

A Clinical Study on the Management of Sigmoid Volvulus at DMCH, Laheriasarai, Bihar

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Abstract

Background: A primary cause of big bowel blockage and a surgical emergency with a high mortality and morbidity rate is sigmoid volvulus. India has a higher prevalence of the condition, particularly among rural residents. 15% of all bowel blockages are due to it. This study examines several management strategies used in our facility, which mostly treats patients from the nearby rural areas.

Methods: The current study examines 36 instances in order to determine the etiological causes, clinical characteristics, therapeutic options, and prognosis of sigmoid volvulus. The various treatments have received extra attention. The study took place at the Upgraded Department of Surgery, DMCH, Laheriasarai, Bihar, for a year between July 2021 and June 2022.

Results: The male to female ratio was 2:1, with the mean age of sigmoid volvulus being 49 years (with a range of 19-75). Less frequently in people under 20 years old and older than 70. Constipation (88%) and abdominal distention (100%) were the two most frequent modes of presentation. With no mortality, 22% of patients underwent sigmoidopexy; 17% underwent primary resection and anastomosis. Infections in the wounds are a typical post-operative consequence.

Conclusions: If the colon is still healthy, primary resection anastomosis has been proven to be a completely safe treatment. Only gangrenous bowels are eligible for Hartman's technique. The absence of co-morbid conditions is a noteworthy aspect. X-rays taken before to surgery are useful for diagnosis. In our investigation, mortality was determined to be 17.5%.

Keywords: Investigations, Management options, Mortality, Sigmoid volvulus

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Introduction

Since Von Rokitansky's initial description of the condition in 1836, sigmoid volvulus has become more common. A total or partial obstruction is caused by an aberrant twisting of the sigmoid colon around its mesentery. The Middle East, Africa, India, Turkey, and South America are all

included in the volvulus belt, where the disease is more common [1]. Most of the time, older people with rapid onset constipation, abdominal discomfort, and distention develop sigmoid volvulus. Plain radiographs and this traditional clinical picture are typically enough to diagnose

the disorder. But diagnostic challenges are not unusual. The non-specific character of the symptoms and the clinical picture can make sigmoid volvulus diagnosis difficult at times [2]. Although acute abdominal pain can be diagnosed with surgical exploration, accurate preoperative diagnosis will lower mortality and morbidity [3]. Mortality following surgery might range from 6% to 60%. Advanced age, delayed diagnosis, intestinal infarction, peritonitis, and shock at presentation are all risk factors for a bad outcome [4].

The goals were to research the clinical progression and symptoms of sigmoid volvulus, to research the various treatments for the condition, and to research how the disease might have turned out had different treatments been used.

Material and Methods

The clinical course, symptoms, and mortality of sigmoid volvulus in patients, primarily from the surrounding rural areas, admitted to the Upgraded Department of Surgery at Darbhanga Medical College and Hospital, Laheriasarai, Bihar from July 2021 to June 2022 are the subjects of this study. All of the patients who were admitted to DMCH with a sigmoid volvulus clinical diagnosis had surgery. Except for sigmoid volvulus, all significant bowel obstructions presenting as emergencies are excluded. There was collected a list of patients who benefited from sigmoidoscopy reduction.

For the study of these cases, a proforma was created. The cases go through a thorough clinical examination as well as two crucial tests, an upright abdomen X-ray and sigmoidoscopic examination. Additionally, a CT scan of the pelvis and abdomen was used to make the diagnosis.

A thorough history was gathered, and an examination was performed. A complete physical examination report was made after taking a history of the current condition, past illnesses, gastrointestinal

issues, dietary habits, and constipation. In each case, x-rays were taken. An upright abdominal plain x-ray was a very useful diagnostic tool. This pre-operatively corroborated the sigmoid volvulus diagnosis in the majority of cases. In 99% of cases, the severely distended Omega loop could be shown. Surgical results, care, complications, mortality, and outcomes of various procedures and follow-ups were documented.

A variety of surgical techniques were examined. In a few cases when sigmoid volvulus was discovered, the volvulus might be decreased with a flatus tube passed in knee elbow position or in right and left lateral locations when clinically no indication of gangrene was present. Following the failure of this approach, it was decided to operate on the patients. In such cases, Arnold JG reported a 67% success rate. For the sake of our study, these examples were excluded.

The majority of the intravenous solutions given to the patients before to surgery were 5% dextrose in normal saline. Other electrolyte solutions were given, though they were clinically practical and desirable. General anaesthesia was given to all patients. To lower the post-operative wound infection rate, an antibiotic prophylaxis injection salbactam + ceftriaxone 1.5 gm was administered at the time of induction of anaesthesia.

All patients received Dextrose Saline, 5% Dextrose, blood, and if necessary, injections of Ceftriazone + Salbactam 1.5 gm every 12 hours. Amikacin 500 mg was injected intravenously in the proper divided amounts, every 12 hours, if the bowel was still functional. In cases of gangrenous bowel, intravenous metronidazole solution was also given every eight hours for seven to 10 days. Until the return of bowel sounds, patients were kept nil orally, and nasogastric suction was used during this time. A 14-day stay in the hospital was typical. After being released, patients were monitored for colostomy closure.

Results

This study comprised 36 cases of sigmoid volvulus patients who underwent surgical therapy. Analysis was done on age, symptoms, sex, signs, investigations, and surgical results.

All of the patients who arrived with abdominal distention and acute symptoms and were later diagnosed with sigmoid volvulus were included in this group of 36 instances.

Table 1: Distribution of Age group

Age in years	No. of cases	Percentage
1-10		
11-20		
21-30	5	13.8%
31-40	5	13.8%
41-50	13	36.1%
51-60	7	19.4%
61-70	3	8.3%
71-80	3	8.3%

Table 2: Distribution of Gender

Sex	No. of cases	Percentage
Male	27	75%
Female	9	25%
Total	36	100%

In the present study distention of the abdomen (100%) was the commonest symptom followed by constipation (88%) and pain abdomen (83%) (Table 3).

Table 3: Common mode of presentation

Symptoms	No. of cases	Percentage
Pain abdomen	30	83%
Distension of abdomen	36	100%
Constipation	32	88%
Vomiting	15	42%
Retention of urine	3	8%
Fever	1	3%

In the current study, abdominal distention (100%), dehydration (83%) and abdominal discomfort (75%) were the most frequent physical findings, followed by the absence of bowel sounds (70%). All patients had abdominal distension, but only peritonitis cases had fever, which was less common.

Table 4: Types of surgeries performed and outcome

Procedure	No. of cases	%age	Cured	Expired
Sigmoidopexy	8	2%	8(100%)	
Primary sigmoid resection and end to end anastomosis	12	34%	10(83%)	2(17%)
Hartmann's Procedures	16	45%	12(75%)	4(25%)

The choice of procedure was determined by the patient's clinical state, preoperative information, the viability of the bowel, and the surgeon's experience. The procedure

used was either sigmoidopexy or resection and anastomosis where the bowel was viable (56%). There were two fatalities in the group receiving resection and

anastomosis, whereas all patients receiving sigmoidopexy survived.

In their investigation, Munir A. *et al.* came to the conclusion that meso sigmoidoplasty is a permanent treatment. Although non-operative sigmoidoscopy decompression (Bruusgarrd) can be used to treat volvulus, there are drawbacks such as the possibility of recurrence, perforation, and non-viable bowel. Sutcliffe supports primary anastomosis and resection in every situation.

In our investigation, primary resection and anastomosis were performed in 12 patients where the colon was viable (33%). Three

cases also had proximal colostomies. Single layer full thickness intermittent sutures made of non-absorbable suture material are used as the anastomosis procedure. There were no anastomotic leaks in this group. Two cases (22%) had anastomotic leaks out of the resection and primary anastomosis performed in the (9) patients without proximal colostomy. In 16 cases (45%) when the bowel was gangrenous, Hartmann's technique was carried out (Table 3). Closing the distal stump and closing the colostomy with the proximal bowel. Colostomy closure was performed afterwards. In this group, mortality was 25%.

Table 5: Percentage of wound infection

Procedure	Wound Infection	Percentage
Sigmoidopexy (8)	1	12.5%
RPA (12)	3	25.0%
Hartmann's (16)	11	68.0%

If the bowel is still viable, we believe resection and primary anastomosis (RPA) is preferable. If the bowel is gangrenous, Hartmann's operation is the best option. According to A.K. Khanna in JIMSA 2012, resection has a significant mortality rate among patients with non-viable bowel but no recurrence.

17% of patients who underwent this operation died, but 83% did. The death rate for patients with gangrenous bowel was 25%. The most common side effect is wound infection (68%), while 2% of patients who underwent RPA without a colostomy suffered anastomotic leaks. Anastomotic leak in proximal colostomy RPA patients. The average length of hospital stay for sigmoidopexy was 6 days, compared to more than 2 weeks for RPA and Hartmann's operation.

There were no anastomotic leaks in the three patients who underwent resection and anastomosis with proximal colostomy, whereas 22% of patients who underwent the same treatment without colostomy experienced anastomotic leak.

Discussion

Wide geographic variations exist for sigmoid volvulus, which is more prevalent in poor socioeconomic groups. High altitude and a diet high in fibre were all factors [5]. The best way to treat sigmoid volvulus is still up for dispute [6]. Studies of a similar nature have compared several surgical procedures for sigmoid volvulus. Constipation, stomach discomfort, and abdominal distention are common manifestations.

In our setup, clinical examination, radiological, endoscopic, and surgical results could diagnose nearly all patients [7]. We were able to make preoperative diagnoses in the majority of cases (88%) with limited resources and an x-ray of the abdomen alone (with the typical coffee bean appearance). Sigmoid volvulus has been treated in a variety of ways. These variations depended on a variety of variables, including the patient's overall health prior to the onset of the disease, their state at the time of surgery, the accessibility of ancillary support like blood, the presence of investigative facilities, the calibre of the

anesthesiologist, and the surgeon's personal preferences and experience [8]. Numerous surgical techniques have been described for the treatment of sigmoid volvulus, which suggests that either there are variations in the outlook of disease patterns or that no single surgical strategy is acceptable for all patients [9].

After frequent operations like rectal tube deflation, sigmoidoscopic deflation, laparotomy and simple derotation, operative derotation, and fixation of the "omega loop" to the lateral or anterior abdominal wall or the transverse colon, there is a significant prevalence of sigmoid volvulus recurrence [10]. In a healthy superfluous colon, sigmoidopexy, a straightforward attachment of the colon to the intra-abdominal structures, may be a beneficial surgery. With this treatment, death and morbidity are virtually nonexistent [11].

Recurrence is the primary issue with this procedure. With a flexible sigmoidoscope, non-operative derotation of a straightforward sigmoid volvulus may be attempted, especially in elderly and handicapped individuals [12]. Since the majority of our patients came from nearby villages and work everyday jobs, the problem with sigmoidoscopy derotation or sigmoidopexy is that only 10% of patients come for a definitive treatment unless recurrence occurred. Bhatnagar, an Indian author, described the extraperitonealization of the whole sigmoid colon in 1970 in non-gangrenous sigmoid volvulus in order to prevent recurrence after sigmoidopexy. It is possible to bring the entire intestine inside a closed place without having to open it [13].

Primary anastomosis and resection as an emergency operation the less than optimum circumstances and undernutrition in our patients come at a price in the form of higher morbidity and mortality. Numerous investigations on primary resection and anastomosis have revealed varying cure rates and fatality rates. When

the colon is healthy, this procedure is considered ideal.

In elective situations [14]. RPA has a tolerable mortality rate, but in an unprepared bowel, this procedure carries a high death rate. Anastomotic leak is the main issue. By performing a proximal colostomy, this can be avoided. With this kind of operation, the risk of wound infection is significant, particularly in the bowel that is not ready (Table 4). The preferred surgery for young patients with a viable colon is this one. Primary resection and anastomosis can be performed following on-the-table ante grade colonic lavage, according to Dudley *et al* [15].

In emergency situations where the colon is gangrenous, Hartmann's surgery can save lives by closing the distal stump and bringing out the proximal end as a colostomy. Elderly patients with gangrenous bowel receive this treatment. The mortality rate is greatly increased when the bowel becomes gangrenous. Hypokalemia results from increased hazardous material absorption and severe mucous diarrhoea following derotation (Wangeneston).

Conclusion

Prognosis is influenced by preoperative diagnosis, preoperative results, kind of operation, preoperative time intervals, and age. Due to the high rate of recurrence in our study, sigmoidoscopy is only performed on a small subset of patients. In patients who underwent resection and primary anastomosis with proximal colostomy, there was no anastomotic leak. In a gangrenous colon, when there is a high risk of leak, this can be done safely. However, it is still debatable whether proximal colostomies are necessary when the colon is still viable. Anastomosis was performed in an unprepared bowel in each case. In gangrenous colons, Hartmann's operation has high death and morbidity rates. The only patients treated with this surgery were elderly patients with gangrenous bowel. This method had the

highest mortality and wound infection rates of among those used in our study for sigmoid. In this series, the overall mortality rate was 17.5%.

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