ORIGINAL ARTICLE

Indications and Outcome of Small and Large Bowel Stomas In Emergency Intestinal Surgery

Shahida Parveen Afridi, Muhammad Latif, Rameez Ahmed Siddiqui, Shams Nadeem Alam

ABSTRACT

Objective — *To evaluate the indications and outcome of small and large bowel stomas made during emergency intestinal surgery.*

Study design — *Cross sectional study.*

Place & Duration of study — *Dow University of Health Sciences Civil Hospital Karachi, from January 2006 to December 2012.*

Methodology — *All emergency exploratory laparotomies performed for intestinal surgery, managed by stoma were included in this study. Decision for making stoma was based upon etiology, condition of the gut and judgment of the operating surgeon.*

Results — *Total numbers of patients were 200 (male 114, female 86) with mean age of 32.7 year. Trauma was the most common etiology. Firearm injury was the commonest mode (n=67, 33.5%) followed by stab wounds and blunt trauma (n= 12, 6.0%). Patients also presented with perforation leading to peritonitis (n=65, 32.5%) and intestinal obstruction (n=52, 26%). Tuberculosis was diagnosed in 5 (26.5%) patients, typhoid perforations in 35 (17.5 %) and malignancy in 30 (15%) cases. The mortality in this series was 10 %. Wound infection occurred in 42 (21%), burst abdomen in 10(5%) and enterocutaneous fistula and stoma retraction noticed in 6 (3%) patients.*

Conclusion — *Stoma formation was a helpful adjunct surgical procedure performed in emergency intestinal surgery for various conditions with satisfactory outcome.*

Key words — *Gut stoma, Ileostomy, Colostomy.*

INTRODUCTION:

Stoma is a surgically designed exteriorization of small or large bowel for the temporary or permanent diversion of feces after resection of a diseased or dead segment of the gut.[1] The formation of an intestinal stoma is one of the most frequent operations in emergency gastrointestinal surgery.[2] Despite the new operative techniques and a more restrictive use, the stoma formation remains the best emergency necessary surgical procedure, which results in dramatic improvement in the patient's condition.[3] The technique of the stoma formation has a direct impact on the complications and difficulties encounterd in reversal of the stoma. A stoma produces alteration in the body image with social and family problems. Preoperative education of the patient regarding stoma and its problem helps in improving the quality of life.[4] The aim of this study was to determine the indications and outcome of stoma formation in emergency intestinal surgery.

Correspondence:
Dr. Shahida Parveen Afridi
Department of General Surgery
Civil Hospital Karachi (CHK) & Dow University of Health Sciences (DUHS) Karachi
E-mail.surgeonshahida@rocketmail.com

METHODOLOGY:

Patients who underwent emergency exploratory laparotomy for intestinal surgery and managed either by stoma, covering stoma, exteriorization of perforation or both ends after resection were included in the study. Patients received through emergency were optimized and then underwent exploratory laparotomy.

Large bowel trauma perforations were managed by resection anastomosis with covering stoma, primary repair with covering stoma, resection with both end stoma, only stoma and Hartmann procedure. Multiple small bowel perforations due to trauma dealt with multiple resection / anastomoses along with proximal stoma, multiple primary repairs with covering stoma while single perforation dealt with exteriorization of perforation. Stab wound and blunt trauma managed either by resection anastomosis with covering stoma or only stoma. Ileocecal tuberculosis patients were managed by right hemicolectomy with two end stoma or ileostomy. Multiple ileal and jejunal perforations dealt with segmental resection and covering stoma, multiple stoma and controlled fistula.

In typhoid perforations exteriorizations of perforation was done. Patients who presented with malignancy of right side of colon dealt either by primary resection with both end stoma or end ileostomy. Carcinoma left side of colon and rectum dealt either by resection anastomosis with covering stoma and Hartmann procedure, or only stoma. Patients presenting with carcinoma anal canal were managed by APR and only stoma. Iatrogenic perforations were exteriorized.

Table I: Diagnosis & Procedure

S. No	Diagnosis	Procedure	No.	%
1	**Trauma Firearm injury**			
	Large bowel	Only stoma	28	14
		Resection anastomosis & covering stoma	11	5.5
		Hartmann procedure	06	3.0
		Resection with both end stoma	05	2.5
	Small bowel	Multi resection anastomosis & proximal stoma	10	5.0
		Multi segmental resection & stoma	7.0	3.5
2	**Stab wound & blunt trauma**			
	Multi perforation Large bowel	Multi Primary repair with covering stoma	7	3.5
		Resection anastomosis with covering stoma	4	2.0
	Multi perforation small bowel	Multi Primary repair with covering stoma	1	0.5
3	**Tuberculosis**			
	Ileocecal	Right hemicolectomy& both end stoma	12	6.0
		Only stoma	10	5.0
		Right hemicolectomy & end ileostomy	06	3.0
	Multiple strictures & multiple perforations - small bowel	Multiple resection anastomosis & covering stoma	08	4.0
		Resection anastomosis & proximal stoma	06	3.0
		Multiple stomas	05	2.5
		Perforation left as such (Laparostomy)	04	2.0
		Controlled fistula	02	1.0
			53	26.5
4	**Typhoid fever**	Exteriorization of perforation	35	17.5
5	**Malignancy large bowel**			
	Cecum	Only stoma	10	5.0
		Right hemicolectomy & both end exteriorize	05	2.5
		Right hemi colectomy & end stoma	03	1.5
	Sigmoid colon	Left hemicolectomy & covering stoma	09	4.5
	Rectum	Hartmann Procedure	02	1.0
	Anal canal	Abdominoperineal Resection & end stoma	01	0.5
			30	15
6	**Iatrogenic**	Perforation exteriorized	3	1.5
7	**Total**		200	100

Table II: Complications		
Complications	**Number**	**Percentage**
Wound infection	42	21
Skin excoriation	26	13
Burst abdomen	10	5
Enterocutaneous fistula	06	3
Stoma retraction	06	3
Anastomosis leak	04	2
Iatrogenic perforation	03	1.5
Necrotizing fasciitis	02	1
Stoma prolapse	01	0.5
Total	200	100

Data were collected and recorded. SPSS version 18 was used to analyze the data. Numerical values were calculated as mean and standard deviation while categorical values were computed as frequencies and percentages.

RESULTS:

Total numbers of patients were 200 (male 114, female 86) with mean age of 32.7 SD 12.7 year. Trauma was the main reason of emergency exploration. Firearm injury was a major cause (n=67, 33.5%) followed by stab wound and blunt trauma (n= 12, 6.0%). Patients who presented with perforation peritonitis were 65 (32.5%) and those with intestinal obstruction, 52 (26%). Only two patients presented with bleeding P/R and enterocutaneous fistula. Details are given in table I. Mortality in this series was 10% (n=20).) Eighty patients had smooth recovery. Wound infection noticed in 42 (21%) cases. Other complications are given in table II.

DISCUSSION:

Trauma is the leading cause of perforation peritonitis.[5] Diagnosis is established on history and clinical examinations supported by investigations. Plain x-ray abdomen in erect posture shows the pneumoperitoneum and confirms the diagnosis.[6] Majority of large bowel trauma managed by primary repair, requires covering stoma in emergency as reported in literature and followed in this study.[7] Abdominal tuberculosis present with Ileocecal mass and multiple strictures with multiple perforations.[8] Surgical treatment options depend upon the general condition of the patients and contamination of the peritoneal cavity. Surgeons have different options to choose depending upon the circumstances at operation. Same was done in this study.

Stoma formation is a better treatment option for typhoid ileal perforation.[9] This reduces mortality.[10] Same was our experience. Malignancy left side of colon when present in emergency, treatment option depends upon the general condition of the patient, age and contamination of the peritoneal cavity. High risk patients may undergo staged procedure, moderate risk patient may be managed by immediate resection of the tumor without anastomosis and immediate resection anastomosis is reserved for low risk patients.[11]

Living with permanent intestinal stoma after an abdominoperineal resection is difficult. Preoperative education and counseling about life with stoma nurse improve the quality of life.[12] Postoperative surgical mortality and long term survival appears not to be influenced by emergency presentation of colorectal cancer.[13]

Localization of the stoma site which is based on the scientific principals should be taken into the consideration and the distance from the critical areas minimize the stoma related complications.[14] Many complications like stoma necrosis, stoma retraction, stoma prolapse are related to surgical technique during the operation. In addition to psychological stress stoma may lead to metabolic consequences. Colostomy causes minor problems while small bowel stoma patients may need a total parenteral nutrition as well.[15]

CONCLUSION:

Stoma formation is the best minimum surgical procedure to save the life in emergency intestinal surgery for, trauma, tuberculosis and typhoid perforations with low mortality.

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