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A Clinical Study of Sigmoid Volvulus and Its Management

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Abstract
Sigmoid Volvulus is one of the commonest causes of lower colonic obstruction. is one of the most common surgical emergencies seen in India. This study conducted in M.G.M Hospital, Warangal from 2008 to 2010, to assess the incidence of sigmoid volvulus, diagnostic methods, management methods and prognosis. Total 38 patients observed in this study out of this mare were 25 and females were13.most of the patients presented with abdominal distension and abdominal pain. 31 patients underwent for Primary resection and End-to-End anastomosis. Primary resection and End-to-End anastomosis is superior to all other procedures and can be safely employed with satisfactory results.
Keywords - *Sigmoid Volvulus, abdominal pain, Primary resection and End-to-End anastomosis.*

Introduction

Volvulus of the bowel refers to a twisting or torsion of the intestine about its mesentery. The term volvulus, which may involve any segment of the intestinal tract from stomach to rectum, is a Latin word *(volvere* [1]*)* for twisted used by the Romans to signify this condition[2].

Volvulus of the Sigmoid colon is one of the most common surgical emergencies seen in India. Ballantyne found that only 3.4% of 4766 cases of intestinal obstruction and 9.6% of 1206 cases of colonic obstruction in the United States were caused by sigmoid volvulus. The highest reported worldwide incidence appeared in a study from northern Iran by Scott[3], who found that sigmoid volvulus was the cause of 85% of colonic obstructions. Johnson[4] reported 13 cases of sigmoid volvulus in a series of 24 bowel obstructions from Ethiopia[4]. Increased frequency of sigmoid volvulus in Pakistan, India, Brazil, and Eastern Europe also has been reported[5]. Although volvulus does occur with increased frequency in the Soviet Union, the previously reported data from the 1920s[6], in which more than 50% of cases of bowel obstruction were caused by volvulus, may not be accurate today because of changing epidemiologic and dietary factors[7].

The causes of this common condition have aroused keen interest from time to time due to the facts:

A. The mortality being very high
B. The method of treatment of this condition has always been debatable

To date various procedures have been advocated for its management such as passing of a flatus tube, detorsion, colopexy, exteriorization of the colon and its subsequent closure and sigmoidectomy with anastomosis. The conservative management of detorsion and colopexy have resulted in a high recurrence rate and the exteriorization procedure requires a long duration for a complete cure. With the advent of antibiotics and sulpha drugs, colonic surgery has been rendered less hazardous and is made a safer procedure.

The primary resection of the colon and end to end anastomosis is the best treatment and superior to all other procedures, being a permanent paramount cure for this condition to date.

The present study consists of three parts:

1) Theoretical background of the disease
2) Study of twelve cases
3) Analysis of cases and conclusions

Aim of the Study

Sigmoid Volvulus is one of the commonest causes of lower colonic obstruction.

The aim is to study the clinical presentation of sigmoid volvulus M.G.M Hospital, Warangal from 2008 to 2010 with respect to the following:

- Incidence of the condition – incidence among all the cases of intestinal obstruction
- Age as well as sex incidence
- Method of diagnosis of sigmoid volvulus
- Procedure adopted in the management
- Prognosis of the condition post operatively

Material and Methods

An operative study of volvulus of sigmoid colon was undertaken between 2008 and 2010 at M.G.M. Hospital, Warangal. Thirty eight cases of sigmoid volvulus were treated surgically during this period. The clinical study of these cases is presented with results compared with other operative procedures from other series.

The sigmoid volvulus was diagnosed by clinical features such as distention of abdomen, pain and constipation and confirmed by X-ray of the abdomen in erect posture. Routine investigations were done during the period in which conservative procedures such as passing a flatus tube and administration of soap and water enema were adopted. Decision to operate the case was taken after the failure of the conservative measures.

In these cases, primary resection and anastomosis was done for majority of the cases. Sigmoidopexy was done for 3 cases, as the patients had hypokalaemia (they would not withstand prolonged anesthesia) while the bowel appeared viable intra-operatively. Sphincter stretching was done to relieve the distal obstruction and to relieve the strain on the anastomosis at the end of the operation.

The Post-operative period in most of the cases was uneventful. Patients treated by primary resection and anastomosis were discharged on 10^{th} to 22^{nd} day.

A comparative study of these 38 cases was done with those of other series.

Results and Discussion

Incidence

The total number of cases admitted during this period was 8632. Hence the incidence of sigmoid volvulus is 0.44% of all hospital admissions.

Total No. Of Hospital Admissions	Total No. Of Sigmoid Volvulus	Percentage
8632	38	0.44%

The total number of cases of intestinal obstruction includes 575. Thus the sigmoid volvulus has an incidence of 6.6% among all cases of intestinal obstruction.

Total No. Of Intestinal Obstruction	Total No. Of Sigmoid Volvulus	Percentage
575	38	6.6%

Age Incidence

The youngest patient in this series is 13 yrs and the oldest is 80 yrs. The incidence is more in middle age with the mean age of 45 – 50 yrs.

Age	R.S.Sinha Series [8]	Present Series
0 – 10 yrs	Nil	Nil
11 – 20 yrs	2 (8.6%)	2 (5.26%)
21 – 30 yrs	5 (2.26%)	9 (23.68%)
31 – 40 yrs	61 (28.9%)	4 (10.52%)
41 – 50 yrs	89 (42.1%)	13 (34.24%)
51 – 60 yrs	42 (19.9%)	4 (10.52%)
> 60 yrs	3 (1.42%)	6 (15.78%)

In R.S.Sinha[8] series, the youngest patient is 12 years.

Sex Incidence

CASE SERIES	RATIO (MALE:FEMALE)
Prasad (1942)	4.7:1
Griffi (1945)	5.1:3
Anderson[9] (1954)	9:1
Sankaran	3.5:1
R.S.Sinha[8]	3.5:1
Present Series	2:1

The various case series have observed that the incidence of sigmoid volvulus is more in males than in females (3:1). In the present case series, the ratio was found to be 2:1.

Sex	Anderson Series[9]	Present Series
Male	9	25 (65.79%)
Female	1	13 (34.21%)

Clinical Features

Duration of Symptoms: Earliest was one day and longest was six days. Majority of the patients reported 3 – 4 days after the onset of the symptoms.

Symptoms	Mml Suteliffe Series[10]	Present Series
Abdominal Pain	77%	38 (100%)
Distension of Abdomen	94%	38 (100%)
Constipation	51%	38 (100%)
Vomiting	66%	07 (16.6%)

Tenderness of abdomen was diffuse in most of the cases (89.47%, n=34) while 4 patients (10.52%) had localized tenderness in left side of the abdomen.

Past History

A history of similar complaints in the past was obtained from 5 patients (13.16%) among the 38 patients.

Laparotomy Findings

All the 38 patients (100%) had a long mesocolon, while 34% (n=13) had gangrenous bowel at Laparotomy. Rest of the patients had a viable bowel.

Management

Various procedures adopted in the treatment of sigmoid volvulus have been tabulated as below:

Type Of Procedure	Mml Suteliffe Series[10]	R.S.Sinha Series[8]	Present Series
Conservative	Nil	23 (13.74%)	Nil
Derotation and Sigmoidopexy	19	05 (2.3%)	03 (7.9%)
Primary Resection and End to End Anastomosis	17	149 (70.6%)	31 (81.57%)
Hartmann's Procedure	02	Nil	01 (2.63%)
Exteriorization	03	15 (7.10%)	03 (7.9%)

In this series, most of the cases were initially treated conservatively by initially passing a flatus tube and soap water enema. Patients suspected of have a non-viable bowel, recurrence, in whom conservative measures have failed required

operative reduction of the volvulus and primary resection with end to end anastomosis under general anesthesia.

Patients with viable bowel had normal electrolyte levels and most of them were between 40 – 50 yrs of age, who were able to withstand the long procedure. Recurrence can be prevented if primary resection and end to end anastomosis is done, as most of the patients do not come for follow up regularly. The other modalities of treatment i.e. Derotation and Sigmoidopexy (n=3) and Exteriorization (n=3) were used in some patients in whom the resection and anastomosis could not be attempted. Hartmann's procedure was done in one patient as the gangrene was extending down to the pelvi-rectal junction. Elective resection was not attempted in any of these cases.

Post Operative Management

Patients were given intravenous fluids, intravenous antibiotics and blood transfusion done wherever necessary. The drain was removed on 4th post operative day in most of the patients. Majority of them had passed motion by 3rd or 4th day. Suture removal was done by 8th to 10th day and later the patient was discharged. The average duration of stay at the hospital has been 12 – 14 days.

Post Operative Complications

The post operative period of majority of the patients was uneventful. Wound infection has been observed in around 16% of the patients (n=6). These were treated conservatively and secondary suturing done after the local condition of the patient improved.

Prognosis

Three patients (7.9%) went into irreversible shock post operatively and expired. 27 (71%) of them had been discharged from the hospital and have been under follow up till 3 months after the operation. 2 patients (5.26%) had left the hospital against medical advice.

Conclusions

- The mean age of presentation was 40-45 yrs
- Male cases were more than female cases (in a ratio of 2:1).
- Most of the patients were Agriculturists, who were on high fiber diet.
- Diagnosis was confirmed based on clinical features and also by X-Ray of abdomen.
- All the cases were operated, of which three underwent Sigmoidopexy, three underwent exteriorization, one underwent Hartmann's procedure and others underwent primary resection and end-to-end anastomosis.
- Primary resection and End-to-End anastomosis is a single stage operation and was most suitable in all cases with viable bowel and selected cases of non-viable bowel.
- The Post-operative period was un-eventful but for 4 cases. Death occurred in three patients. Recurrence was nil up to 3 months of follow up.
- Primary resection and End-to-End anastomosis is superior to all other procedures and can be safely employed with satisfactory results.

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