

Safe Resection and Primary Anastomosis of Gangrenous Sigmoid Volvulus

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Abstract

Introduction

The management of sigmoid volvulus has remained a controversial issue to many surgeons. Rapid resection with colostomy fashioning has been done over time for gangrenous sigmoid volvulus. However, resection and primary anastomosis has also been described with less complications and a shorter hospital stay.

Methods

We conducted a prospective study to determine the outcome of resection and primary anastomosis of sigmoid volvulus in Kisii Level 5 Hospital

Results

The causes of mechanical obstruction were sigmoid volvulus

30%, hernia 17.8%, adhesions 16.7%, faecal impaction 16.7%. Seventy five (75%) of the sigmoid volvulus was gangrenous and 85.2% of all the sigmoid volvulus was managed by resection and primary anastomosis. Complications seen after resection and primary anastomosis were anastomotic leak at 4.5%, resection and colostomy fashioning wound dehiscence (33.3%) and mortality (33.3%). The average hospital stay was 12.9 days after primary resection and anastomosis.

Conclusion

Resection and primary anastomosis in gangrenous sigmoid volvulus can be practised with few complications and a short hospital stay.

Surgeons in resource limited facilities can practice resection and primary anastomosis in the management of gangrenous sigmoid volvulus with good outcomes.

Introduction

Sigmoid volvulus has been described over time and its management continues to evolve (1). Resection and colostomy has been used in gangrenous sigmoid colon with resection and primary anastomosis being done on viable gut (2). However, resection and primary anastomosis has also been described in gangrenous gut with few complications (3).

This study focuses on the management of sigmoid volvulus in a resource limited facility in Kenya by resection and primary anastomosis and its outcomes in terms of hospital stay and complications.

Material and Methods

This prospective study included all patients admitted to the surgical ward with clinical and radiological features of intestinal obstruction in the twelve month period between 1st July 2009 and 30th June 2010. Patients who succumbed before surgical review and confirmation of the diagnosis were excluded.

The patients were managed using intravenous fluids, 'nil per oral' and a nasogastric tube for gastric decompression. The patients were scheduled for emergency laparotomy within six hours of admission and those with intra-operative diagnosis of sigmoid volvulus were followed up post-operatively. The surgeries were performed

by a surgeon or a medical officer in surgical department under supervision.

Kisii level 5 Hospital is a government facility in Kisii County in the rural parts western Kenya. It serves as a referral facility and an apex of emergency surgical care for South Nyanza and parts of Rift Valley Province.

Resection and colostomy fashioning was performed on very sick patients and colon with heavy faecal loading. Resection and primary anastomosis was performed on patients who were stable. Anastomosis was done in two layers using absorbable sutures.

A case of intestinal obstruction was considered as failure to pass stool with associated abdominal pain, distention and vomiting. A plain radiograph was taken to confirm the diagnosis. Burst abdomen was defined as omentum or viscera seen through the wound. Anastomotic leak was defined as the presence of faecal fistula or anastomotic breakdown at laparotomy following peritonitis. Wound infection was defined as pus draining spontaneously or requiring drainage. Duration of hospital stay was determined by the length of hospital stay from the day of admission till the day the patient was discharged from the surgical department. Mortality was defined as death occurring within the hospital during the admission. Data was entered into Microsoft excel and analysed and results presented in charts, graphs and tables for discussion.

Results

Ninety patients (90) were diagnosed to have intestinal obstruction and were eligible for the study.

The causes of intestinal obstruction are shown in Table 1.

Table 1 – causes of intestinal obstruction

CAUSE	NUMBER	PERCENTAGE %
Sigmoid volvulus	27	30
Hernia	16	17.8
Adhesions	15	16.7
Faecal impaction	15	16.7
Intussusception	6	6.7
Ileal volvulus	5	5.7
Helminths	4	4.4
Colonic mass	2	2.2

The sex distribution for intestinal obstruction was females 18 (20%) and 72 (80%) males whereas for sigmoid volvulus 26 males (96.3%) and 1 female (3.7%).

The age, monthly distributions and surgical procedures are shown in the table below;

Table 2- age, monthly distribution and surgical outcome of sigmoid volvulus

CHARACTERISTIC	FREQUENCY
Age(yr), Month,	
<10 yrs	1
10-20	0
21-30	9
31-40	2
41-50	5
51-60	3
>60	5
January	0
February	0
March	1
April	2
May	3
June	2
July	4
August	7
September	4
October	3
November	0
December	0
Surgical procedure	
Resection and primary anastomosis	23
Resection and colostomy	3
De-rotation and sigmoidopexy	1

20 cases (74.1%) of sigmoid volvulus were reported as gangrenous and 7 cases (25.9%) were viable intra-operatively.

11 cases of sigmoid volvulus were compound in nature and 16 were simple.

There was one anastomotic leak following resection and primary anastomosis, one burst abdomen and one mortality following resection and colostomy fashioning.

The average hospital stay was 12.9 days following resection and primary anastomosis and 14.5 days after resection and colostomy fashioning.

Discussion

Sigmoid volvulus is the commonest cause of mechanical intestinal obstruction in Kisii Level 5 Hospital at 30%. This is similar to Eritrea where sigmoid volvulus accounted for 37.6% of all acute intestinal obstruction and 20-54% in high incidence areas (4, 5).

Sigmoid volvulus has a male predominance as seen in studies in Africa and the developed countries (6, 7).

The low incidence in women is thought to be due to the capacious pelvis and the lax abdominal wall that allows spontaneous untwisting of the sigmoid colon (8). Majority of patients were admitted between July and September with a peak in August which is the harvest season in Kisii region. It is postulated that sigmoid volvulus is common during post harvest season, post war season and after Ramadan fasting as people relish large meals and this leads to bulky stool and thus twisting of the sigmoid colon (9,10).

Sigmoid volvulus in Kisii Level 5 Hospital is found in the young age group of 21-30 with an average of 25.7 years. This is not common in other studies which show an average of 52 years in high endemic areas (7) and 67 years in the United States (11).

Majority of the sigmoid volvulus cases were gangrenous at 75%, this is not consistent with reports from Eritrea (11%) and Tanzania (57%)(4,12). The high rates of gangrenous gut could be due to patients presenting late after being managed in peripheral health facilities such as sub-district hospitals before being referred for surgical intervention.

The complication following resection and primary anastomosis is low at 4.3% for anastomotic leak, while resection and colostomy fashioning had mortality at 33% and burst abdomen at 33%.

However the figures are not comparable due to the few patients who underwent resection and colostomy fashioning. The high rates of complications after resection and colostomy fashioning are not fully due to the procedure but may be attributed to by the poor condition of the patients pre-operatively.

The average hospital stay after resection and primary anastomosis is 12.9 days and 14.5 days after resection and colostomy. The duration is longer in the latter as the second stage of colostomy refashioning has not been accounted for. Emergency resection and primary anastomosis in gangrenous sigmoid volvulus has been performed with safety without on table lavage, however, mortality of 15-25% have been reported in some centres (13, 14). In this study, a lower mortality following resection and primary anastomosis of gangrenous sigmoid volvulus is reported.

Conclusion

Sigmoid volvulus is the commonest cause of mechanical intestinal obstruction in Kisii Level 5 Hospital. It occurs in the younger age group with the majority having gangrenous loop. Resection and primary anastomosis in gangrenous sigmoid volvulus can be practised with few complications and a short hospital stay. Surgeons in resource limited facilities can practice resection and primary anastomosis in the management of gangrenous sigmoid volvulus with good outcomes.

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