ORIGINAL ARTICLE

Sigmoid volvulus; is primary repair an option?

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Abstract

Introduction: Sigmoid volvulus is the commonest cause of large gut obstruction in many regions of the world including Pakistan. The causes of sigmoid volvulus include irregular bowl habits and consumption of high fiber bulky diets which appear to overload the sigmoid colon. Abdominal pain, distension, constipation, nausea and vomiting are the main clinical features. Resection and primary anastomosis is the procedure of choice, as it obviates a colostomy and subsequent reversal.

Objectives: To determine the frequency of postoperative complications of primary repair in patients with either viable or gangrenous sigmoid volvulus.

Methodology: Patients with large gut obstruction and suspected to have sigmoid volvulus on clinical and radiological grounds were studied. Laparotomy and resection of sigmoid colon followed by restoration of continuity of the colon by single layer primary anastomosis was performed in these patients.

Results: In this study of 96 patients with sigmoid volvulus, male to female ratio was 2.7:1. Mean age was 49years + 1.27. Majority of the patients, 23 (24%), were in the age range of 41-45 years. Abdominal pain was recorded in all 96 (100%), followed by constipation 92 (95.83%). Clinical examination of patient's abdomen showed visible peristalsis in 42 (84%) patients. Different post-operative complications occurred in 27 (28.9%) cases.

Conclusion: Resection with primary anastomosis is the best technique for the management of sigmoid volvulus when the gut is viable or gangrenous.

Keywords: Sigmoid-Diseases-Surgery, Anastomosis, surgical methods, Colonic-diseases-etiology, Colonic-surgery.

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Introduction:

Sigmoid colon volvulus is defined as an abnormal twisting of the siqmoid colon around its mesentery and is a frequent cause of colonic obstruction[1]. Sigmoid volvulus is the commonest cause of large gut obstruction in many regions of the world including Pakistan, India, Bengal and most African countries. Volvulus of sigmoid colon is common in males and it is extremely rare in children and neonates[2,3,4].

The causes of sigmoid volvulus include, irregular bowel habits, consumption of high fiber bulky diets which appear to overload the sigmoid colon. The gut elongates and dilates gradually and subsequently undergoes volvulus[2].The symptoms are of large bowel obstruction which may initially be intermittent, followed by the passage of large quantities of flatus and faeces[5].

Gangrenous colon requires immediate excision. In the presence of gangrene, resection is followed by a colostomy and mucous fistula or Hartman's procedure, depending on the surgeon's experience and preference, as well as whether or not it is possible to bring the distal loop to the skin. This appears the best option, as these patients are often shocked and acidotic[6]. The mortality

rate averages 38% in those with gangren, eight times higher than when the colon is viable[7].

In the developing world where sigmoid volvulus constitutes 50% of large bowel obstructions, mortality following emergency surgery for acute sigmoid volvulus is low. This is mainly due to the fact that patients are relatively young and healthy and, therefore, have a better ability to recover from the disorder and its surgical treatment. Hence a single staged method of treatment that ensures a permanent cure, avoids a colostomy, reduces number of procedures and associated morbidity and mortality, and shortens duration of hospital stay, is desirable[8].

The rationales of the study were to determine the results of primary anastomosis in sigmoid volvulus when the gut is viable and to establish the benefits of decreased morbidity and cost effectiveness of primary closure without stoma formation.

Objectives of the study:
The objectives of the study were to determine the frequency of postoperative complications of primary repair in patients whether viable or gangrene sigmoid volvulus.

Methodology:
After getting permission from the Hospital Ethical Committee, this descriptive study was conducted on 96 patients in Surgical department of Khyber Teaching Hospital, Peshawar from 4th April 2009 to 3rd April 2010.

All the patients with large gut obstruction and suspected to have sigmoid volvulus and presenting with signs and symptoms of sigmoid volvulus were diagnosed on clinical features like pain abdomen, constipation, abdominal distension and it was supported by radiological findings such as bird beak deformity or coffee bean appearance of the large intestine. All patients of sigmoid volvulus were admitted through out patients department or emergency of the surgical department of Khyber Teaching Hospital, Peshawar. After taking informed consent from the patients of their relatives, they were briefed about the surgical procedure and risks and benefits of the surgery. A detailed clinical examination including per-rectal examination was done in all patients and information was noted in the proforma. Special investigations such as X-ray abdomen (erect) was done for the confirmation of sigmoid volvulus. The diagnosis was based on history, clinical examination and radiological findings. All the patients were resuscitated before surgical intervention by administration of intravenous fluids, antibiotics nasogastric decompression and catheterization. After pre-operative management all the patients underwent elective or emergency laparotomy.

Patients of sigmoid volvulus presenting with septicemia, haemodynaic instability, uncontrolled comorbid conditions like diabetes mellitus, hypertension, chronic obstructive pulmonary disease (COPD), other causes of intestinal obstruction like, tumors, tuberculosis were excluded from the study. These cases were excluded as they would act as confounders and produce bias in the study results.

Results:
A total of 96 patients were included in this study. There were 70 (72.9%) males and 26 (2.7.1%) females, with a male to female ratio of 2.7: 1

The age of patients ranged between 36-65 years. The man age was 49 + 1.27 years. Majority of the patients were from 41-45 years.

All 96 (100%) patients presented with abdominal pain, mostly on the left side, followed by constipation in 92 (95.83%) patients and abdominal distension in 85 (88.54%) patients. Vomiting was present in 9 (9.37%) patients and bleeding per rectum (due to associated hemorrhoids) was present in 2 (2.08%) patients.

Clinical examination revealed visible peristalsis 82 (85.41%), palpable gut loops 58 (60.41%), tenderness 49 (51.04%), symmetrical distension 12(12.5%) guarding 12 (12.5%) while 4 (4.16%) had palpable mass. Bowel sound were observed as exaggerated in 58 (60.41%) patients and absent in 16 (16.66%) patients.

Special investigation such as X-ray abdomen (erect) showed tire sign which was present in 65 (67.7%) patients, bird beak sign in 11 (11.45%) patients and Coffee bean sign was present in 11 (11.45%) patients.

Different post-operative complications occurred in 27 (28.1%) cases. There was wound infection in 14 (14.6%) cases, in which 11 were males and 3 female patients. All were kept in hospital for antibiotics and daily dressing till healing. All had satisfactory wound healing. Pelvic abscess developed in 5 (5.2%) patients, 5 male and no female patients. All the 5 male patients were re-explored and drained with satisfactory outcome. Anastomosis leakage occurred in 4 (4.2%) male cases on 3rd and 4th postoperative day and all were re-explored and colostomy was performed. No female patient had leakage. Enterocutaneous fistula occurred in 3 (3.1%) patients which was treated conservatively till the fistula healed. Ileus was found in only one (1%) patient. There was no mortality in sample data.

Discussion:

Sigmoid volvulus is a common cause of large gut obstruction in developing countries. According to few local studies it is also a very 2- W", serious condition in Pakistan[2,4,10,11]. Which shows the high rate of incidence of sigmoid volvulus in this part of Pakistan.

In this study males were in preponderance to females, with a male to female ratio of 2.7:1, which is similar to 3:1 as reported by Turan M1 . This ratio is lesser as compared to other studies as Taj MH et a11 Bhuiyan MM and colleagues reported a ratio of 9:1 and Zarin M et al[2] reported a ratio of 6:1, while Mohtasimbillah reported a ratio of 10:11.

The mean age in our study was 49 + 1.27 years which is closer to that reported by Manzoor A and Muhammad A[12] (mean age was 42.5 years). In a recent study the mean age was also 42 years[13] . While an Indian study was in more corroboration to that of our study which shown the mean age of 49 years which is a little higher than the aforementioned studies[12].

Of all signs and symptoms, abdominal pain and constipation pre was present in 95.83% patients, and abdominal distension in 88.54% patients. Vomiting and bleeding per rectum were present in a very few cases. These results coincide with national and international studies which show the most common initial physical finding being abdominal distension which was present in 87.4% of the patients[15].

Special investigations were performed to confirm the clinical diagnosis of sigmoid volvulus such as x-ray abdomen (erect) showed tire sign in 66% cases, bird beak sign in 12% cases and coffee bean sign in 12% cases. In this study plain film of the abdomen was obtained in 108 cases and was diagnostic in 61.5% of all episodes. A barium enema X-ray was performed in 75 instances either as an emergency or elective procedure. Ultrasound showed dilated gut loops in 56% patients, associated gallstones in 2% patients. Barium enema and CT scan of the abdomen and pelvis was not done in any case. Similar findings are also reported by others[2, 16].

The results of different postoperative complications in patients with sigmoid volvulus in this study were wound infection in 14.6% patients, abscess in 5.2% cases, anastomosis leakage 4.2% cases and fistulae was observed in 3.1% cases. These results are similar to those reported in different studies[1, 2, 17].

In our study we used the operative procedure of resection with primary anastomosis, which has been reported with encouraging results and less postoperative complications by international and national studies [2,C,G,B], so there was no mortality in our study. Such good results could be explained with appropriate antibiotics, and use of modern intensive postoperative care of the patients with sigmoid volvulus.

Our study shows that majority of the patients have complications in viable instead of gangrenous gut which is very similar to local study of Zarin et al which shows postoperatively 17 (53.12%) patients in the gangrenous group and 9 (17.64%) cases in the viable group developed

paralytic ileus, 2 (6.25%) patients in the gangrenous group developed anastomotic leakage leading to peritonitis, 2 (6.25%) patients in the gangrenous group and one (1.96%) in the viable group developed intra abdominal abscess, eight patients in the gangrenous group and five in the viable group developed wound infection[17].

The actual treatment at primary repair depends on whether the colon is gangrenous or not. The frequency of gangrenous colon in industrialised countries is less, 10%, compared with rates as high as 25% in developing countries[18,19].

Conclusions:

Aggressive resuscitation, prompt surgical relief of obstruction, appropriate antibiotics, accurate intra-operative assessment of the viability of the involved loops of intestine and the use of modern postoperative intensive care will help to reduce the mortality and morbidity associated with this life threatening condition.

The management of viable sigmoid colon in relation to an episode of volvulus should be by resection and primary anastomosis having less recurrence rate and less postoperative complications.

Resection with primary anastomosis technique is a method worth applying as it helps a surgeon complete the whole surgical management process of sigmoid volvulus in one stage which is a difficult option in patients having gangrenous gut.

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