One Stage Emergency Resection and Primary Anastomosis for Sigmoid Volvulus

Aamer Naseer1, Siddique Ahmad2, Mohammad Naeem3 and Safirullah4

ABSTRACT
Objective: To evaluate the safety of single stage resection and primary anastomosis (RPA) in cases of viable sigmoid volvulus, in terms of anastomotic healing and complications.
Study Design: Observational study.
Place and Duration of Study: Surgical Unit, Hayatabad Medical Complex (HMC), Postgraduate Medical Institute, Peshawar, from November 2006 to October 2008.
Methodology: Study included all patients presented and admitted in Surgical Unit, HMC, with sigmoid volvulus during the above mentioned period. Resection and primary anastomosis was done without defunctioning stoma formation or on-table colonic lavage. Manual decompression was carried out pre-operatively. Patients excluded, had serious co-morbid conditions in whom colostomy was done instead of primary anastomosis. Patients were followed-up for one month after surgery.
Results: A total of 30 patients were admitted during the study of 2 years duration, out of which there were 21 male and 09 female patients, with male to female ratio of 2.4:1. Only 1 patient had anastomotic leak while 4 patients had superficial wound infection. One patient died due to comorbid condition. Abdominal wound dehiscence or postoperative abdominal abscess was not observed in any case.
Conclusion: Single stage resection and primary anastomosis is a reliable current treatment modality for the emergency surgical management of sigmoid volvulus and has low morbidity and mortality. On-table colonic lavage and proximal defunctioning colostomies are unnecessary with this technique.

Key words: Sigmoid volvulus. Resection. Primary anastomosis. Emergency.

INTRODUCTION
Colonic volvulus or twisting of the colon is a relatively uncommon cause of large bowel obstruction in Western society although it is much more common in developing countries.1 Sigmoid volvulus tends to affect elderly males typically with chronic constipation. Sigmoid volvulus may affect an individual for many years in recurring form, but acute sigmoid volvulus is a surgical emergency, because of the tight compression of the mesocolic vessels and massive distention of colonic lumen.1,2
Pre-disposing factors for sigmoid volvulus include long sigmoid loop with a narrow mesentery, chronic constipation, high fiber diet, band adhesion formed due to peridiverticulitis and loaded pelvic colon. In South America, there is an association with Chagas's disease.2,3
Acute sigmoid volvulus presents with signs and symptoms of intestinal obstruction. Plain abdominal X-rays confirm the diagnosis in 80% of the cases.2 The condition may give rise to complications like gangrene and perforation of sigmoid colon, because of the tight compression of mesocolic vessels.3 Treatment of sigmoid volvulus may be operative or non-operative. Non-surgical methods include; per rectal decompression by flexible or rigid sigmoidoscope or by insertion of flatus tube. However, in 90% cases recurrence occurs after non-operative treatment. Operative treatment may be carried out by doing resection and primary anastomosis (RPA), resection and colostomy, Hartmann's procedure (HP) or sigmoidopexy.2-4 Some novel techniques which have been used are laparoscopic sigmoidopexy and laparoscopic sigmoidectomy.5
Traditionally, resection and sigmoid colostomy was considered to be the standard emergency treatment for sigmoid volvulus.1,2,6 However, recent trend over the last 10-15 years has changed. Most surgeons now prefer resection and primary anastomosis for acute sigmoid volvulus in emergency setting. Since, the condition is quite commonly found in local setting, this study was carried out to find the results of the resection and primary anastomosis in local set-up and the outcome of this currently favoured treatment modality.

METHODOLOGY
The study was conducted in the Surgical Unit, Hayatabad Medical Complex, Peshawar, from July 2006...
to June 2008 over a period of 2 years. All patients presenting with sigmoid volvulus in the above setting, were included in the study, exclusion criteria included patients who had co-morbidities and those in whom sigmoid colon was found gangrenous at surgical exploration due to delay in seeking treatment; colostomy was done in such patients instead of resection and primary anastomosis. Peristalsis, colour and luster of gut and bleeding at cut edges of gut were used, to assess gut vascularity. Patients who settled with conservative treatment and therefore, remarked without definitive diagnosis were also excluded. Patients who died before final diagnosis and treatment were also excluded. All the non-consenting patients were also excluded from the study.

Patients’ age, gender and complete data were recorded. Accurate history of their disease was elucidated, complete physical examination performed and investigations carried out. Plain X-rays of abdomen were carried out as a part of investigations along with baseline and other relevant investigations required to correct co-morbidities. Resection and primary anastomosis was done in these cases with no defunctioning stoma formation and no ontable colonic lavage. However, manual decompression was carried out pre-operatively. Patients were followed-up for one month after surgery. Variables that used to evaluate the outcome, were; anastomotic leak, superficial surgical site infection and mortality.

All the patients were counseled about their conditions. Informed consent was taken from all the patients for their management, from history taking to surgical procedures. All of the patients were admitted on emergency basis for their condition. Data was collected with the help of a proforma. The analysis was performed using SPSS version 10.

RESULTS

Thirty patients were admitted with intestinal obstruction caused by acute sigmoid volvulus during the study duration. There were 21 (70%) male and 09 (30%) female patients. Thus, male to female ratio was 2.4:1. Only 1 patient (3.3%) had anastomotic leakage in the postoperative period while 4 patients (13.3%) had superficial wound infection (Table I). The mean duration of hospital stay was 7.5 days. Just one patient (3.3%) died in the immediate postoperative period. Cause of death in this particular patient was concomitant co-morbidity. Abdominal wound dehiscence or post-operative abdominal abscess was not observed in any case.

DISCUSSION

This study was carried out to assess the early success and outcome of one-stage resection and primary anastomosis in patients presenting with acute sigmoid volvulus in the local setting. Resection and colostomy causes much higher cost of treatment for both patients and health care system. It would be very beneficial if single stage resection and primary anastomosis was carried successfully in local set-up especially because the condition is quite common here as compared to the Western world, as shown by large number of patients employed in local studies.7-9

As seen from the results of the present study, the one-stage resection and anastomosis procedure had a high success rate and low morbidity and mortality. Other studies done within Pakistan, have also recommended resection and primary anastomosis as the treatment modality of choice for sigmoid volvulus in emergency setting. Zarin included 28 patients in his 2 years of study and observed low morbidity and mortality. He concluded that resection and single layer primary anastomosis has excellent results in sigmoid volvulus.7 Others have also observed good results with low morbidity and mortality and low rate of anastomotic dehiscence with this procedure.8-11 Only one local researcher has recommended, that resection and primary anastomosis should be done with defunctioning colostomy by the inexperienced.12

Many international studies have also favoured single stage RPA as the treatment modality of choice for acute sigmoid volvulus. Sule concluded that resection of acute sigmoid volvulus and primary anastomosis after decompression alone can be carried out safely in reasonably fit patients.13 Schilling and Kuzu compared RPA with Hartmann’s procedure.14,15 Both found that RPA was the better treatment modality for acute sigmoid volvulus. De did RPA in 197 patients in West Bengal and observed anastomotic leak in only 2 patients.16 He observed a low mortality rate of 1%. He concluded that, primary colonic anastomosis can be safely done for obstructed left colon due to acute sigmoid volvulus without intraoperative colonic lavage. Raveenthiran also recommended RPA as the treatment modality of choice for the acute sigmoid volvulus.17 Others compared RPA with HP and RPA with RPA combined with colostomy.18,19 These studies have found low morbidity and mortality after doing RPA for acute sigmoid volvulus. Ackan observed that single-stage operations did not increase morbidity or mortality rates, and patients required a shorter hospital stay than those who had undergone 2-stage operations. Coban however, has recommended that a blow hole cecostomy should be done with RPA.19

Table I: Various results of the present study.

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<thead>
<tr>
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<th>Number of patients</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Total patients</td>
<td>30</td>
<td>-</td>
</tr>
<tr>
<td>Anastomotic leak</td>
<td>01</td>
<td>3.3%</td>
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<tr>
<td>Superficial surgical site infection</td>
<td>04</td>
<td>13.3%</td>
</tr>
<tr>
<td>Mortality</td>
<td>01</td>
<td>3.3%</td>
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<tr>
<td>Average hospital stay</td>
<td>7.5 days</td>
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The results of the present study are in accordance with other local and international studies, carried out to assess the outcome of single stage RPA in acute sigmoid volvulus. This currently favoured treatment modality can be used safely and can benefit the poor patients of developing countries, as single stage surgery can reduce much of the cost and morbidity in these patients.

**CONCLUSION**

Single stage resection and primary anastomosis is a reliable current treatment modality for the emergency surgical management of viable sigmoid volvulus with low morbidity and mortality. This treatment option is favoured by surgeons throughout the world. It is safe and effective in the local set-up too.

**REFERENCES**