



AN OBSERVATIONAL STUDY ON VARIOUS METHODS OF MANAGEMENT OF SIGMOID VOLVULUS IN A TERTIARY CARE CENTRE

General Surgery

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ABSTRACT

AIMS AND OBJECTIVES: Volvulus refers to the twisting or axial rotation of a portion of the bowel around its mesenteric axis. It may be congenital or acquired, primary or secondary. The commonest spontaneous type in adults occurs in sigmoid colon. In this study, we compare the various methods of surgical intervention performed in sigmoid volvulus and its outcome.

METHODS: This is a comparative study done on 26 patients presenting with sigmoid volvulus to the ER during the period of October 2018 to October 2021 in the department of General Surgery, Rajendra Institute of medical sciences, Ranchi. The procedures performed were sigmoidopexy, mesocoloplasty, resection and anastomosis with or without a diversion colostomy and Hartmann's procedure depending on the presentation, hemodynamics, bowel preparation and intra operative findings of the patient.

RESULTS: The most commonly performed procedure in the emergency setting was resection and anastomosis (32%) and mesocoloplasty (32%) and RA with diversion stoma (15%), sigmoidopexy (15%) and Hartmann's procedure (7%). The recovery percentage was about 90-95% in all procedures.

CONCLUSION: Though there is lot of procedures done for sigmoid volvulus, there is no single ideal procedure of choice. It has to be decided in the operating room based on the findings and general condition of the patient. Bowel resection was associated to have complications and increased duration of hospital stay when compared to non resective methods.

KEYWORDS

Mesocoloplasty, sigmoid volvulus, complications, hospital stay.

INTRODUCTION:

Intestinal obstruction⁽¹⁾ can be of two types - dynamic and adynamic. Volvulus is a type of dynamic obstruction which is defined as twisting or axial rotation of a portion of bowel about its mesentery. The rotation causes obstruction to the lumen (>180° torsion) and if tight enough also causes vascular occlusion in the mesentery (>360° torsion) leading to ischemia and gangrene.

Volvuli may be primary or secondary. The primary form occurs secondary to congenital malrotation of the gut, abnormal mesenteric attachments or congenital bands. Examples are volvulus neonatorum, caecal volvulus and sigmoid volvulus. A secondary volvulus, which is the more common variety, is due to rotation of a segment of bowel around an acquired adhesion or stoma.

Sigmoid Volvulus⁽¹⁾ is one of the most common causes of acute large bowel obstruction. It is mostly an anti-clockwise type of rotation. Predisposing factors include high fibre diet, chronic constipation with a loaded sigmoid, laxative abuse, use of psychotropic drugs and long sigmoid mesocolon.

It usually presents with colicky pain, absolute constipation, distension and vomiting. Diagnosis is by doing an erect abdominal X-ray in almost 80% of cases.⁽²⁾ Barium enema and abdominal CT scan is helpful in doubtful cases.

Early and correct diagnosis of this disease is essential for appropriate treatment and if left untreated, often results in life-threatening complications, such as bowel ischemia, gangrene, and perforation.⁽⁵⁾ Despite significant progress in the treatment of this disease, no consensus has been reached.

Nonoperative treatment such as Barium enema, rectal tubes, rigid and flexible sigmoidoscopy are adopted if there are no signs of perforation and peritonitis. But these procedures are associated with higher rates of recurrence. Emergency surgery is the appropriate treatment in such cases. Open sigmoidopexy, mesosigmoidoplasty, Hartmann's or Paul Mikulicz's procedure, primary resection and anastomosis with or without diversion.

Aim and objectives:

This study compares the different methods of surgical techniques in managing sigmoid volvulus with special mention to mesocoloplasty. The outcome, various post operative complications and hospital stay was assessed in each of them.

MATERIALS AND METHODS:

This is a comparative study done on 26 patients presenting with sigmoid volvulus to the emergency room during the period of October 2018 to October 2021 in the department of general surgery, RIMS Ranchi.

INCLUSION CRITERIA:

All the patients admitted in surgical ER at RIMS, RANCHI with clinical diagnosis of sigmoid volvulus and underwent surgical procedures, during the study period.

EXCLUSION CRITERIA:

1. All large bowel obstruction patients presenting as emergencies other than sigmoid volvulus were excluded.
2. Patients of sigmoid volvulus who were relieved by conservative management (Flatus tube insertion, sigmoidoscopic/colonoscopic reduction) were excluded.

The patients were admitted and evaluated, resuscitation done according to their vital signs. A detailed history was obtained and clinical examination was done. Patients with suspicion of sigmoid volvulus were further evaluated. The history of presenting illness, past illness related to bowel disorders, diet & bowel habits was taken. Detailed findings at physical examination were recorded. Plain x-ray of abdomen in erect posture and x-ray chest PA view was done.

The x ray finding of a largely distended bowel (coffee bean sign)⁽⁴⁾ in the left upper quadrant is mostly suggestive of sigmoid volvulus. These patients were prepared and taken up for surgical intervention.

Depending on the general condition of the patient, vitals, bowel preparation and intra operative bowel findings, the procedure was decided. The various procedures were sigmoidopexy, meso-sigmoidoplasty, primary resection and anastomosis, resection and anastomosis with diversion colostomy and Hartmann's procedure.⁽⁵⁾ Patients were followed post operatively and managed accordingly. Various complications such as wound infection, recurrence, anastomotic leak, mean hospital stay and outcome were assessed.

RESULTS AND DISCUSSION:

Table 1: This table shows the incidence of sigmoid volvulus in different age groups.

Sl.no	Age in years	No of patients	Percentage(%)
1	1-10	0	0
2	11-20	0	0

3	21-30	2	7.6
4	31-40	5	19.2
5	41-50	6	23
6	51-60	8	30
7	61-70	4	15.3
8	>70	1	3.8
Total		26	100

Our study shows the increased incidence in people aged more than 50 years. This occurred due to reduction in physical activity in older individuals and constipation. All studies in this subject have shown the same.

Table 2: This table compares the occurrence of volvulus in both the sexes showing increased incidence among males. Male patients had more incidence compared to females because of improper and untimely food habits, alcohol intake. They were more prone to constipation due to poor intake of dietary fibers and water. Our study also matches the literature.

Sl.no	Gender	No of patients	Percentage
1	Male	18	69.2
2	Female	8	30.8

Table 3: This table shows the various surgical procedures performed on the basis of intra-operative findings. If the bowel is viable, there were chances of performing non respective methods like sigmoidopexy and mesocoloplasty. In gangrenous bowel, the portion had to be resected and anastomosis or diversion stoma has to be performed based on the general condition of the patient. The diversion stoma can be reconstructed once the condition and built of the patient improves mostly after 6-8 weeks.

Sl. no	Procedure	Viable bowel	Gangrenous bowel	No of patients	Percentage
1	Sigmoidopexy	4	0	4	15
2	Mesocoloplasty	8	0	8	31.5
3	Resection and anastomosis	6	2	8	31.5
4	R & A with Diversion Stoma	1	3	4	15
5	Hartmann's Procedure	0	2	2	7

Table 4: This table depicts the outcome of various surgical procedures done in our study. The methods where resection was performed had more mortality and morbidity.

S.no	Procedure	No of patients	Recovered	Expired
1	Sigmoidopexy	4	4	0
2	Mesocoloplasty	8	8	0
3	R&A	8	7	1
4	R&A with diversion stoma	4	3	1
5	Hartmann's procedure	2	1	1

Table 5: The table shows the various complications that occurred postoperatively following various surgical procedures suggesting wound infections occurred in cases where bowel was resected. Other procedures where bowel handling was less, the incidence of complications were few or rarely occurred. Bowel resection entails contamination of the peritoneal cavity and thus leading to SSI and anastomotic leak. First two methods in the table were associated with few complications and the patient was able to get back to regular activity in few days.

S.no	Procedure	Wound infection	Recurrence	Anastomotic leak
1	Sigmoidopexy	0(4)	2(4)	-
2	Mesocoloplasty	1(8)	0(8)	-
3	Resection and anastomosis	3(8)	-	2(8)
4	R&A with diversion stoma	3(4)	-	-
5	Hartmann's Procedure	2(2)	-	-
Total		9	2	2

Table 6: This table depicts the average hospital stay of all patients undergoing various surgical procedures. The inference is that procedures that warrant bowel resection have increased duration of stay and thus increasing morbidity.

Sl.no	Procedure	Mean Hospital Stay(days)
1	Sigmoidopexy	4.8
2	Mesocoloplasty	5
3	Resection and anastomosis	7
4	R&A with diversion stoma	8
5	Hartmann's Procedure	10

CONCLUSION:

There is no ideal surgical procedure which can be generalised for sigmoid volvulus. Procedures like mesocoloplasty has a slight more advantage over sigmoidopexy in terms of recurrence. Though these procedures are associated with less duration of hospital stays, they can not be performed in a gangrenous or grossly dilated bowel.

Resection and anastomosis is better than R&A with diversion only if the general condition of the patient is good pre operatively, otherwise it can lead to anastomotic leak.

Patients who were hemodynamically stable/poor general condition and intraoperatively found to have grossly dilated bowel or bowel with pre gangrenous changes where exact line of demarcation could not be established were treated with resection of doubtful segment followed by end to end anastomosis with diversion colostomy/ileostomy.

Diversion colostomy provided ample time for healing of anastomosis and it also enabled us to start early enteral feeding leading to better nutrition and postoperative recovery. In patients with poor general condition and hemodynamic instability with gangrenous bowel intraoperatively, Hartmann's is the procedure of choice. Wound infection rates are high, especially in unprepared bowel.

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