Original Research Article

New Indian Journal of Surgery
Volume 9 Number 4, July - August 2018
DOI: https://dx.doi.org/10.21088/nijs.0976.4747.9418.17

A Clinical Study of Sigmoid Volvulus Modalities of Management

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How to cite this article:

D. Ramu, V. Ramprasdad, S. Arun et al. A Clinical Study of Sigmoid Volvulus Modalities of Management. New Indian J Surg. 2018;9(4):490-94.

Abstract

Introduction: Volvulus is the abnormal twisting or rotation of a portion of the bowel about its mesenteric axis. This may cause occlusion of the lumen at each end of the segment with resultant obstruction and vascular compromise. *Aim of the study:* The aim is to study various modes of presentations of Sigmoid Volvulus and various modalities of management in Gandhi Hospital. *Materials and Methods:* Total of 20 cases of sigmoid volvulus, which presented to emergency department, Gandhi General Hospital were studied, in a period of two and half years from August 2012 to November 2014. Abdomen was taken and in few patients, in whom, sigmoid volvulus could be diagnosed pre-operatively, conservative measures were attempted, by passing flatus tube and /or S/W enema, after excluding strangulation or gangrene clinically as emergency sigmoidoscopy is not available, conservative measures were not successful. In all the cases, intra abdominal findings during surgery were noted. Subsequently to the procedure, they were placed in post-operative ward. All post operative complications were noted and dealt appropriately. *Results and Conclusion:* Sigmoid volvulus is common in old age group i.e., 5th & 6th decades. Almost equal incidence in both sexes with slight preponderance in males with male to female ratio 1.2:1. In 60% of the patients the predisposing cause is long mesosigmoid with long dilated and redundant sigmoid colon. Gangrene is common (25% of cases) and is not related to duration of symptoms. Gangrene is common in elderly compared to young patients. Conservative measures failed to relieve obstruction even temporarily in non-gangrenous sigmoid colon. (Emergency sigmoidoscopy is not available.) Fixation of sigmoid colon in the form of sigmoidopexy is associated with high recurrence rate (50%). Unless general condition precludes, fixation of sigmoid colon should not be done as it is associated with high recurrence rate and it should be followed by elective sigmoid resection. In non-gangrenous sigmoid volvulus, resection and EEA is the best option. In selected group of patients where condition of the colon permits primary anastamosis can be done.

Keywords: Sigmoid Volvulus; Surgery.

Introduction

Volvulus is the abnormal twisting or rotation of a portion of the bowel about its mesenteric axis. This may cause occlusion of the lumen at each end of the segment with resultant obstruction and vascular compromise. Colonic volvulus has been recognized since antiquity. Descriptions of this disease, as well as its natural history, were detailed in the Egyptain Papyrus Ebers. Colonic volvulus was also described in the writings of ancient Gree and roman physicians who administered purgatives as the preferred treatment. Hippocrates is credited with the use of a 12 inchlong suppository and of anal insufflations with air to untwist the bowel, methods somewhat similar to those currently used to treat sigmoid volvulus.

Today volvulus is an uncommon cause of obstruction in the developed countries of Western Europe and North America, accounting for approximately 5% of all admissions of Large Bowel obstruction. It remains a major health problem in parts of Africa, Iran, India, Pakistan, Turkey, Eastern Europe and South America, where volvulus is one of the most common causes of intestinal obstruction accounting for 50% of cases of

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Received on 25.04.2018, **Accepted on** 14.05.2018

large bowel obstruction. In India, it is common in Bihar, Madhya Pradesh, Uttar Pradesh and parts of Maharastra. The various forms of colonic volvulus were described by Von Rakitansky in mid-nineteeth century. The sigmoid colon, Caecum or right colon, transverse colon, or splenic flexure may be involved in descending order of frequency. Colonic volvulus generally occurs in the setting of a dilated redundant colonic segment that has a narrowed mesenteric base. The redundant segment is freely mobile within the peritoneal cavity and the points of fixation are very close, serving as a fulcrum for the development of volvulus. These features may be acquired, as in sigmoid volvulus or congenital in origin, as is likely with caecal volvulus. If left untreated, volvulus generally progresses rapidly from colonic obstruction to strangulation and gangrene.

Aim of the Study

The aim is to study various modes of presentations of Sigmoid Volvulus and various modalities of management in Gandhi Hospital

Material and Methods

A Total of 20 cases of sigmoid volvulus, which presented to emergency department, Gandhi General Hospital were studied, in a period of two and half years from August 2002 to November 2004. All the patients which were admitted with clinical features of strangulations were subjected to emergency surgery after resuscitation. In all the patients, Plain X-Ray Abdomen was taken and in few patients, in whom, sigmoid volvulus could be diagnosed pre-operatively, conservative measures were attempted, by passing flatus tube and /or S/W enema, after excluding strangulation or gangrene clinically as emergency sigmoidoscopy is not available, conservative measures were not successful. In all the cases, intra abdominal findings during surgery were noted. Subsequently to the procedure, they were placed in post-operative ward. All post-operative complications were noted and dealt appropriately. As most of the patients didn't come for follow up, only immediate outcome of the management were studied. Two patients came with recurrence after sigmoidopexy were subjected to sigmoid resection.

Observations, Results and Data Analysis

Age Incidence

No incidence volvulus under the age group of 10 years were noted.

Clinical Features

History of recurrent attacks of intestinal obstruction was observed only in 15% of cases

Previous H/o Surgery: Was seen in one case (5%)

Table 1:

Group (Years)	No. of cases (%)
11-20	1(5%)
21-30	2 (10%)
31-40	2 (10%)
41-50	7 (35t%)
51-60	2 (20%)
61-70	2 (10%)
71-80	1 (5%)
81-90	1 (5%)

Pain abdomen }
Absolute constipation } Seen in all cases
Abdominal distension}

Absolute constipation was the first symptom followed by pain and distension.

Vomiting – seen in 75% of cases. Loose stools was observed in one case.

Oliguria was observed in two cases.

Predisposing Factors

1. Long pelvic mescolon was observed in 60% of cases.
2. Elongated dilated, redundant sigmoid colon was seen in all elderly patients indicating there is elongation and distension of sigmoid colon with advancing age.
3. Enlarged lymph nodes with fibrosis of mesosigmoid found in two case indicating colonic infection in 10% of cases predisposing to sigmoid volvulus
4. Chronic constipation was seen in one case.

Anatomical factors and colonic infection are the main predisposing factors found in the study.

Time of Presentation

Ten 10% (2 cases) presented within 24 hrs., 10% (2 cases) - 2 days, 40% (8 cases) - after 3 days, 20% (4 cases) - after 4 days and 15% (3 case) - after 5 days. Most of the cases presented on 3rd & 4th day.

There was no relation observed between the delay in presentation and gangrene of the colon, in fact cases which presented within 24 hrs had gangrenous sigmoid colon.

Clincial Presentation

Of the 20 cases studied, 40% (8 cases presented with intestinal obstruction with strangulation clinically, of which 25% of cases were found to have gangrene.

The remaining 60% (12) cases) presented with large bowel obstruction without strangulation clinically, of which none were found to have gangrenous large bowel. Total 4 (20%) cases presented with signs of systemic toxicity, of which 10% (2 cases) were of gangrenous group.

Investigations

Routine investigations have shown hypokalemia in 35% (7)cases.

Plain X Ray Abdomen Erect

Could diagnose only 25% (5 cases) of cases with sigmoid volvulus with E/o either inner bent tube appearance & omega appearance.

Rest of cases shown dilated large bowel with air fluid levels.

Management

All cases with presented with strangulation were subjected to immediatelaprotomy.

Only 30% of cases could be diagnosed preoperatively as sigmoid volvulus.

Preoperatively

a. Of which only 5 were attempted conservative management with flatus tube (sigmoidoscopy not available in emergency).
b. On case was subjected to s/w enema.
c. Conservative measures were not successful in present series, which is in contrast to The R.S. Sinha series, in which decompression by Non-operative methods (sigmoidoscopic decompression) was successful in 13.74%, where as in J.R. Anderson and D. Lee series shows a success rate 85%. The failure of conservative measures in present series can be explained by Non-availability of emergency sigmoidoscopy. Finally all the cases were subjected to laparotomy.

Operations Performed In Gangrenous Sigmoid Colonic Volvulus

1. Resection of gangrenous sigmoid colon with Hartmann's procedure in 15% of cases.
2. Resection of gangrenous sigmoid colon with EEA with proximal transverse colostomy in 10% of cases. [In one case of ileo sigmoid knotting Resection of gangrenous ileum and sigmoid with End-to-End ileo-ileal and colo-colonic anastomosis with proximal transverse colostomy].

Operation Performed for Viable Sigmoid Colonic Volvulus

1. Resection with EEA in 50% of cases.
2. Sigmoidopexy to parietal wall in 20% of cases.
3. Resection with Hartmann's procedure of 5% of cases.

Complications - Post Operation Morbidity And Mortality

Mortality: Of the 20 Patients 2 deaths (10%) were observed.Both were in gangrenous group.

Recurrent obstruction developed in 2 cases out of 4 cases that were subjected to sigmoidopexy.Fecal fistula developed in two cases of gangrenous sigmoid colon.In twocases in which resection and EEA without protective colostomy was done.Retraction of end colostomy was observed in one case of Hartman's procedure. Wound infection with burst abdomen was observed in one case.

Discussion

In the present series out of 20 cases, male to female ratio is 1.2:1 this is in contrast to results shown by R.S. Sinha i.e., male prepondance with male to female ration of 3.5:1 was reported. In the study majority of patients were in 5^{th} & 6^{th} decades. Which are in agreement with the figures put forward by R.S. Sinha (British Jr. of Surgery 1969. Vol. 56) and in contrary to the Western series J.R. Anderson & D. Lee Series.

All patients were from low socio-economic status, in agreement with R.S. Sinha Report.

Clinical Features

All the patients presented with pain abdomen. Constipation and abdominal distention. Only 75% (15 cases) of patients presented with vomiting, 40$ presented with features of strangulation.

Past History

(Fifteen) 15% of cases presented with H/o similar attacks of pain abdomen, constipation and abdominal distension which got relived spontaneously, in contrary to the R.S. Sinha series, where chronic constipation present in 85% of cases.

Time of Presentation

Table 2:

Clinical Features	Percentage (No. of cases)	S.R.Anderson
Pain abdomen	100%	73.9%
Constipation	100%	47.8%
Abdominal distension	100%	65.7%
Vomitings	75%	65.7%

There was no relation between the onset of symptoms to the appearance of gangrene. In fact, cases which presented within 24 hrs, have progressed to gangrene. Remaining 3 cases presented 3 days after onset of symptoms.

Operative Findings

1. In 19 out of 20 cases, volvulus occurred in anti clockwise direction. In one case in which clockwise rotation occurred, there was evidence of colonic infection in the form of fibrosis of mesosigmoid and lymphadenopathy.

Table 3:

Time of Presentation	Cases	Presentage of cases presented with Gangrene	Cases presented with gangrene
<24 hours	2	100 %	2 cases
25-48 hours	2	-	-
49-72 hours	8	37.5%	3 cases
73-96 hours	4	-	-
97-120 hours	1	-	-
121-144 hours	1	-	-
145-192 hours	1	-	-

2. In 60% of cases there was a long mesosigmoid with elongated dilated sigmoid colon, the findings, well in accordance with R.S. Sinha series.
3. In 10% of cases enlarged lymph nodes with fibrosis of mesosigmoid was found.
4. In all the cases of gangrenous sigmoid colon, there was more than 2 turns of anti clockwise rotation.
5. In one case, which give H/o previous surgery, there was a post operative adhesive band which attached to antimesentric border of sigmoid to anterior abdominal wall.

Management

As it differs depending upon whether sigmoid colon is gangrenous, on Non-gangrenous it is discussed separately for both.

Management of Gangrenous Sigmoid Volvulus

In the study group 5 out of 20 cases were gangrenous. Following table 4 shows the different surgeries done and their complications.

Prognosis

Over all mortality: Our of 20 cases analysed there were 2 deaths giving a mortality of 10% whereas mortality in J.R. Anderson &Lee series was 20.9%.

Gangrenous '! 2 deaths out of 5 patients 40%

In the gangrenous groups both the deaths were due to septic shock.

Table 4: Management of gangrenous sigmoid volvulus

No. of cases	Surgery	Complications
3	Resection of sigmoid colon with Hartmann's procedure	1. Wound infection with burst abdomen. 2. Uneventful. 3. Retraction of end Colostomy
2	Resection with primary End-to-End anastoamosis With protective colostomy.	Both cses developed anastomotic leak 3rd POD. Both cases died of septicaemic shock.
4	Sigmoidopexy to parietal wall	1. 2 cases had recurrence followed by resection and EEA in one case and resection with Hartmann's procedure in another. 2. Uneventful.n. 3. Uneventful.
10	Resection with EEA	1. Leak occurred in 2 cases, reexploration and colostomy done. 2. Rest of cases immediate post operative period was uneventful.
1	Resection with Hartmann's procedure	1. Uneventful.

Conclusion

Sigmoid volvulus is common in old age group i.e., 5th & 6th decades. Almost equal incidence in both sexes with slight preponderance in males with male to female ratio 1.2:1. In 60% of the patients the predisposing cause is long mesosigmoid with long dilated and redundant sigmoid colon. Gangrene is common (25% of cases) and is not related to duration of symptoms. Gangrene is common in elderly compared to young patients.Conservative measures without sigmoidoscopyfailed to relieve obstruction even temporarily in non-gangrenous sigmoid colon. Sigmoidopexy is associated with high recurrence rate (50%), In non-gangrenous sigmoid volvulus, resection and EEA is the best option. Unless general condition precludes, fixation of sigmoid colon should not be done as it is associated with high recurrence rate and it should be followed by elective sigmoid resection. Resection with EEA in gangrenous group have increased incidence of anastomotic leak and mortality (100%) whereas resection with Hartmann's procedure have a mortality of 33.3, So the Hartmann's procedure is the safest procedure in viable and non-viable sigmoid volvulus.

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