



Acute Sigmoid Volvulus in a West African Population

Volvulus sigmoïde aiguë dans une population ouest-africaine

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ABSTRACT

BACKGROUND: Acute sigmoid volvulus is one of the commonest causes of benign large bowel obstruction. Its incidence varies considerably from one geographic area to another.

OBJECTIVE: To review the management of acute sigmoid volvulus in a relatively high prevalence area.

METHODS: All adult patients with acute sigmoid volvulus seen at the Royal Victoria Teaching Hospital (RVTH) Banjul, between September 2000 and January 2005 were studied. Information obtained for analysis from the records included age, sex, clinical features, test results, and outcomes.

RESULTS: A total of 48 patients, 45 (93.8%) males and three (6.3%) females, with a male: female ratio of 14.3:1, age range of 19 to 78 years and mean age of 45.8 + 17.6 years, underwent treatment for acute sigmoid volvulus. Twenty-one (43.8%) of the patients were aged 40 to 59 years. Two (4.2%) had rectal tube detortion followed by elective sigmoidectomy and primary anastomosis on the same admission, while 24 (50%) had emergency laparotomy at which bowel decompression, one-stage resection and primary anastomosis without on-table lavage was done. The rest of the patients, 22 (45.8%) had gangrenous sigmoid colons at laparotomy and consequently had Hartmann's procedure done. Fourteen patients (29.1%) developed wound infection and five (10.4%) had prolonged ileus that was managed conservatively. There was no anastomotic leak. The mean hospital stay was 11.1 days. There were five deaths giving a mortality rate of 10.4%.

CONCLUSION: Acute sigmoid volvulus in the Gambia is almost exclusively a male disease. Sigmoid colectomy and primary anastomosis can be carried out safely in those with viable colon without on-table colonic lavage. *WAJM 2010; 29(2): 109–112.*

Keywords: acute sigmoid volvulus, presentation, surgical management.

RÉSUMÉ

CONTEXTE: aiguë volvulus sigmoïde est l'une des causes les plus fréquentes de l'intestin obstruction grande bénigne. Son incidence varie considérablement d'une région géographique à l'autre.

OBJECTIF: Revoir la gestion des actifs volvulus sigmoïde dans une zone relativement élevés de prévalence.

MÉTHODES: Tous les patients adultes atteints de graves volvulus sigmoïde vu au Victoria Teaching Hospital Royal (RVTH) Banjul, entre Septembre 2000 et Janvier 2005 ont été étudiés. Les renseignements obtenus pour l'analyse des dossiers de la comprenaient l'âge, le sexe, les caractéristiques cliniques, les résultats des tests, et les résultats.

RÉSULTATS: Un total de 48 patients, 45 (93,8%) hommes et trois (6,3%) femmes, avec un ratio hommes / femmes de 14.3:1, tranche d'âge des 19 à 78 ans et l'âge moyen de 45,8 + 17,6 ans, a subi traitement pour les aigus volvulus sigmoïde. Vingt et un (43,8%) des patients étaient âgés de 40 à 59 ans. Deux (4,2%) avaient detortion sonde rectale suivie d'anastomose sigmoïdectomie élective et primaire sur le même aveu, tandis que 24 (50%) ont eu une laparotomie d'urgence au cours de laquelle la décompression du côlon, la résection étapes un et anastomose primaire sans en table de lavage a été fait. Le reste des patients, 22 (45,8%) avait gangrené colons sigmoïde à la laparotomie et par conséquent avait la procédure de Hartmann fait. Quatorze patients (29,1%) ont développé l'infection des plaies et cinq (10,4%) avaient un iléus prolongé qui a été géré de manière conservatrice. Il n'y avait pas de fuite anastomotique. La durée moyenne d'hospitalisation était de 11,1 jours. Il ya eu cinq décès donnant un taux de mortalité de 10,4%.

CONCLUSION: aiguë sigmoïde volvulus en Gambie est presque exclusivement une maladie d'hommes. Colectomie sigmoïde et anastomose primaire peut être effectuée en toute sécurité dans ces deux points avec viable sans le lavage colique table. *WAJM 2010; 29(2): 109–112.*

Mots-clés: aiguë volvulus sigmoïde, présentation, prise en charge chirurgicale.

INTRODUCTION

Sigmoid volvulus is an important cause of colonic obstruction worldwide. Detailed records of sigmoid volvulus were found in the Egyptian Papyrus Ebers¹ and in ancient Greek and Roman writings. Insufflation with air to untwist a sigmoid volvulus, a treatment advocated by Hippocrates, is still the basis for the nonoperative approach in the treatment of sigmoid volvulus accepted by surgeons worldwide.² Sigmoid volvulus ranks high as a cause of acute intestinal obstruction in many African countries.³⁻⁵ In such areas, its classical presentation is well known to many health workers, but its definitive treatment is varied, depending on the condition of the patient, and the state of the sigmoid colon. Initial nonoperative management i.e. sigmoidoscopic decompression as advocated by Bruudsgaard,² followed by semi-elective sigmoidectomy and primary anastomosis after on-table antegrade colonic lavage has hitherto been widely accepted as standard management.^{6,7} Non-resectional procedures; sigmoid-opexy and mesosigmoidoplasty have no need for bowel preparation and have lower morbidity and mortality rates but has high incidence of recurrence.⁸ Where the decompression fails and there are signs of colonic gangrene, sigmoid resection and Hartmann's procedure or colostomy with mucous fistula is done to avoid the high mortality associated with primary anastomosis in this situation.⁹ Recently laparoscopic resection has been used in high risk or elderly patients who may not tolerate conventional surgery.¹⁰ But the treatment of choice at this time is resection with primary anastomosis (with or without on-table antegrade colonic lavage) in patients with viable sigmoid colon and Hartmann's procedure in those with gangrenous bowel. The purpose of this chart review is to evaluate our management policy and to compare it with other reports in the literature.

PATIENTS, MATERIALS, AND METHODS

The chart of all patients seen and managed with acute sigmoid volvulus at the Royal Victoria Teaching Hospital (RVTH), between September 2000 and January 2005 were studied. Data extracted

from their hospital records included, age, sex, presenting signs and symptoms, investigations, treatment and postoperative complications. All the patients were resuscitated and underwent; emergency or elective sigmoid colectomy and primary anastomosis without on-table lavage, when the sigmoid colon was found to be is viable; or sigmoidectomy and Hartmann's procedure colostomy when the colon was gangrenous. Those who had semi-elective sigmoidectomy had an initial rectal tube detortion of their volvulus. Perioperative intravenous antibiotics were given to all the patients using a combination of ampicillin 500mg (6 hourly), gentamicin 80mg (8 hourly) and metronidazole 500mg (8 hourly. These were given for a further 48 hours for those with gangrenous bowel.

Surgical Procedure

Intraoperatively, manual untwisting of the volvulus relieved the obstruction and the distended hypertrophied sigmoid colon was decompressed by a tube passed through its wall, surrounded by a seromuscular purse string of 2/0 chromic catgut and attached to a suction machine. The contents of the sigmoid colon (primarily gas and liquid faeces) were evacuated as much as possible. A nasogastric tube was routinely used in all the cases to decompress the stomach. The redundant sigmoid colon becomes evident and the line of resection decided. The descending colon and proximal rectum were mobilized, their vascularity ensured and a two layered anastomosis with chromic catgut 2/0 and outer layer of interrupted silk 2/0 or a single interrupted

all layer anastomosis with 2/0 silk was carried out. If the sigmoid colon was gangrenous, it was is resected without untwisting and a Hartmann's procedure performed. The peritoneal cavity was lavaged with warm normal saline and the abdomen closed by the mass closure technique, leaving a pelvic drain. A digital rectal dilatation was carried out as soon as the patient begins to recover from anaesthesia to enhance drainage of mucoid colonic contents. Skin sutures were removed between seven and 10 days and the patients advised on follow up.

RESULTS

A total of 48 patients were seen, 45 males (93.8%) and 3 females (6.3%). The male: female ratio was 15:1. Their hospital stay ranged from 4 to 26 days (mean 11.1±5.0 days). The age of the patients ranged between 18 and 78 years, with a mean age of 45.7 ± 17.6 years. Twenty-one (43.8%) of the patients were in the 40 to 59 year age group and eight (16.7%) were between 70 and 79 years. Only two (4.2%) patients were below 20 years of age (Table 1). Thirty-seven (77.1%) of the patients had had previous episodes of colicky abdominal pain.

The mean duration of symptoms was 3.9±1.8 days (range 2–8 days). Gross abdominal distention 43 (89.6%), colicky abdominal pain 42 (87.5%), constipation 33 (68.8%), vomiting 28 (58.3%) and fever 13 (27.1%) were the main symptoms, while dehydration 16 (33.3%), abdominal tenderness 17 (35.4%) and visible paristalsis 20 (41.7%) were the main signs. Four (8.3%) of the patients presented in shock i.e. a systolic blood pressure of less than 80mmHg.

Table 1: Distribution of Patients with Acute Sigmoid Volvulus by Age and Sex

Age(years)	Number(%)		Total (%)
	Males	Females	
10–19	2(4.2)	0	2(4.2)
20–29	11(23.0)	0	11(23.0)
30–39	4(8.3)	0	4(8.3)
40–49	11(23.0)	1(2.1)	12(25.0)
50–59	7(14.5)	2(4.2)	9(18.7)
60–69	2(4.2)	0	2(4.2)
70–79	8(16.7)	0	8(16.7)
Total	45(93.7)	3(6.3)	48(100.0)

Table 2: Operative treatment and Postoperative Complications

	Number(%)
Treatment Modality	
Resection and primary anastomosis	26 (54.2)
Resection and Hartmann's procedure	22 (45.8)
Postoperative complication	
Wound infection	14 (29.1)
Pneumonia	3 (6.2)
Wound dehiscence	2 (4.2)
Faecal fistula	1 (2.1)
Septicaemia	3 (6.3)
Incisional hernia	1 (2.1)
Adhesive bowel obstruction	3 (6.3)
Prolonged ileus	5 (10.4)

Preoperative diagnosis of sigmoid volvulus was made clinically in all cases and confirmed at laparotomy though 39 (81.3%) had classical plain abdominal X-ray features. Two (4.2%) of the patients had sigmoidoscopic detortion of their sigmoid volvulus followed by elective sigmoid colectomy and primary anastomosis on the same admission, while 24 (50%) had emergency resection of the sigmoid colon and primary anastomosis in two layers without on-table lavage.

There was no mortality in the former group, but one (4.2%) of those that had emergency sigmoid colectomy died. All those who had sigmoid colectomy and primary anastomosis had viable sigmoid colons at operation and presented to hospital within 48 hours of on-set of symptoms. Twenty-two (45.8%) patients had gangrenous sigmoid colon at operation and were offered Hartmann's procedure. Four (18.2%) of these patients died in the postoperative period.

Wound infection was the commonest postoperative complication seen in 14 (29.1%) cases followed by prolonged ileus in five (10.4%) and chest infection in three (6.2%). There was no anastomotic leak (Table 2).

There were five deaths giving a mortality rate of 10.4%. Three of the deaths were due to septicaemia, one had co-morbidity in the form of congestive cardiac failure while the other had acute renal failure. The average duration of follow-up was 6 months, during which

three (6.2%) of the patient were found to have developed intestinal obstruction secondary to adhesions; and one (2.1%) had incisional hernia. These complications were managed accordingly.

DISCUSSION

A total of 48 patients with acute sigmoid volvulus were seen in our hospital over a 4-year period, an average of 12 patients per year. This is a high figure compared to similar series from West Africa.^{11,12} The male female ratio of 15:1 makes this an almost exclusively male disease in the Gambia; to corroborates other African series.⁴ In Europe and America, sigmoid volvulus affects males and females in nearly equal proportion,^{13,14} and many are above 60 years of age with history of institutional care. The male preponderance of this condition in parts of Africa, Asia and Latin America still awaits satisfactory explanation. The mean age of 45.7 years is similar to other studies in Africa where the disease affects young males.^{4,15} The classical features of acute sigmoid volvulus are not difficult to identify in areas where the condition is common. Gross abdominal distention is invariably present. In some the distention is moderate. The general condition of the patient with uncomplicated acute sigmoid volvulus is usually good despite a history of previous episodes of colicky abdominal pain and other features of colonic obstruction.

The management of uncomplicated acute sigmoid volvulus has been nonoperative at the first instance; that is, sigmoidoscopic detortion, followed by a semi-elective sigmoidectomy and anastomosis on the same admission^{2,16}. This is because detortion with a sigmoidoscope alone is associated with high recurrence. Sigmoidoscopic detortion was carried out in two patients in this series, both of whom had definitive sigmoidectomy and primary anastomosis on the same admission. After adequate resuscitation, all the other patients underwent laparotomy, with the aim of resection and primary anastomosis when the sigmoid was viable or resection and Hartmann's procedure when the sigmoid colon was gangrenous. Faranisi and other workers^{17,18} found that the twisted, obstructed and grossly distended sigmoid

colon has hypertrophied muscular wall that holds sutures well, producing a secure anastomosis. The mainly liquid and gaseous content of the sigmoid colon can also be evacuated well through a tube inserted in the rectum, a Foley catheter or a savage decompressor through the sigmoid wall. These qualities of the obstructed sigmoid colon in volvulus informed the possibility of a one-stage procedure.¹⁷ Therefore, staged operations or primary anastomosis after intra-operative antegrade colonic lavage can be avoided without increasing morbidity and mortality rates.¹⁹

Twenty-six (54.2%) of the cases in this series were found to have viable colon and had one-stage resection and primary anastomosis without antegrade intra-operative colonic lavage. There was no anastomotic leak and one death was recorded in a patient who already had an intercurrent medical condition. Similar results have been reported by other workers,^{17, 19} suggesting that resection and primary anastomosis of acute left colonic obstruction due to sigmoid volvulus without on-table lavage gives acceptable results.

Twenty-two (45.8%) of the patients had gangrenous colon. In this group, it is safest to resect the gangrenous colon and construct a colostomy and mucous fistula or do a Hartmann's procedure. Resection and primary anastomosis in this condition is associated with high morbidity and mortality.²⁰ Despite the high incidence of gangrenous bowel at laparotomy, the overall mortality rate was 10.5%. This is lower than other reports from Nigeria¹¹ and Ethiopia¹² where though the age distribution is similar; there were more patients with gangrenous bowel in their series.

In conclusion, our series suggests that if patients are in good condition one-stage sigmoid resection and primary anastomosis can be done with acceptable results in patients with left colonic obstruction due to acute sigmoid volvulus. This reduces the operation time and the morbidity that may result from on-table colonic lavage or a staged operation. Those with gangrenous bowel should have sigmoid resection and Hartmann's procedure or colostomy and a mucous fistula performed.