of volvulus and in trauma abdomen has been mainly due to hemodynamic instability or peritoneal contamination. Proper preoperative stabilization of hemodynamics with damage control surgery can reduce the number of stoma in abdominal trauma. Traditionally temporary stoma closure typically occurs at approximately 3 months after creation when used as a protective stoma

for a low colorectal or IPAA. Of all the patients with stomas studied, around 36% underwent reversal of stoma. Around 44.4% had their stomas reversed by 7 months and another 44.4% patients had their stomas reversed by 14 months. The decreased number of stoma reversals are due to various factors like socioeconomic status, decreased awareness about the disease, lost to follow up and also recurrence of carcinoma in many cases. Reversal is also not an option in case of permanent stomas. Reversal was done in 18 (36%) of the cases which was significantly lower than the cases with no reversal 32 (64.0%). Ileioleal anastomosis (61.1%) was the most common type of reversal which was significantly higher than other methods of reversal (38.9%) In our study 72% of patients developed stoma related early complications and 58% of patients faced stoma related late complications. Bleeding (38.9%) followed by late movements (33.3%) were significantly higher than other early complications. Among late complications, skin problems (82.8%) were significantly higher than other late complications. A study conducted by A.G. Redha et al[8] reported a similar incidence of skin excoriations (45.3%). In contrast to our study, the low incidence of skin excoriations is reported by P. Chaudhary et al[12] (20%), Ahmad Z et al[13] (36.2%), Qamar A. Ahmad et al[7] (39%), Akram Rajput et al[10] (21.4%) and Syed Asad Ali et al[14] (5.64%). The other early complications were retraction (11.1%), ischemia (8.3%) and leakage (8.3%). The other late complications were prolapse (10.3%), obstruction (3.4%) and parastomal hernia (3.4%). The complications of ileostomy and colostomy are different. The colostomy is associated with an incidence of parastomal hernia whereas an ileostomy showed a higher risk of skin related problems. These complications can be reduced by proper preoperative planning, postoperative stoma care and early reversal of stoma. Skin excoriations and surgical site infections can be managed at the primary care level if there is a proper understanding of stoma complications with the help of a stoma nurse or therapist.

CONCLUSION

The creation of an intestinal stoma is a common procedure in surgical practice. Common indications of stoma are malignancy, abdominal trauma, enteric perforation, sigmoid volvulus, and mesenteric ischemia. The association between stoma complications with the site, type and setting of stomas is notable from this study. So detailed knowledge of the types, indications and complications of all types of intestinal stomas are essential for all general surgeons in both emergency and elective setting. Preoperative counselling of the patient with the family members and postoperative psychological support for the patient are imperative for the patients to have a better quality of life.

REFERENCES

1. Dr Sharma, Dr Ahmad, Dr Saxena, Dr Choudhary, Dr Ahmed. A clinical study of intestinal stoma: its indications and complications. IJMS. 2013; Vol 1, No 4
2. Farquharson's textbook of operative general surgery. 9th edition. Margaret Farquharson and Brendan Moran
3. Dr Massenga, Dr Chibwae, Dr Chalya. Indications for and complications of intestinal stomas in the children and adults at a tertiary care hospital in a resource-limited setting: a Tanzanian experience. BMC Gastroenterology. 2019; 157
4. Jayarajah U, Samarasekera AM, Samarasekera DN. A study of long-term complications associated with enteral ostomy and their contributory factors. BMC research notes. 2016 Dec; 9:1-6.
5. Pandiaraja J, Chakkarapani R, Arumugam S. A study on patterns, indications, and complications of an enteric stoma. Journal of family medicine and primary care. 2021 Sep 1; 10(9):3277-82.
6. Ahmad Z, Sharma A, Saxena P, Choudhary A, Ahmed M. A clinical study of intestinal stomas: its indications and complications. Int J Res Med Sci. 2013 Nov; 1(4):536-40.
7. Ahmad QA, Saeed MK, Muneera MJ, Ahmed MS, Khalid KA. Indications and complications of intestinal stomas: a tertiary care hospital experience. Biomedica. 2010 Jul; 26(2):144-7.
8. Redha AG, Abdul AY, Hassan A. Intestinal stomas and their complications: A descriptive study. Basrah J Surg. 2003; 9:23-30.
9. Nastro P, Knowles CH, McGrath A, Heyman B, Porrett TR, Lunniss PJ. Complications of intestinal stomas. Journal of British Surgery. 2010 Dec; 97(12):1885-9.
10. Rajput A, Ahmed S, Haider SA, Hassan M, Shaikat S. Clinical presentation and postoperative complications in patients with colorectal carcinoma: 7-year experience. Journal of Surgery Pakistan. 2019 Apr; 24:2.
11. Ahmad QA, Saeed MK, Muneera MJ, Ahmed MS, Khalid KA. Indications and complications of intestinal stomas: a tertiary care hospital experience. Biomedica. 2010 Jul; 26(2):144-7.
12. Chaudhary P, Nabi I, Ranjan G, Tiwari AK, Kumar S, Kapur A, Arora MP. Prospective analysis of indications and early complications of emergency temporary loop ileostomies for perforation peritonitis. Annals of gastroenterology: quarterly publication of the Hellenic Society of Gastroenterology. 2015 Jan; 28(1):135.
13. Ahmad Z, Sharma A, Saxena P, Choudhary A, Ahmed M. A clinical study of intestinal stomas: its indications and complications. Int J Res Med Sci. 2013 Nov; 1(4):536-40.
14. Ali SA, Soomro AG, Memon AS, Shaikh NA. Postoperative complications of reversal of loop ileostomy. J LUMHS. 2009 Jan 1; 8(01):23.