Outcome of Emergency Resection and Primary Anastomosis of Acute Large Gut Obstruction without On Table Colonic Lavage

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One stage primary resection and anastomosis of acute colonic obstruction with on table antegrade colonic lavage is in vague, to reduce the risk of postoperative infective complications and anastomotic dehiscence. The purpose of this study was to evaluate the safety of single-stage resection and anastomosis of acute colonic obstruction without intra-operative colonic lavage. This study was conducted in a consecutive series of patients admitted to our department with acute large bowel obstruction. Patients with perforation and peritonitis at presentation were excluded from the study. Emergency resection performed followed by primary anastomosis without on table colonic lavage after a manual decompression. The data obtained was analyzed. A total of 50 patients underwent resection and primary anastomosis of acute colonic obstruction. Seven patients were presented with gangrenous bowels, which were resected and primary anastomosis performed. Post-operatively there were 7 superficial wound infections, 2 wound dehiscence and 1 anastomotic leakage. Mortality rate was 2%(1 patient died). Mean hospital stay was 12.5days. Emergency resection and primary anastomosis of acute colonic obstruction in unprepared bowel has excellent results and is a safe procedure.

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Key words: Large gut obstruction, Emergency resection anastomosis, Colonic lavage

Introduction

Acute large intestinal obstruction is one of the commonest cause of acute abdomen and abdominal emergencies that is encountered in surgical practice. Conventionally we prefer multistage defunctioning colostomy and resection.[1] This conventional procedure is socially embarrassing, not comfortable for the patient, increase duration of hospital stay and working hour loss.[2] This required a readmission for a second stage surgery to restore bowel continuity.[3] On the other hand one stage resection and anastomosis have several advantages including avoiding colostomy, reduces the number of procedures, shortens the duration of hospital and reduction in hospital costs, elimination of the waiting period because of a second operation and offering a better quality of the remaining life for patients with incurable malignancies. Much consideration is required prior to creating a stoma. The endemic poverty and lack of specialist nursing staff, makes successful stoma management unlikely.[5] A study carried out by Uba, Chirdan, Olori, Jhezue in Jos university Teaching Hospital, Nigeria (Oct.2000-May2006) has shown that there has been a trend towards one stage primary resection and anastomosis lately.[1] Virtually all colorectal surgeons

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consider a mechanically cleansed and empty bowel as pre-requisite for a safe colonic resection and anastomosis in order to reduce the risk of septic complications and anastomotic dehiscence.[11] The potential disadvantages of mechanical bowel preparation includes the requirement for a longer pre-operative admission, its time consuming nature and cost, discomfort for the patient and exposure of the elderly population to the particular risk of fluid and electrolyte imbalance. Ante grade on table colonic lavage is usually performed to decompress and clean the proximal obstructed colon. On table colonic lavage can be time-consuming, messy, and requires a proximal enterotomy, and considerable bowel handling, all of which potentially increase morbidity. Manual decompression may be desirable, to decrease distension, facilitate abdominal closure and improve colonic blood supply. But there is evidence that complete cleaning of the colon of fecal matter is not necessary to ensure anastomotic integrity.[6-12]

A study was carried out in Bankura sammalani medical college, west Bengal, India on June 2003, a total of 197 patients underwent bowel decompression, resection and primary colonic anastomosis. Only two patients developed anastomostic leakage, requiring re-laparotomy, Hartmann's procedure and delayed closure. Two deaths occurred post-operatively, these were unrelated to the nature of the surgery. The mean hospital stay was 9.8 days.[13] Thus, we can say, primary closure of the unprepared bowel has better prognostic values, is safe procedure without demonstrable increase in risk of anastomotic dehiscence, intra abdominal abscess or abdominal wound infection. The aim of my study is to observe the outcome of the patient following one stage resection and anastomosis in large gut obstruction in Bangladeshi population and to see the post operative morbidity and mortality.

Methods

This was a prospective study of outcome of emergency resection and primary anastomosis of large gut in acute intestinal obstruction of patients admitted during the period from 01/07/20213 to 01/07/2014. This study was carried out in different surgical units of Dinajpur Medical College Hospital. Fifty patients, who were operated in emergency and found to have acute intestinal obstruction with viable obstructed or gangrenous gut, were treated with one stage resection and end to end anastomosis. The diagnosis was made on clinical findings and radiological report. In history, attention was paid to the age and sex of the patient, duration and the sequence of appearance of the symptoms, any history of previous operation and dietary history and bowel habit. On general examination, each patient was evaluated specially for state of hydration and vital signs. During examination of the abdomen distension, visible peristalsis, abdominal tenderness, muscle guard and rigidity and presence or absence of bowel sound or increased bowel sound. In all cases examinations of the hernial orifices and per rectal digital examination were done. Among the investigations a plain X-ray abdomen in erect posture was done in all cases. Serum electrolytes, abdominal ultrasound and histopathological examination were done in selected cases. Depending on the clinical findings some patients were selected for immediate operation after resuscitation and in others conservative treatment was applied which included keeping the patient nil per oral, nasogastric suction, administration of intravenous fluid and parenteral antibiotics and enema simplex or compound. During this period patients were closely observed with frequent checking of pulse, BP, temp, abdominal pain, rigidity, tenderness and bowel movement. Failure of conservative

approach within an adequate period of time was considered to be an indication for operation. Laparotomy was performed under general anaesthesia then the cause of obstruction was identified along with assessment of viability of the affected segment of the intestine. Gangrenous gut and viable gut in indicated cases was resected and end to end anastomosis was done with single layer stitches by using 3-0 vicryl without intra-operative colonic lavage. The patients were allowed to go home when there were smooth recoveries. The stitches were removed on 10th postoperative day and there after patients followed at 2 weeks and at 4 weeks interval. In case of post operative complicated cases were released after the treatment of complication.

Results

This study was conducted in all surgical units of Dinajpur Medical College Hospital, Dinajpur from July 2013 to July 2014. The result of treatment of 50 cases of Primary resection and anastomosis of unprepared bowel who were selected considering inclusion and exclusion criteria presented in this series.

Table I: Age incidence of the patients. (n=50)

Age in years	Number	%
31 – 40	2	4
41 – 50	12	24
51 – 60	24	48
61-70	8	16
71-80	4	8

Table I shows age incidence of the patients. age ranged from 30-75 years maximum incidence was observed in the sixth decade (48%) followed by fifth decade (24%)

Table II: Sex incidence

Total cases	Male	Female	Ratio
50	44	6	7.3:1

Table II shows the sex distribution of the patients. Among the 50 patients 44 (88%) were male and rest 6 (12%) were female.

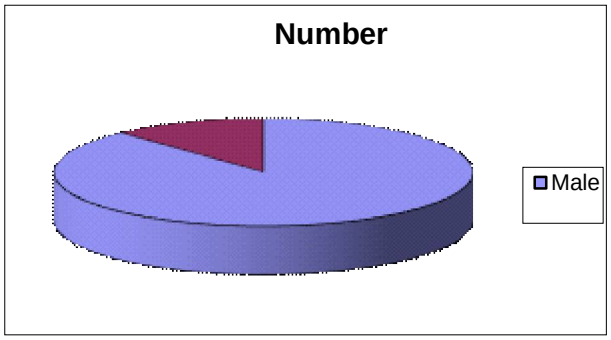

Figure 4. Sex distribution (n=50)

Fig 4 shows the sex incidence of the patients. Among the 50 patients, 44 (55%) were male and rest 6 (12%) were female.

Table III: Socio-economic Status

Status	Total	%
Poor	48	96
Average	2	4
Rich	0	0

Table III shows socio-economic status of the patients shows a higher frequency in poor group of people (96%).

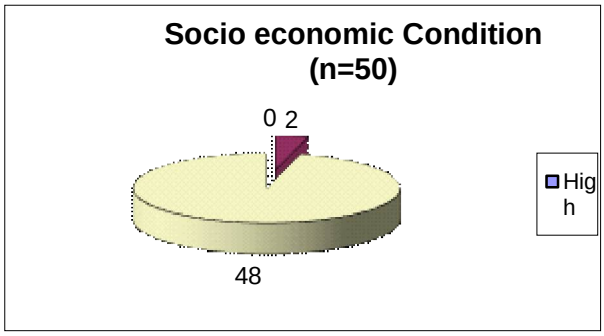

Figure 3. Socio-economic condition of the patients. Volvulus of sigmoid colon occurred

mostly in low income group of people of rural areas.

Table IV: Clinical Features (n=50)

Signs and symptoms	Number	%
Abdominal pain	50	100
Abdominal distension	50	100
Absolute constipation	47	94
Nausea and vomiting	22	44
Dehydration		
Moderate	20	40
Severe	03	6
Visible Peristalsis	19	38
Bowel sound		
Exaggerated	34	68
Normal		08
Feeble of absent	12	24
Pyrexia	4	8
Rebound tenderness and muscle guard	8	16
D/R/E	21	42

Table IV shows that abdominal pain and distension were present in all 50 patients and 94 percent of the patients presented with absolute constipation nausea and vomiting were late feature presented with 44 percent of patients, whereas, dehydration (moderate to severe) was present in 46 percent of patients.

Table V: Various Causes of Intestinal Obstruction

Causes	Number	%
Sigmoid volvulus	47	94
Colonic carcinoma	2	4
Intussusceptions	1	2

Table V shows various causes of obstruction. Among various causes sigmoid volvulus was the most common (94%) cause.

Table VI: Condition of Colon During Laparotomy (n=50)

Condition	Number	%
Gangrenous	16	32
Non-gangrenous	34	68

Table VI shows that near about two thirds of the patients (68%) Colon was viable.

Table VII: Operative procedures adopted (in this study including only those patients who were performed resection and anastomosis)

Operative procedures	Number	%
Sigmoid volvulus: sigmoid colectomy with primary end to end anastomosis.	47	94
Colonic carcinoma: Rt/Lt hemicolectomy	2	4
Intussusception (Ileocaecal) – Right hemicolectomy	1	2

Table VIII: Time of stay in hospital

Duration (POD)	Number (n=50)	%
8-10	27	54
11-13	10	20
14-16	6	12
17-20	5	10
>20	2	4

Table IX: Incidence of postoperative Complications

Post operative complications	Number	%
Wound infection	7	14
Wound dehiscense	2	4
Respiratory complications	1	2
Anastomotic leakage	1	2
Endotoxic shock	2	4
Post operative anuria	1	2
Death	1	2
Total	15	30

Table shows wound infection is the common postoperative complication.

Table X: Outcome of emergency resection and primary anastomosis (n=50)

Condition of bowel at operation	Recovered uneventfully no of (%)	Recovered with some complication no of (%)	Death no of (%)
Gangrenous (n=16)	11(68.75)	4(25)	1(6.25)
Nongangrenous	30 (88.24)	4 (11.75)	o

Table X shows that in gangrenous bowel two thirds of the patients recovered uneventfully and 25% recovered with some complications, Whereas in nongangrenous bowel 88.24% recovered uneventfully and 11.75% with some complications. Death rates were 6.25 and 0 Percent respectively.

Discussion

The objective of this study was to evaluate outcome of emergency resection and primary anastomosis of large gut in acute intestinal obstruction. Fifty patients, who had acute intestinal obstruction at laparotomy and indicated for emergency resection and primary anastomosis were included in this study. The patients were followed for anastomosis related complication up to 6weeks.The ages of patients ranged from 30 years to 75 years. Male to female ratio was 4:1. Emergency resection and primary anastomosis of gut was done by using single layer stitch without colonic lavage. Mortality rate was 2% (1patient died) one patient had leakage of anastomosis (2%). Seven patients had wound infection (14%). The hospital stay ranged 8 to 25days. In this study age distribution of the patients ranged from 30 years to 70 years. Most of the patients were in the 4^{th}, 5^{th} and 6^{th} decades of life (Table I).

Volvulus of the sigmoid colon is the most common cause of large gut obstruction in our country. It is a common surgical emergency and accounts for up to 30 to 35% of all cases of intestinal obstruction occurring in the subcontinent. In Bangladesh incidence of sigmoid Volvulus is 58.1% (haygena 1981) of large gut obstruction. The majority of the patient was elderly and regarded as disorders of old age. In the present series age was in between 30-75 years but maximum incidence was in the 6^{th} decade (51-60 Years) In our country, there is also male preponderance. In the present series male female ratio was 7.3:1 In the Present series about 96 percent cases were from low socioeconomic group and most of them were farmers and day labourers. The onset of symptoms were usually gradual with vague abdominal pain and sweating. In the present series the abdominal distension and pain was present in all patients (100%). Ninety four percent patients presented with absolute constipation, nausea and vomiting in 44 percent cases, dehydration in 46 percent cases, visible peristalsis in 38 percent cases, abnormal bowel sound in 92 percent cases, pyrexia in 8 percent cases, rebound tenderness and muscle guard in 14 cases, rectum empty on P/R and proctoscopy was in 42 percent cases. It has been observed that incidence of gangrene was more in acute and first attack, in gradual onset and in recurrent attack the incidence was low. Physical examination revealed distension with obstructive bowel sounds in the majority of cases and the diagnosis could be confirmed in those patients where a dilated loop of distended colon could be seen coming to a point in the left iliac fossa or pelvis on plain abdominal radiography. In the present series, plain X-ray abdomen including diaphragm and pelvis where done in all cases. Hugely distended pelvic colon filled with gas found in 92 percent of cases and typical frimann dahl sign found in 62 percent of cases. Barium enema was not tried in most of the cases as these cases failed in initial conservative measures. Only in 3 cases barium enema was done and typical “bird’s beak” findings was there. Regarding treatment, since its description by Von Rokitansky in 1836,[23] Sigmoid volvulus

has been managed by a variety of treatments: spontaneous reduction, blind flatus tube decompression, proctoscopic/ sigmoidoscopic and colonoscopic decompression, detortion after laparotomy, derotation and fixation of sigmoid colon and resection of colon. Bruusgaard was of the opinion that all patients with sigmoid volvulus should be treated with non-operative measures.[24] while suteliffe was of the opinion that all patients with sigmoid volvulus should be treated by resection and primary anastomosis.[25] Colopexy is not popular owing to high rate of recurrence.[26] Various operative procedures have been tried for sigmoid volvulus and recommended therapy for this condition is generally resections as operative derotation without further treatment leads to recurrence. Similarly, non-operative reduction with colonoscopy has given a good result but recurrence is common.[27] In our series, regarding treatment, initially a conservative approach was tried in patients who seemed to have viable gut, Such as enema simplex and rectal tube insertion. Emergency laparotomy was carried out in all these 47 cases. At first operative duration was done and viability of the gut was confirmed. In both viable and non-viable bowel, primary resection and anastomosis was carried out without intra operative colonic lavage as a definitive operation. Immediate resection and primary anastomosis in the presence of gangrene has been carried out successfully [28]. In this series, 16 cases were gangrenous and 31 were non-gangrenous. In gangrenous group (n=16), one patient died from complete disruption of anastomosis, four (4) recovered with some complications. In non-gangrenous group majority recovered uneventfully. In Manzoor Ali, Zahid Hashmi, Adnan Zafar series [5]. A total of 83 patients underwent resection and primary anastomosis, four patients with gangrenous bowel. Post operatively there were 7 superficial wound infections, 3 required surgical drainage. Death or clinical anastomotic failure was not recorded. In De U. Ghosh S series [4]- A total of 197patient underwent resection and primary anastomosis without colonic lavage- only two patients developed anastomotic leakage, requiring re-laparotomy, Hartmann's procedure & delayed closure & two death occurred post-operatively. In our series, in gangrenous colon resection and anastomosis, death rate was 6.25% and in-non gangrenous colon death rate was 0% Recurrence was none in this series. In this series, emergency resection and primary anastomosis without colonic lavage has been tried as a definitive operative treatment for sigmoid volvulus. It reduces recurrence to almost nil and also has low rate of operative morbidity. About 15 percent of patient with carcinoma of the large intestine present as surgical emergencies, the great majority with acute intestinal obstruction, perforation at the site of the tumour or a combination of both when perforation occurs in distended colon proximal to the obstructing cancer.[29] The low incidence in the present study is consistent with the local and regional studies.[15] In this present series two patients were presented with colonic carcinoma and underwent one stage resection without colonic lavage. The mean age of the group was 65 years with male and female ratio of 1:1. One patient presented with carcinoma of the caecum and underwent emergency right hemicolectomy. Another was presented with carcinoma of the descending colon and treated by emergency left hemicolectomy. Post-operatively only one patient develop wound infection. In study of Naraynsingh V et all, fifty eight patient Underwent resection & primary colonoscopic anastomosis without colonic lavage. Only one patient developed anastomotic leakage, requiring transverse colostomy & one death occurred 12h following surgery due to myocardial infection. Another study of 44 patients carried by A. patriti et all in Italy in 2005 underwent one stage resection without colonic lavage.

The leak rate was 4.5% and mortality 2.3% due to one case of postoperative myocardial infection[30]. So in comparison to their report our result is better regarding outcome.

Conclusion

The objective of this study was to evaluate the outcome of emergency resection and anastomosis of bowel in acute intestinal obstruction. The patients were followed for anastomosis related complications up to 6 weeks. A significant number of mortality and morbidity can be reduced by early diagnosis adequate resuscitation, proper operative procedure and postoperative care. Emergency resection and primary anastomosis of bowel was done by using single layer stitch without colonic lavage. Mortality rate was 2% (1patient died), one patient had leakage of anastomosis (2%) seven patients (14%) had wound infection. The hospital stay ranged 8-25 days. We conclude that emergency resection and primary anastomosis has excellent results in acute intestinal obstruction.

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