Research Paper

Volume : 2 | Issue : 10 | October 2013 • ISSN No 2277 - 8179

Primary Repaire of Colon Without Stoma Formation

Medical Science

KEYWORDS : primary repair of colon, stoma

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ABSTRACT

Management of colonic injuries for various pathologies of colon like perforation, trauma, volvulus, malignancy are generally managed by resection anastomosis of the diseased part followed by defunctioning stoma, due to fear of high failure rate of primary repair without diversion stoma. In past The reason for high failure rate were delayed resuscitation , lack of blood banks, minimal antibiotic developments and lack of proper skills etc. however with this development of all this things and morbidities associated with stoma like stomal hernia, prolapsed, skin excoriation ,need for revision surgery change the trends towards primary repair of colon without stoma formation

Aim: To study results of primary repair of colon without stoma formation in various colonic injuries

Method : In this study , we present 50 cases where primary anastomosis was done without defunctioning stoma with excellent post operative results and no morbidities of stoma in 40 cases compared with 10 cases where primary repair done with stoma formation.

Conclusion Not creating stoma reduces morbidity immensely. The social stigma associated with stoma is also reduced.

Introduction:

Management of colonic injuries has been evolving since last 3-4 decades. Various pathologies of colon like perforation, trauma, volvulus, malignancy are generally managed by resection anastomosis of the diseased part followed by defunctioning stoma, due to fear of high failure rate of primary repair without diversion stoma. During time period of World War 1 colostomy was mandated by major general W.H.Ogilive to combat high failure rate of primary repair without diversion. The reason for high failure rate were delayed resuscitation , lack of blood banks, minimal antibiotic developments and lack of proper skills etc. however with this development of all this things and morbidities associated with stoma like stomal hernia, prolapsed, skin excoriation ,need for revision surgery change the trends towards primary repair of colon without stoma formation. In this study , we present 50 cases where primary anastomosis was done without defunctioning stoma with excellent post operative results and no morbidities of stoma in 40 cases compared with 10 cases where primary repair done with stoma formation. Not creating stoma reduces morbidity immensely. The social stigma associated with stoma is also reduced.

Objective:

1. To study efficacy of primary repair without stoma formation in different pathologies of colon.
2. TO compare post operative morbidity in patient with or without stoma formation.

Materials and methods: This was a prospective study of 3 year duration from June 2010 to June 2013 in G.G.Hospital, Jamnagar. Total no. cases were 50.

INCLUSION CRITERIA:

patient having various pathologies of colon like traumatic or non traumatic perforation, due to below mentioned causes, requiring emergency exploratory laparotomy with resection and anastomosis or perforation closure of diseased segment without prior bowel preparation. Even those patient with having severe peritonitis and shock were included.

EXCLUSION CRITERIA:

1. Colonic trauma >8 hr old.
2. Destructive and devascularization injury to colon.
3. Pre existing inflammatory bowel disease

Various modes of injuries to colon

Mode of injury	Primary repair group (n=40)	Colostomy group (n=10)
Road traffic accident	14	4
Fall from height	6	2
Stab injury	5	3
Infective perforation of cecum	8	1
Iron rod insertion	1	0
Adhesionolysis	1	0
Colonic malignancy	5	0
Total	40	10

SURGICAL TECHNIQUE:

Abdomen was opened in midline incision, exact site of pathology was located and then plan of management was decide whether closure of perforation was needed or resection with anastomosis required in case of perforation closure margin were trimmed and where resection was done the segment to be anastomosed were confirmed to have adequate bleeding.in absence of bleeding more resection was done until margin showed significant bleeding.care was taken not to spoil the abdomen with colonic content and bowel lavage was given to proximal and distal loop. Anastomosis was done insingle layer in rectum and sigmoid colon and double layer at other site by hand sewn technique. Thorough peritoneal wash given, no stoma created, abdominal drain was kept and laparotomy was closed. All patients were kept NBM for 7-8 days, TPN given, Drain was removed after patient start tolerating liquid diet, stitch line was seen on 7^{th},9^{th},and 11^{th} post op day and removed accordingly.

Observation:

Outcome of both the group was analyzed by assessing complications with special emphasis on leak rate one patient died after 7 days in colostomy group because of septicemia and multiple organ failure. There was no major complication in both groups. There was only one leak in primary repair group which was treated conservatively. Apart from this there were 5 wound infections, one incisional hernia and one intra abdominal abscess in this group. In colostomy group 8 cases of wound infections,

2 incisional hernias and 2 intra abdominal abscesses occurred.

Complication in both groups...

COMPLICATIONS	PRIMARY GROUP (n=40)	COLOSTOMY GROUP (n=10)
Wound infection	5	6
Leak	1	0
Incisional hernia	1	0
Intra abdominal absess	1	2
Skin excoriation	0	4
Stomal necrosis	0	2
Stomal prolapsed	0	0
parastomal hernia	0	0
Revision surgery	0	1

Above and over this surgical complications some disadvantages associated with stoma groups are longer hospital stay, more treatment coasting and last but not the least is social stigma associated with stoma is much more. After all these discussion it should also be kept in mind that stoma patient is also exposed to risk of second surgery, anaesthetic risk and risk of anastomosis failure after stoma closure. We should also consider the complication that may be associated with stoma reversal surgery, those are risk of anaesthesia, nausea , abnormal bowel movement, anastomotic leak, incisional hernia and many other like wound infection, wound gap, long term dressing and further long term hospital stay.

Discussion:

Various studies in last decade indicates that primary repair can be done safely in most of the patients and very few poor patient may need fecal diversion i.e. colostomy or ileostomy. There is no definite protocol and clear cut risk factor in which primary repair should not be done. Colonic resection and anastomosis can be safely done in majority of patients including left colon injury cases also. So they further reduced the criteria for colostomy in these subgroups that have high abdominal trauma index or hypotension, and advised further such study. In our study also done primary repair in extensive devascularising colon injury and hypotensive cases needing more than 4 unit of blood for transfusion to recover from shock. We think that merely presence of hypotension and fecal contamination did not have any bearing on outcome of primary repair. Complication rate in both groups will be same. This view is very close to a study done by few other authors they concluded that nearly all penetrating colon wounds can be repaired primarily or with resection and anastomosis, regardless of risk factor. There were complications in some cases but none of these complications were because of anastomotic leak and fistula formation the main danger of colonic injury is sepsis resulting from fecal spill and we should be careful for this complication while deciding the management of colonic injury. This complication of colon suture line disruption varied in different study, so there is no final conclusion about all risk factors causing this problem. Adesanya AA et al. in their 10 year study of 60 colonic injury cases found no difference in outcome between patients who had primary repair and those undergoing diverting colostomy They have seen more incidence of complications with destructive colon injury, shock on admission, major fecal contamination, duration of operation more than four hours and penetrating trauma index score >25. The number of organ injured does not appear to relate with suture line leak but it is related to complications. So we did not take it as a risk factor and this has been revealed in our study also. Similarly age factor alone did not influence results of colon repair, though co morbid condition may be more prevalent in this group of patients. So it is the co morbidity rather than age; that may influence the decision. So we take the co morbidity as risk factor rather than the age solely. It is difficult to sort out all co morbidity in these types of patients because past medical history is not always evident. Colostomy closure after trauma remains associated with significant morbidity. The patients in whom a colon injury was the indication for initial colostomy experienced high morbidity (55%) after subsequent closure. Patients who had a colostomy for rectal injury had a low morbidity after closure (6.25%). Intraoperative difficulties (longer operative times, higher blood loss) and long delays until colostomy closure increase complication rates. Timely closure may improve outcome after operation for bowel continuity restoration. Morbidity associated with colostomy closure should be considered additional evidence for performing primary repair of colonic injuries. We considered mostly serious medical disease like severe diabetes, HIV infection, cirrhosis, renal failure and pancreatitis etc. as contraindication. The border line diabetes, mild hypertension etc. are not considered as contraindication but we would like to put it on surgeon's clinical judgment with respect to the patient because surgical judgments always overrule algorithms. Primary end-to-end anastomosis of the small bowel followed by planned relaparotomies seems a safe alternative to the creation of an enterostomy in patients with generalised purulent peritonitis and perforation of the bowel. Our experience says that in all patients except who cannot tolerate anaeshtesia for longer time, primary closure is to be preffered over stoma for diversion.

Conclusion:

without creating stoma if proper vascularity of edges of resected colon ensured,thorough bowel and peritoneal wash given,proper post operative nutrition and electrolyte balance maintained and broad Management of colonic perforations and resections and primary anastomosis can be attempted spectrum antibiotiscs are given.So that we can reduce morbidity, hospital stay and hospital expenditure and last but not the least a social stigma for stoma of patient.

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