

A Clinical Study on Management of Sigmoid Volvulus at a Tertiary Care**M. Govindu Naik¹, Sunkula Sriharsha², Naredi Venkata Ramana³, K Naga Santosh Kumar⁴**¹Associate Professor, Department of General Surgery, Guntur Medical College, Guntur²Associate Professor, Department of General Surgery, Government Medical College and Hospital, Ongole,³Assistant Professor, Department of General Surgery, Government Medical College and Hospital, Ongole,⁴Assistant Professor, Department of General Surgery, Guntur Medical College, Guntur

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Abstract:**Background:** Sigmoid volvulus is a common cause of large bowel obstruction and its mortality remains significant in patients with late diagnosis. Procedure performed for the condition also affects the mortality of the case. Options available are sigmoidopexy, resection and anastomosis and temporary diversion by stoma.**Aim** of the study was to assess the clinical presentation, management and outcome of sigmoid volvulus.**Methodology:** A Prospective observational study done in the patients treated for sigmoid volvulus in the Department of General Surgery in a Tertiary Care Centre over a period of 2 years.**Results:** A total of 10 patients (M: F = 2:3) representing 8.92% of all cases of intestinal obstruction were studied. 6 cases presented in acute emergency and 4 cases had recurrent or chronic cases. 5 patients were treated with Hartman's procedure and 5 had resection and primary anastomosis. The average length of hospital stay was 14 days. A case (10%) was dead due to sepsis related issues and 3 cases had surgical site infection.**Conclusion:** Management of sigmoid volvulus depends on bowel condition, patient's presentation and physiological status. Colostomy should be considered if the bowel is gangrenous or perforated or patient in shock, resection anastomosis is advised in recurrent and in patients with no shock and sepsis.**Keywords:** Volvulus, Sigmoid Colon, Colostomy, Resection and Anastomosis.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Volvulus is an abnormal twisting of the bowel on its mesenteric axis greater than 180 degrees, [1] which produces an obstruction of the intestinal lumen and mesenteric vessels.

Sigmoid volvulus was first described by Von Rokitansky in 1836. [1] It is a condition in which the sigmoid colon wraps around itself and its own mesentery, causing a closed-loop obstruction which, if left untreated, often results in life threatening complications, such as bowel ischemia, gangrene, and perforation. [2,3] It is an important cause of colonic obstruction worldwide. [1-3]

In developed countries, sigmoid volvulus ranks the third among large intestine obstructions following cancer and diverticular diseases. [4] It represents 4% of all cases in developed countries and 50% in developing countries. [5]

The aetiology of sigmoid volvulus is multifactorial and controversial. [4,6-9] Those who possess a sigmoid colon with a long loop and narrow base of

mesenteric attachment would be more prone to volvulus. [8] Anatomical predispositions, advanced age, a high-fibre diet, medications altering intestinal motility, chronic constipation, neurological or psychiatric illness, pregnancy and megacolon have all been reported in association with development of the condition. [4,6-9]

Aims and Objectives: To study the clinical presentation, management of sigmoid volvulus and its Complications.

Methodology

A Prospective observational study done in the patients treated for sigmoid volvulus in the Department of General Surgery in a Tertiary Care Centre over a period of 2 years.

Inclusion Criteria: All cases found to have sigmoid volvulus presenting to OP or emergency diagnosed after a X ray and CT abdomen were included.

Exclusion Criteria: Cases with malignancy, other causes of obstruction and multiple co morbidities were excluded. Detailed history, Demographic details, clinical features, examination findings, radiological findings, intra operative findings, and post-operative stay and complications were collected in a proforma and analyzed.

Results

In the study period intestinal obstruction cases encountered were 112 and among these Sigmoid volvulus was the cause of obstruction in 10 cases accounting for 8.92% of Obstruction cases.

Of the 128 cases that were studied, the mean age of presentation was 52 years (range from 35 to 80 years) with majority of patients being males 96 (75%) and the remaining 32 (25%) being females. The male predominance over female (male/female-3:1) is similar to other studies (1, 2). The peak age incidence was in the age group 51-60 years. Sigmoid volvulus represents 11.63% (128/1100) of all cases of colonic obstruction which were studied for 5 years period.

In the 10 cases studied the median age of presentation was around 48 years. Youngest patient was around 19 years having psychiatric illness and elder was around 68 years. Females were 6 and male patients were 4. The diagnosis of the cases was done using X ray erect abdomen and CT showing classical coffee bean sign in 5 and air under the right dome of diaphragm in one case.

6 Patients presented with features of acute bowel obstruction like vomiting, distension, constipation and abdominal pain. 4 among them were in shock. Thorough resuscitation was done and the patients were taken for surgical management. 5 patients had Temporary colostomy as the condition of the patient was no good intraoperatively and 1 case had resection and anastomosis.

In rest of the 4 cases, 2 had previous sigmoid volvulus repaired by Sigmoidopexy and the other two had flatus tube reduction during the previous episodes. All of the cases were taken up for Resection and anastomosis side to side using Staplers.

One case that had gangrenous colon perforation and was in sepsis died on the 2nd post-operative day. 2 of the 5 cases of colostomy and 1 of the 5 cases of Resection had wound infection, which was treated by drainage, wash and antibiotics. Average post-operative stay in the hospital was around 14 days.

Discussion

Since it was first described by von Rokitansky in 1836, [1] sigmoid volvulus remains a major cause of colonic intestinal obstruction, which results from twisting of the sigmoid colon on its own mesentery. [2] Most often this condition is observed in adults.

Mean age of presentation was 48 years in our study. In developing countries, a man aged between 40 and 60 years is usually reported, whereas in developed countries, the mean age was between 60 and 70 years. [5]

Females were affected more in our study but the male predominance was demonstrated in many studies. [11,12]

Clinically, in our study sigmoid volvulus cases presented as acute as an emergency in 60% cases and 40% had recurrent symptoms of constipation and distension. As reported by other authors in developing countries. [13,14] Delayed presentation will lead to gangrene of the bowel, perforation and fecal peritonitis resulting in increased morbidity.

The diagnosis of acute sigmoid volvulus is established by clinical and radiological findings. Typical symptoms include sudden abdominal pain and distension followed by constipation. The most common signs are abdominal tenderness and asymmetrical abdominal distension. Other findings include abnormal bowel sounds, abdominal tympani, empty rectum, and dehydration. [15] Plain radiographs are diagnostic with the classical sign of acute sigmoid volvulus is the coffee bean sign and bent inner tube appearance. [16,17] Abdominal Computed Tomography (CT) usually reveals a dilated colon with an air/fluid level and the "whirl sign", which represents twisted colon and mesentery. [18]

Initial non-operative management by sigmoidoscopic decompression (advocated by Bruudsgaard [18]) was done in 2 cases and the cases presented again with recurrent symptoms and operated by elective sigmoidectomy and primary anastomosis. Two more cases had previous sigmoidopexy [19] but had recurrence and now underwent resection and anastomosis. In 5 cases there were signs of colonic gangrene, sigmoid resection and Hartmann's procedure was done to avoid the high mortality associated with primary anastomosis in this situation. [19,20] Colostomy is often advised in cases where the gut is gangrenous and medical conditions precluding anastomosis. [13,14]

The presence of complications has an impact on the final outcome of patients presenting with bowel obstruction due to sigmoid volvulus. In keeping with other studies, 11 surgical site infection was the most common postoperative complications in the present study seen in 3 cases.

The mean duration of hospital stay in our study was 14 days, which is higher than that reported in other studies. [11] The length of hospital stay was significantly longer in patients with advanced age, concomitant medical illness and presence of complications.

Overall, the mortality of sigmoid volvulus in our setting was 10%, a figure that is comparable with

other studies like 15.9% and 15.8% reported by Okello et al [14] and Oren et al. [21] A total of 90% of our patients recovered well and were discharged. This figure is comparable with 84.1% reported by Okello et al [14] in Uganda.

Conclusion

Sigmoid volvulus remains a common cause of colonic bowel obstruction and contributes significantly to high morbidity and mortality.

Most of the patients presented acutely, requiring immediate resuscitation and surgical approach. It is suggested that in stable patients with viable bowel sigmoid, resection and primary anastomosis is feasible as it may not adversely affect outcome.

Temporary colostomy should be considered if the bowel is gangrenous or perforated and conditions precluding the primary anastomosis. Early diagnosis and timely definitive treatment are essential in order to decrease the morbidity and mortality associated with this disease.

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