RESULTS OF PRIMARY CLOSURE IN THE MANAGEMENT OF GANGRENOUS AND VIABLE SIGMOID VOLVULUS

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ABSTRACT
Objective: To compare the outcome of primary repair, both in viable and gangrenous cases of Sigmoid Volvulus.

Design & Duration: Retrospective study conducted from August 2001 to April 2006.

Setting: District Headquarter Hospital, Bannu, North West Frontier Province.

Patients: All patients admitted with large gut obstruction due to Sigmoid Volvulus.

Methodology: After initial investigations and resuscitation, the patients were shifted to the operation theatre where the vascular status of the sigmoid colon was noted, and resection and primary anastomosis was done in all the cases. Patients were allowed orally after 3-5 days, when their bowel sounds returned and they were able to pass flatus and/or faeces. All patients were discharged home after recovery, and were followed up for a minimum of four months. The outcome of both the gangrenous and the viable gut patients was compared in terms of anastomotic leakage, wound infection, hospital stay and long term complications. The findings were entered onto a proforma and the results compiled and analyzed.

Results: Amongst the total 83 patients, there were 72(86.7%) males and 11(13.3%) females, with an age range of 35-80 years (mean 55 years). All patients presented with the typical symptoms of intestinal obstruction. Local and systemic signs of toxicity were more common in the gangrenous group. 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, two of these patients later on developed incisional hernia. The mean hospital stay in the gangrenous group was 10 days as compared to eight days in the viable group. The difference in the outcome of primary anastomosis in both the viable and non viable groups was insignificant.

Conclusion: Primary anastomosis can be safely done for acute sigmoid volvulus in both gangrenous and viable gut.

KEY WORDS: Comparison, Gangrenous Sigmoid, Viable Sigmoid Volvulus

INTRODUCTION

Sigmoid volvulus is the commonest cause of large gut obstruction in many regions of world including Pakistan, India, Bengal and African countries. It accounts for 80-90% of all volvulus cases and occurs more commonly in males, elderly institutionalized patients and those with neurological disorders, but rare in children. Its causes include irregular bowel habit and high fiber diet, which overloads the gut, elongating and dilating it to produce the volvulus. In Latin America Chaga’s disease is a common cause.

Patients gives history of colicky abdominal pain with distension which is relieved by passage of flatus and loose stool. In the acute stage pain, constipation and abdominal distension are the commonest clinical features. In gangrenous cases, blood may be seen in the rectum on digital examination. Diagnosis is made on clinical and radiological findings. If diagnosis is still in doubt and gangrene not suspected, water soluble contrast
Primary closure in Sigmoid Volvulus

Table I. Characteristics of patients

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group G</th>
<th>Group V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (yrs)</td>
<td>57±2</td>
<td>53±2</td>
</tr>
<tr>
<td>Male</td>
<td>28</td>
<td>44</td>
</tr>
<tr>
<td>Female</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>51</td>
</tr>
</tbody>
</table>

enema usually shows a birds beak deformity at the sight of torsion, some times this manoeuvre can be therapeu-
tic also.

The management of volvulus of sigmoid colon remains controversial. The choice of treatment depends on
whether there are signs of ischemia or not. The conservative management is detorsion by enema, endoscopic
deflation, or mini laparotomy with colopexy. Previously surgeons were reluctant to perform primary anas-
tomosis without colostomy in unprepared gut. This study was carried out to compare the outcome of
primary anastomosis between viable and gangrenous sigmoid volvulus cases.

PATIENTS & METHODS

This retrospective study was carried out at District Headquarter Hospital, Bannu from August 2001 to April
2006 on all cases that had sigmoid volvulus but were haemodynamically stable and without co-morbid.

After relevant investigations and resuscitation all patients were operated via a midline incision and the colon
studied for signs of irreversible ischaemia. The gut, whether viable or not, was untwisted and redundant
part resected, and single layer primary anastomosis using vicryl 2/0 performed. The abdominal wound was closed
and the patients shifted to ward. They were allowed
orally after 3-5 days. Patients were divided into two
groups viz. gangrenous gut group (G) and viable gut
(group V). All patients were discharged home after they
remained stable for few days and were followed-up for
a minimum of four months. The data was entered onto
a proforma, and was later compiled and analyzed.

RESULTS

A total of 83 patients with Sigmoid Volvulus were evaluated in this study. Amongst them 72 (86.7%) were
males and 11 (13.3%) were females, with male-female ratio of 7:1. The age range was 35-80 years (mean 55
years) as shown in Table I.

The majority of patients presented with abdominal pain
and distension, and absolute constipation (Table II), the
distension being asymmetrical in 35 cases. Bleeding per rectum was seen in 31 cases and guarding and rigidity
in 37 cases.

All patients underwent laparotomy after investigations
and resuscitation. At operation 51 patients had a viable
gut whereas in 32 cases the gut was gangrenous. As per
protocol all cases underwent resection of the involved
sigmoid volvulus.

The average hospital stay was 10 days in Group G and
eight days in Group V, whereas return of the patients
to routine activities in Group G took 25 days and 20
days in Group V.

Postoperatively complications were noted more in the
gangrenous gut group, commonest complications being

Table II. Clinical Features

<table>
<thead>
<tr>
<th>Clinical Features</th>
<th>Group G (n=32)</th>
<th>Group V (n=51)</th>
<th>Total (n=83)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal pain</td>
<td>32 (100%)</td>
<td>51 (100%)</td>
<td>83 (100%)</td>
</tr>
<tr>
<td>Abdominal distension</td>
<td>32 (100%)</td>
<td>51 (100%)</td>
<td>83 (100%)</td>
</tr>
<tr>
<td>Constipation</td>
<td>32 (100%)</td>
<td>51 (100%)</td>
<td>83 (100%)</td>
</tr>
<tr>
<td>Nausea / vomiting</td>
<td>14 (44%)</td>
<td>8 (16%)</td>
<td>22 (27%)</td>
</tr>
<tr>
<td>Bleeding per rectum</td>
<td>28 (88%)</td>
<td>3 (6%)</td>
<td>31 (37%)</td>
</tr>
<tr>
<td>Guarding / rigidity</td>
<td>30 (94%)</td>
<td>7 (14%)</td>
<td>37 (45%)</td>
</tr>
<tr>
<td>Haemodynamic instability</td>
<td>6 (19%)</td>
<td>-- (0%)</td>
<td>6 (7%)</td>
</tr>
<tr>
<td>Asymmetrical distension</td>
<td>12 (38%)</td>
<td>23 (45%)</td>
<td>35 (42%)</td>
</tr>
</tbody>
</table>
wound infection, paralytic ileus and wound dehiscence as depicted in Table III.

**DISCUSSION**

Sigmoid volvulus is a common cause of large gut obstruction in our country. When early laparotomy is performed the gut is usually found viable in most (80%) of the patients. The male to female ratio in our study was 7:1 which is similar to that of other studies from Pakistan. In India some studies show a male to female ratio of 2:1, while series from African countries also reveal a much higher proportion of males. The mean age of our patients was 55 years which is comparable to other national and international studies. The presenting clinical symptoms were pain, distention and constipation, sometimes rectal bleeding was seen on rectal examination, especially in cases of gangrenous gut. Radiological examination showed distention of gut loops in more than 80% of cases.

Low blood pressure was found more in the gangrenous (Group G) patients than in the Group V. Some cases presented with circulatory shock and needed vigorous resuscitation by intravenous fluid and blood transfusion.

There were no deaths recorded in either group. Time to resume eating after resection, length of stay in hospital and time to return to routine activities were similar in both the groups.

During resection of the affected portion of volvulus, contamination is an important prognostic factor. Some surgeons still advocate early procedures like exteriorization of the gut but a more aggressive approach of resection and end to end anastomosis was adopted with out defunctioning colostomy in all cases with anastomotic leakage of 2:1, a figure comparable to gangrenous and viable gut. However with the conservative approach like sigmoidoscopic derotation a high recurrence rate of 40% was observed. Hence, surgery is the best treatment option.

The reason of primary repair was encouragement from some international studies, thus saving the patients from repeated hospitalization and economic and psychological trauma associated with colostomy surgery. Our results are comparable with those of international and national data of primary repair of the sigmoid volvulus both gangrenous and viable sigmoid. Colopexy alone is notorious for recurrence with viable gut, while colostomy has its own complications therefore resection and primary anastomosis is the treatment of choice.

**CONCLUSION**

We conclude that one stage restorative resection and primary repair has acceptable results in sigmoid volvulus both in the gangrenous and viable intestine.

**REFERENCES**


<table>
<thead>
<tr>
<th>Complication</th>
<th>Group G (n=32)</th>
<th>Group V (n=51)</th>
<th>Total (n=83)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paralytic ileus</td>
<td>17 (53%)</td>
<td>9 (18%)</td>
<td>26 (31%)</td>
</tr>
<tr>
<td>Anastomotic leakage leading to peritonitis</td>
<td>2 (6%)</td>
<td>-- (0%)</td>
<td>2 (2%)</td>
</tr>
<tr>
<td>Perianastomotic / pelvic abscess</td>
<td>2 (6%)</td>
<td>1 (2%)</td>
<td>3 (4%)</td>
</tr>
<tr>
<td>Wound infection</td>
<td>8 (25%)</td>
<td>5 (10%)</td>
<td>13 (16%)</td>
</tr>
<tr>
<td>Wound dehiscence</td>
<td>3 (9%)</td>
<td>-- (0%)</td>
<td>3 (4%)</td>
</tr>
<tr>
<td>Incisional hernia</td>
<td>2 (6%)</td>
<td>-- (0%)</td>
<td>2 (2%)</td>
</tr>
</tbody>
</table>

**Table III.** Post-operative Complications


