Original Article

EXTERIORIZATION OF BOWEL PROCEDURE IN CRITICALLY SICK PATIENTS

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Abstract

Exteriorization of bowel proceedure in critically sick patients who received intensive care postoperatively were examined in 13 patients to identify the survival in our set up. Patients who do not require ventilatory support were excluded. Mechanical, trauma and primary vascular occlusion were identified as underlying cause. Multidisciplinary approach and post operative service in intensive care unit has helped to achieve eleven patients (84.6%) survival. Massive intestinal infarction in one and multiple trauma in another patient reminded us the limitation of surgery as has been the experience of others.

Keywords

Exteriorization, critical care, ischaemia bowel, multiple trauma, outcome.

Introduction

Exteriorization of bowel procedure is understood to offer safety in course of evolution of bowel surgery in doubtfully viable or nonviable intestine.[1, 2, 3, 4] Multiple injuries and co-morbid diseases further reinforce this idea to reduce risk[1].Inspired by this we aimed to identify the survival of very sick patients undergoing exteriorization of bowel receiving postoperative care in ICU. Different shades of confusion prevails while using "exteriorization" in literature. [3, 4, 5, 6] For simplicity and clarity, we include the following description. "When bowel segment in nonviable, taking out of that segment to skin surface after laparatomy followed by resection of necrosed or injured part as has been communicated as exteriorization.[2, 3, 6] It may be through main incision or separate wound made thereby. Contraindication to anastomosis of two divided end of bowel must exist e.g dialated edematous friable or matted bowel, doubtful blood supply etc. Frequently all " Stoma" creation are loosely included in exteriorization. [2, 3, 4, 5, 6] as afferent and efferent conduit e.g double barrel colostomy.

Critically sick patients requires short intra-operative time if possible and exteriorization procedure my be helpful as resuscitative or first operation. We review 13 cases managed in W.R. Hospital (Pokhara) and Bir Hospital and found useful to improve survival.

Method

Hospital based retrospective preview of thirteen (13) critically sick patients who underwent exteriorization of bowel

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procedure and received postoperative care in intensive care unit or its equivalent. All were excluded who do not required ventilator support for adequate relief of hypoxia. All patients were operated in emergency list. Perioperative care was provided by multidisciplinary approach. Staged abdominal re-entry (STAR) operation to solve intra-abdominal sepsis in two typhoid patients was additional requirement.

Result- It shows usefulness of the procedure in critical patient.

Patients characteristics – A

Resuscitation:-

Condition	**No. of patients**
Shock	13
Hypoxia	13
Electrolyte (Nak) disorder	13
Acidosis	13
Pain out of proportions to clinical findings (Nontrauma patients)	9
Hemorrhage	5
Malaena – microscopic to overt	13
ASA grade 3 to 5E	13

Patients Characteristics-B (operations follow-up)

S.N.	Age sex (yr/) Sex (yr)	At operation Diseases findings (h/o paindays)	& resection (postop day)	Exteriorization* (postop.day) afferent/efferent end	Anastomosis care	ICU** -up	Follow
1.	48/m	volvulus intestine (3 days)	gangrene distal jejunum/ jejunum upto Hep. Flexor	® transverse colon	4th	8	2 ½yr
2.	50/m	volvulus gangrene leiomyoma small intestine –(2days)	jejunum/ ileum	trans® colon caecum	5th	10	1½yr

3.	27/m	peritonitis typhoid mulliple –(4days) perforations	½ ft ilium	ilium/ilium	6th	11	1yr
4.	52/m	Haemetemesis malaena hemorrhagic mesenteric venous thrombosis –(1 day)	bluish black ilium -colon	jejunum/ trans colon	4th	9	2yr
5.	55/f	superior mesenteric artery throm -bosis	gangrene distal jejunum upto colon	jejunum/ trans colon ®side	3rd	7	1yr
6.	35/f	intussusception small intestine ilium upto to tran. Colon ® side –(3 ½ days)	gangrene trans.colon	ilium / ® trans . colon	3rd	7	6month
7.	23/m	volvulus gangrene persistent vitellointestinal duct –(3 ½ days)	ilium /ilium 1 ½ ft small intestine	4th	8	6 month	
8.	23/m	Bullet injury -(1 day)	tract through trans. colon ® anteroposterior stomach ant.paincreas	colon/colon	3 month	4	6month
9.	32/m	Fall blunt injuries –(2 days)	trans colon lacerated spleenic injures gr 3 stomach contusion mesenteric contusion	colon /colon (trans)	6 month	4 days	9month
10.	26/m	Failed loop iliostomy (black) peritonitis typhoid -(5 days)	lage perforation proximal to black failed loopiliostomy	ilium /ilium	7th	10days	4month

11.	26/m	bullet injury -(2 days)	transverse and ascending colon lacerated	ilium / colon	4th	10 days	4 month
12.	30/m	bullet injury -(1 day)	® lobe anterior liver injury antral perforation stomas 1st part and 2nd part duodenum perforated Hepatic flexorcolon perforated	colon /colon	x	10	expired
13.	65/m	peritonitis Acute mesenteric vascular occlusion ASA- 5E	massive bowel gangrene	laparotomy (open/close)	x	6hour	expired

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**** All other injuries operated expectantly. Liver injuries finger fracture technique used.***

** complications managed as required.*

M = Male F = Female h/o = History of .

Discussion

Critically sick patients requiring surgical procedure to deal with clinical stages of doubtful viability to nonviable bowel condition consistent to evidence best practice[7,8,9,10] in our setup inspired us to review these 13 cases. Eleven patients (84.6%) survived after a variable period in intensive care unit to control sepsis, hypoxia, electrolyte and acid base disorder, anemia etc. Mortality and morbidity differs in different decade during evolution of bowel surgery and Intensive care. 100 years ago, Elliot[1] described the first patient who recovered after exteriorization of bowel and the resection of infarcted segment of intestine. The afferent and efferent segment of remaining bowel were anastomosed two weeks latter. Brown[5] identified the survivors and mortality was high (70%). However review of reported cases of exteriorization and resection of intestinal diseases of 772 patients, the survivors progressively increased from 24 in 1921[11] to 217 in 1953.[12] Policy of exteriorization especially in colon injuries was advocated by Ogilvie (1944)[3] in second world war to improve outcome. The intestinal continuity is restored after enterctomy of the remaining resected margin are unequivocally viable; otherwise

exteriorization is advised. The wisdom gained so far is the best practice [14,16] to date. [15,17] If marginally viable intestinal segments are allowed to remain in abdommial cavity, re-exploration must be done irrespective of clinical improvement in immediate postoperative period[13] and the "exteriorized stomas " may provide clinical clue to underlying condition. Intensive organ support and correction of metabolic disorder in critical condition has remarkably improved the survivors chance (70% - 80%)[10,18] Although it may cause different kinds of problem.In spite of this, extensive small bowel infarction has an extremely high mortality (70%-90%)[19,20] , (50%-55%)[21] which reflect our one expired patient undergoing laparotomy- open and close only.

Review of 100 cases of small bowel infarcts and gangrene, mechanical causes was three times as commons primary vascular occlusion. [22] Five patients with mechanical (volvalus, intussusceptions, compromised iliostomy) cause and two patients with pure primary vascular occlusion in our setup is consistent with above trend. Bullet injusies cauring potential and /or extensive damage of bowel is safely managed by exteriorization[3]. Local bowel sepsis which requires aggressive approach often benefits by creating stoma[7,8,9,13,23,25] e.g. multiple perforated ilium in typhoid. STAR operation to clear developing intra – abdominal sepsis can be complimentory.

Restoration of an anastomosis of the afferent and efferent end of resected margin of intestine can be performed when the bowel ends looks well vascularised, dilated segment returns to normal, edema markedly subsides and / or re- look operation shows rest of the bowel viable with reasonably controlled local sepsis,[6] intensive care of the patient in ICU helps to tide over the crisis in this stage of peri– operative period.

High output effluent from small bowel resected end requires extra-care. Unavalibility of appropriate device in our country to collect this corrosive fluid created trouble in patient care. Short bowel syndromes in two patients are currently better after six months.

Doppler study, Angiography, florescence dye test[17] could not be utilized in emergency procedure in our hospital. Clinical decision were mainly made by consultant. Improvement is desireable to achieve better patient care.

Conclusion

Exteriorization procedure in Ischaemic and injured bowel is very helpful in critically sick patient even today . It may be considered a part of resuscitation. Better prognosis may be anticipated if emergency angiography in pure vascular occlusion case could be started and early arrival of patients (within 8 hours) arranged. Further study in solicited[24].

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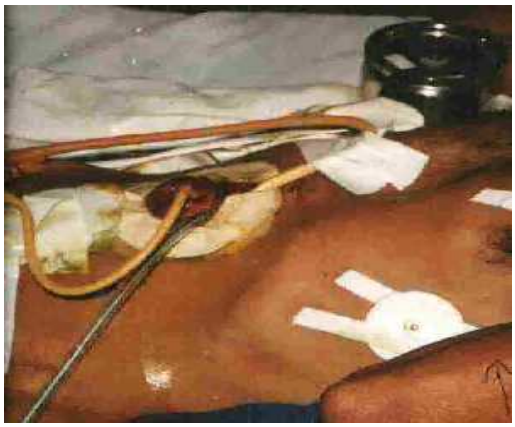
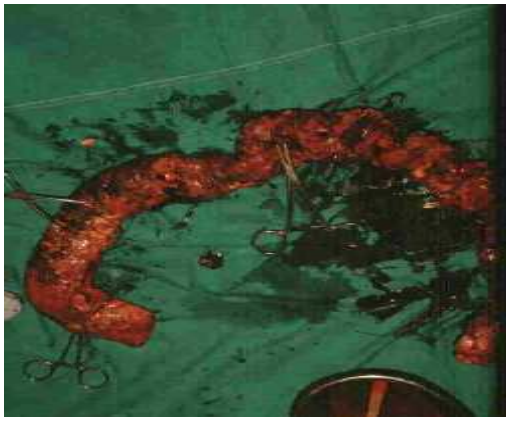


Exteriorization problem due to lack of collecting device 1

2 jejunm end tied around foley end to drain

Multiple segmental ischaemia



Infracted and resected bowel

Gangrene bowel