



ORIGINAL RESEARCH PAPER

General Surgery

STUDY COMPLICATIONS AND QUALITY OF LIFE IN PATIENTS WITH GASTROINTESTINAL STOMA

KEY WORDS: Complications, Healthcare providers, Gastrointestinal Stoma, Parastomal Hernia, Retraction

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ABSTRACT

Gastrointestinal Stoma may be temporary or permanent on the basis of possibility of reversibility. Complications following the creation of an intestinal stoma are experienced by 20–70% of the patients and are divided into early and late complications. Colostomy was done among 11.5% and Ileostomy among 88.5%. GI stoma was Permanent among 4 (7.7%) and Temporary among 48 (92.3%). The most common early complications were Retraction (5.8%), Excoriation (13.5%) and Dermatitis (7.7%) and late complications was Prolapse among 1 (1.9%), Parastomal Hernia among 3 (5.8%), Fistula Formation was found among 1 (1.9%). Healthcare providers should have basic skills and updated knowledge on the management and complications of stomas. Multidisciplinary team follow-up is crucial for optimizing the QoL of ostomates, with coordination of all team members.

INTRODUCTION

The word “Stoma” is a Greek word meaning mouth or opening.¹ Thus an intestinal stoma is a surgical created opening of the intestine which is then brought out through abdominal wall.² Gastrointestinal Stoma may be temporary or permanent on the basis of possibility of reversibility. Generally, a temporary stoma is reversed or closed three or more months after the initial surgery. Permanent stomas are generally formed when reversal of the stoma is not technically possible. It may also be formed for palliation of symptoms such as incontinence, as in situations where incontinence may follow after resection of a low rectal tumour. A permanent stoma may also be formed in, total proctectomy, palliative advance GI carcinomas, an abdomino-perineal resection (APR) of the rectum.³

Unlike adults, stoma formation in children, most of the time is done as a temporary surgery, as an option of management of congenital malformation of the intestines.⁴ Hirschsprung's disease and anorectal malformation are among the main diagnosis for stoma formation in kids.⁶ In adults, other conditions such as volvulus, diverticulitis, trauma, and malignancies occasionally, require stoma formation as part of their management.⁷ In spite of the fact that intestinal stoma creation is a procedure which saves live in the care of many gastrointestinal conditions, it's attendant morbidity and mortality have been the subject of many studies.^{4,7}

Complications following the creation of an intestinal stoma are experienced by 20–70% of the patients and are divided into early complications (up to 30 days after operation) such as ischemia, haemorrhage and infection, and late complications (more than 30 days after operation) such as stenosis, fistula formation, prolapse, hernia formation, colonic and small bowel obstruction and denuded peristomal skin.^{8,9,10} Early complications are frequently technical in nature and may require immediate intervention, while late complications may be the result of early complications but more often are part of the natural history of a stoma.⁷ Factors affecting the type and frequency of complications include surgical specialty, surgeon experience, emergency versus elective stoma creation, appropriate preoperative marking and patient education, patient issues such as age, obesity, diabetes, and ability to care for stoma.⁴

End stomas are created when one end of the bowel is brought to the exterior surface of the abdomen. The other end of the bowel might be removed completely, e.g. abdomino-perineal resection of the rectum (APR), or over-sewn such as in a Hartmann's procedure. Loop stomas are usually temporary

stomas, created to make easy access to the distal bowel for re-joining at a later stage. They are formed from parts of the bowel that have a mesentery (e.g. ileum) or mesocolon (transverse and sigmoid colon) which allow the bowel to reach the skin surface. Double-barrelled stomas may be created following resection of a diseased portion of bowel. Both limbs of the bowel are exteriorised through the same opening in the anterior abdominal wall. It looks similar to a loop stoma and the proximal limb will pass faeces while the distal bowel will be non-functioning.¹¹

In many cases ostomy leads to intensified distress and suffering for patients, and causes severe stress as a result of skin irritation (76%), pouch leakage (62%), offensive odour (59%), reduction in pleasurable activities (54%), and depression/anxiety (53%). In such circumstances, it is worthwhile to assess quality of life in the evaluation of the outcomes of various therapeutic procedures along with their final impact on patients' lives.

Making good decisions to control disease complications, treatment, and improving quality of life is a very important goal in treating and caring for patients with cancer.¹² After surgery, many cancer patients with a stoma experience more stress and a variety of physical problems causing worry and shame. The stoma is usually red, swollen, and large immediately after surgery, which is unpleasant for the patient to look at for the first time. This emotional distress, along with physical problems and pain, isolation from others, and fear of death, will inevitably reduce quality of life further in ostomy patients.¹³

To address these problem, which to our knowledge has never been addressed before in association with measurement of life in stoma patient, our aim was to develop a simple – culture and reliable measurement of quality of life in stoma patients and to validate this instrument according to both classical test theory and modern item response theory.

MATERIALS AND METHOD

The present cross-sectional study was conducted on patients with enterostomy for various indications operated at Department of General Surgery, Dr Sushila Tiwari Government Hospital. The study included the patients undergoing surgery with formation of gastrointestinal stoma under both elective and emergency settings.

Selection of Subjects

The study included only Gastrointestinal stomas which were constructed and any Gastrointestinal stoma previously

constructed in Dr Sushila Tiwari Govt Hospital within 6 weeks of follow-up. The study excluded all those patients who had gastrointestinal stoma constructed elsewhere, patients with Tracheostomy and urostomy and not giving consent for the study.

All relevant clinical details of history and physical examination and post operated complications and quality of life were recorded especially designed case reporting form. After obtaining a complete history and examination, diagnosis was made, Indication for Gastrointestinal Stoma, Patient quality of life was assessed by Quality of Life Index scoring Post operatively and complications during 3-4 weeks of post operative period.

Assessment of study population

In all cases, the comprehensive protocol was used including the patient particulars such as name, age, sex, and permanent postal address, written informed consent, Detailed clinical history and examination, Diagnosis/ Indication for Gastrointestinal stoma and complications occurring in post operative period.

The post-operative assessment of quality of life was done by using Quality of Life Index scoring based on EORTC questionnaire. The questionnaire was consisting of 20 questions with choices of each question being Always, Sometimes, Rarely and Not at all.

The patient follow up period was from the creation of stoma till the closure of stoma (within 3 months time period). The complete data was collected in a specially designed case recording form. The data collected was transferred into a master chart.

RESULTS

Table 1: Distribution of study population according to age groups

		Frequency	Percent
Age groups	0-20 years	4	7.7%
	21-40 years	17	32.7%
	41-60 years	22	42.3%
	Above 60 years	9	17.3%
	Mean±SD	45.12±16.78 (8-85)	
Gender	Male	39	75.0%
	Female	13	25.0%

The mean age of the study population was 45.12±16.78 (8-85) years with majority of the study population according to 41-60 years (42.3%). There were 39 (75.0%) males and 13 (25.0%) females among study population.

Table 2: Distribution of type of GI Stoma

		Frequency	Percent
Location	Colostomy	6	11.5%
	Ileostomy	46	88.5%
Shape	Double Barrel	9	17.3%
	End	3	5.8%
	Loop	40	76.9%
Type	Permanent	4	7.7%
	Temporary	48	92.3%

Colostomy was found among 6 (11.5%) and Ileostomy among 46 (88.5%). Double Barrel among 9 (17.3%), End among 3 (5.8%) and Loop among 40 (76.9%). GI stoma was found among Permanent among 4 (7.7%) and Temporary among 48 (2.3%).

Table 3: Distribution of Early and Late Complications

		Frequency	Percent
Early Complications	Retraction	3	5.8%
	Ischemic Necrosis	1	1.9%
	Detachment	0	0.0%

	Abscess Formation	1	1.9%
	Excoriation	7	13.5%
	Dermatitis	4	7.7%
	Dyselectrolytemia	2	3.8%
	High Output	0	0.0%
Late Complications	Prolapse	1	1.9%
	Stenosis	0	0.0%
	Parastomal Hernia	3	5.8%
	Fistula Formation	1	1.9%
	Parastomal Varices	0	0.0%
	Cancer	0	0.0%
	Non-closure	0	0.0%

The early Complications were Retraction found among 3 (5.8%), Ischemic Necrosis among 1 (1.9%), Abscess Formation among 1 (1.9%), Excoriation among 7 (13.5%), Dermatitis among 4 (7.7%) and Dyselectrolytemia among 2 (3.8%). The Late Complications were Prolapse among 1 (1.9%), Parastomal Hernia among 3 (5.8%) and Fistula formation among 1 (1.9%).

Table 5: Distribution of type of length of hospital stay and Quality of Life Score

	Minimum	Maximum	Mean	Std. Deviation
Length of Hospital Stay	5.00	16.00	8.81	3.12
Quality of Life Score	46.00	68.00	57.65	5.96

The Length of Hospital Stay was 8.81±3.12 (5-16) days. The Quality of Life Score was 57.65±5.96 (46-68).

DISCUSSION

Faecal diversion is sought to be an effective way for treating many gastrointestinal and abdominal conditions. Ileostomy and colostomy are the most common performed intestinal stomas during the surgical management. The earliest stomas were actually unintentional ones, enterocutaneous fistulas resulting from penetrating abdominal injuries or complications of intestinal diseases such as incarcerated hernias.

Age

In this study, the mean age of the study population was 45.12±16.78 (8-85) years with majority of the study population according to 41-60 years (42.3%). Davis D. et al studied 55 patients, the mean age of the ostomates was 48.95 years in their study. Huayun L et al¹⁴ reported 55.4% were between 45 and 65 years old, and 117 (32.6%) were 65 years or older. Similarly Jayarajah and Samarasekera¹⁵ were observed The median age of the study participants was 47.5 years (range 18-83) in their study conducted on south Asia.

Gender:

This study showed there were 39 (75.0%) males and 13 (25.0%) females among study population. Davis D. et al conducted a study on 55 patients and found majority of the study participants (65.5%) were male.¹⁵ Similar study were conducted by Jayarajah and Samarasekera and found the majority of the participants were males (69.5%) and 31.5% were female.¹⁶

Type of GI Stoma:

Colostomy was found among 6 (11.5%) and Ileostomy among 46 (88.5%). a similar study conducted by Davis D. et al they found majority of them (63.5%) had colostomy and the remaining members had ileostomy.¹⁷ In some study the results were just opposite to our study like, a study conducted by Jayarajah and Samarasekera found the majority of the patients had a colostomy (n = 32, 74.4%) and 25.6% were Ileostomy.¹⁵ Salomé G.M et al¹⁸ conducted a study on 70 patients and of this 54 patients (77.14%) had colostomy and the remaining members had ileostomy.

As per shape of stoma, Double Barrel was found among 9

(17.3%), End among 3 (5.8%) and Loop among 40 (76.9%). Jayarajah and Samarasekera¹⁹ found 60.46% loop and 39.54%, End among 43 patients. Harris DA et al¹⁸ found that loop colostomy had the highest complication rate (38%), whilst end-ileostomy had the lowest (16%). The most prevalent end-colostomy complications were parastomal hernia (9.5%) and retraction (8%). Prolapse occurred in 13% of loop colostomies, which increased to 17% in the transverse-loop colostomy group. Retraction was the most frequent end-ileostomy complication (7%), and parastomal hernia was the most common loop ileostomy complication (9%).

When comparing stoma type, the loop ileostomy was found to have a lower complication rate than loop colostomy, albeit not significant. This is consistent with most current trials.^{20,21}

GI stoma was found among Permanent among 4 (7.7%) and Temporary among 48 (2.3%). The permanent ostomates scored significantly higher than temporary ostomates. Over the course of time, the permanent ostomates get adapted to their stoma. This can be the reason for high QOL scores among permanent ostomates in the present study. Most of them (80%) were temporary ostomates.¹¹ In another study, GI stoma was found among Permanent among 53.49% and Temporary among 46.51%.¹⁵

Early complications:

Early complications occur within the first 30 days of the stoma creation and include ischemia/necrosis, retraction, mucocutaneous separation, and parastomal abscess. Retraction was found among 3 (5.8%), Ischemic Necrosis among 1 (1.9%), Abscess Formation among 1 (1.9%), Excoriation among 7 (13.5%), Dermatitis among 4 (7.7%) and Dyselectrolytemia among 2 (3.8%). Stoma necrosis is an early postoperative complication resulting from inadequate stomal blood supply that can occur in up to 13% of ostomates.^{19,22} Jayarajah and Samarasekera et al.¹⁵ found complication in their study. The majority of the participants experienced complication of stoma at some point (51.2%). Of the participants 32.5% experienced one complication and 18.6% experienced 2 or more complications. The common complications experienced were skin excoriation (23.3%), parastomal hernia (18.6%) and prolapse (18.6%).

Salomé G.M. et al.⁸ were found similar type of complication, 34 (48.60%) had dermatitis; 14 (20%), retraction and 13 (18.60%), prolapse. With respect to the diameter of the stoma, 34 (48.60%) measured 20–40mm and 23 (32.90%), 40–60mm. Similar findings agree with several published studies.^{16,23}

Late complications:

Late complications include parastomal hernia, prolapse, retraction, and varices. In our study main the late complications were Parastomal Hernia among 5.8% followed by Prolapse among 1.9%, Fistula Formation among 1.9%. stenosis, varices, cancer was not recorded in our findings. Similar results were shown by Londono-Schimmer E E et al.²⁴ and Porter J A²⁵ et al. Prolapse is one of the common late complications after stoma creation.

The estimated incidence is reported to be between 2 to 26% by Arumugam P J et al²⁶ and Park J J et al.²⁷ .The reported incidence of parastomal hernia varies widely based on type of stoma and time of follow-up. In a series of greater than 1600 patients over 20 years from the Cook County Hospital Stoma registry, the rate of parastomal hernia, 1.18%, was much lower than expected in the study conducted by Park J J et al²⁷ . A review of 142 ostomies created by Porter J A²¹ et al for similar indications over 5 years published the previous year found a parastomal hernia rate of 9.3%.

Ambreen Muneer reported skin excoriation in 18% cases. Safirullah et al. reported skin erythema in 12% followed by prolapsed (6%) and retraction (4%). Apart from these

peristomal complications, the systemic complications like electrolyte disturbances, gaping of the main wound and faecal fistula have been reported in much higher incidence in ileostomy in the study by Ahmad et al.

Hsu et al. stated that Patients who underwent stoma and had faecal ostomies experienced fewer complications (OR = 0.34) than patients with unmarked stomas. In contrast, patients with urostomies did not experience fewer complications when compared to those with unmarked ostomies (OR = 0.531). Persons with faecal ostomies also had fewer hernias and peristomal skin complications (ORs = 0.25 and 0.30). The results revealed that stoma site marking was associated with reduced early and late stoma and peristomal complications (ORs = 0.76 and 0.38).

Hospital Stay:

The study reported the length of Hospital Stay was 8.81±3.12 (5-16) days. Similar results are shown by Londono-Schimmer E E et al²⁴ and Porter J A²⁵ et al, the mean stay is from 9.94±3.21.

Quality of Life Score

The Quality of Life Score reported was 57.65±5.96 (46-68). Davis D. et al¹⁷ studied 55 patients and found very low QOL score 4.13 ± 1.07 as compared to our study. When results were compared to Western settings,²⁸ patients in Indian population have a lower QOL. The low QOL can be attributed to poor socioeconomic status, low education level, and lack of adequate social support and acceptance of the ostomates in our society. In another study, the mean overall QOL score was 53.07 ± SD 12.68 (range 18–82). The associations were determined between possible determinant factors and QOL scores considering both overall score and its components separately.¹⁵

Bloemen JG et al.²⁹ found that QOL scores were compared between patients with and patients without severe complications, and this comparison showed that patients with severe complications reported significantly worse physical functioning (73 vs. 85). Huayun L et al.¹⁴ found 46.93 ± 17.25 mean score in their study; QOL scores of more than half of the participants were either worst (11.4%) or poor (41.2%). The QOL scores of the remaining participants were good (42.9%), and only 4.5% stated they had the best QOL.

CONCLUSION

The present cross-sectional study was done to assess the complications and quality of life in patients of Gastrointestinal Stoma. Intestinal stomal complications are common, occurring in almost half of patients. There are certain irremediable risk factors, allowing appropriate preoperative counselling. Common indications for intestinal stomas were abdominal trauma, intestinal tuberculosis and enteric perforation. Main complications included local skin problems, stoma diarrhoea, prolapse and retraction. Early identification and treatment of tuberculosis and enteric fever can reduce stoma formation and its associated complications. Healthcare providers should have basic skills and updated knowledge on the management and complications of stomas. Multidisciplinary team follow-up is crucial for optimizing the QoL of ostomates, with coordination of care and information sharing across all team members. Stoma complications can significantly affect patients' quality of life and sense of well-being while burdening the health care system. It is critical for the surgeon to possess a thorough understanding of stoma complications and treatment.

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