Original Article ISSN (O):2395-2822; ISSN (P):2395-2814

Comparison of Primary Resection Anastomosis with Hartmann's Procedure in the Management of Acute Sigmoid Volvulus

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Received: December 2018
Accepted: December 2018

ABSTRACT

Background: Sigmoid volvulus causes morbidity and mortality. It is an abdominal surgical emergency. The result is volvulus as the sigmoid colon twists along its mesentery. In 90 percent of cases, the majority of colon obstruction involves the sigmoid colon. That can be an acute, subacute or chronic disease. Operation is one type of acute sigmoid volvulus treatment. In the administration of surgery, multiple techniques are used. **Methods:** This study was done for 50 acute sigmoid volvulus patients admitted to the general surgery ward of Osmania General Hospital. Laparotomy was performed in 50 patients, primary resection and anastomosis were performed in 25 patients and the Hartmann procedure was performed in the other half-25 patients. All patients diagnosed as sigmoid volvulus with features of intestinal obstruction are taken with the exception of patients with gangrenous bowel and previous major abdominal surgery. Result of both procedures assessed in our hospital by evaluating death, infection, gaping, surgical time, colostomy complications, and hospitalization duration. **Results:** Primary anastomosis and resection is a single stage operation, and is ideally suited in all cases with a viable and uncomplicated bowel. It's simpler and faster with good result than other approaches. At introduction, the average age was 52.7 years and the Male to female ratio was 2:1. As a result, in the resection category with broad p / values of < 0.05 there was a major difference between the two categories as opposed to the Hartmann procedure group in terms of lower hospital stay, infection risk, Timespan for surgery. There is no difference between wound gaping, pelvic abscess, and rechirurgy. In uncomplicated acute volvulus the main resection and anastomosis have worked well. **Conclusion:** The duration of operation, wound infection is less in the main anostomosis group in contrast to that of the Hartmann method group, differs considerably in their lower hospital stays. Thus, in non-Gangrenous, non-perforated acute volvulus, the primary resection anastomosis is fine, healthy.

Keywords: Resection, anastomosis, Sigmoid volvulus, Hartmann's procedure, colonic volvulus.

INTRODUCTION

Volvulus is a twist or axial rotation around the mesentery of a section of the bowel.[1] Rotation may cause lumen obstruction if there is more than180o torsion and if the mesentery is greater than 360o torsion vascular occlusion can also occur.[2] Two thirds of the colonic volvulus cases are sigmoid volvulus, the most frequent spontaneous form in adults. Because of the broad mesentery with a narrow frame, the two ends of the moving section come together and curl around the narrow mesenteric centre. The term sigmoid volvulus means that it is an anti-clockwise torsion of the sigmoid colon along its mesenteric axis.[3] Untreated sigmoid volvulus leads to problems such as gangrene and intestinal perforation.[4]

So far, management is problematic for sigmoid volvulus. It relies on the patient's overall condition, intestinal resilience, perforation or peritonitis and the ability of the surgeon.

Nonresective procedures including transmission of flatus tube / sigmoidoscope in theatres, i.e., transrectal intubation as defined by Brudsgaard, are carried out in patients with viable colon.[5] There are increased incidence of recurrence. But resection is important if gangrene volvulus is present. The operation of Hartmann may be performed with high stoma complications, and a second operation is required to close colostomy.[6] This leads to the successful and more effective treatment of sigmoid volvulus, in addition to non-gangrenous primary resection and anastomosis. Mesosigmoidopexy and endoscopic sigmoidopexy are other treatment choices.

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MATERIALS AND METHODS

Duration of Study: June 2017 to October 2018

Type of Study:
Random prospective study

Sample Size:
50 patients of sigmoid volvulus

Place of Study:
Department of General Surgery, Osmania General Hospital, Hyderabad.

Inclusion Criteria:
Patients diagnosed with sigmoid volvulus with features of intestinal obstruction

Exclusion Criteria:
Patients with gangrenous bowel and Previous major abdominal surgeries were excluded from our study
The detailed clinical history was taken and clinical examination was done and relevant diagnosis was made and relevant investigations were done to undertake surgery and the surgery details were recorded.
Twenty-five patients underwent resection anastomosis in this series and twenty-five underwent Hartmann's procedure. Patients were followed for two weeks in the post-operative period, wound complications such as infection, gaping, abscess, hospital stays were all analysed and compared.

RESULTS

Table 1: Distribution based on different age groups

Age (in yrs)	No. of Patients	Percentage %	Group A (RA) n=25	Group B (HP) n=25
21 - 30	4	8	2(8)	2(8)
31 - 40	6	12	4(16)	2(8)
41 - 50	7	14	6(24)	1(4)
51 - 60	17	34	10(40)	7(28)
61 - 70	10	20	7(20)	2(8)
71 - 80	6	12	5(20)	1(4)

The average age of presentation was 51to 60 years. The mean age of presentation of sigmoid volvulus in our study was 52.7 years. Male to Female ratio was 2:1, males were more commonly affected than females.

Table 2: Distribution across both groups based on Wound infection, wound gaping, Pelvic abscess and Resurgery

Groups Wound Infection	Resection & Anastomosis	Hartmann's procedure	Total
Yes	4(16)	10 (40)	14
No	21 (84)	15 (60)	36
Wound Gaping			
Yes	2 (8)	3 (12)	5
No	23 (92)	22 (88)	45
Pelvic Abscess			
Yes	1 (4)	2 (8)	3
No	24 (96)	23 (92)	47
Resurgery			
Yes	2 (8)	2 (8)	4
No	23 (92)	23 (92)	46

Table 3: Anastomotic leak, Colostomy complications and second stage surgery

	Number	Percentage
Anastomotic leak		
Yes	3	12%
No	22	88%
Colostomy Complication		
Yes	5	20%
No	20	80%
Second stage surgery		
Yes	14	56%
No	11	44%

Table 4: Mortality among resection and anastomosis and Hartmann's procedure group

Groups	Resection - Anastomosis	Hartmann's procedure	Total
Yes	1 (4%)	1 (4%)	2(8%)
No	24 (96%)	24 (96%)	48(96%)
Total	25	25	50

There is hardly any difference among both the groups with regards to mortality

Table 5: Various parameters across both the groups

Parameters	Group A- (Resection - Anastomosis)	GROUP B- (Hartmann's)
Duration of surgery	103 minutes	107.7 minutes
Hospital stay	9 days	10 days
Wound infection	4(16%)	11(44%)
Wound gaping	2(8%)	3(12%)
Pelvic abscess	1(4%)	2(8%)
Colostomy complications	0(0%)	7(28%)
Anastomotic leak	3(12%)	0(0%)
Resurgery	2(8%)	2(8%)

All parameters were less in Resection – Anastomosis group compared to Hartmann's group except anastomotic leak which was more in this group and nil in the Hartmann's group.

DISCUSSION

The third prominent cause of colonic obstruction is acute sigmoid volvulus. Patients usually diagnosed with abdominal discomfort, abdominal distension, vomiting, constipation, obstipation, initially reduced urinary output. Maximum cases with X-ray abdomen have been observed with inner bent tube or omega sign results. The presentation age was 51-60 years in this study. In our study, the average presentation age is 52.7 years. The ratio from male to female was 2:1. Few reports were confirmed by the CT scan. The goal of colonic volvulus particularly. Sigmoid surgery is to relieve obstruction and avoid potential and further complications.In contrast with Hartmann's, patient hospital stay was lower for resection anastomosis at 9 days. The length of operation in our study is less than Hartmann's at 103 minutes, in resection and anastomosis.
Resection with or without anastomosis may be conducted in sigmoid colon. Primary resection and anastomosis have following advantages of a single stage operation, stoma care is not necessary and

colostomy problems are prevented, and patient's acceptability rate is high. The disadvantages are proximal colon with faeces, a risk of infection, poor surgical techniques, anastomotic leakage, infection, low anastomoses, insufficient patient nutrition and concomitant pulmonary or cardiovascular disease.

Complications of colostomy include retraction of colostomy, mucosal colostomy, necrosis of the colostomy, stenosis, parastomal hernia, and bleeding, psychological disturbed excoriation of the skin, enteritis and diarrhoea. Sigmoidopexies and the other sigmoidoplasms have a high rate of recurrence.

The Hartmann procedure is best done either with bowel or gangrene bowel loops. 25 cases (50 percent) were carried out in viable bowels with primary resection and anastomosis, and the Hartmann procedure (50 percent) was undertaken in rest 25 cases. Many studies approve primary anastomosis treatment if the symptoms are not risky.[7] Okello et al. conducted a study which showed that colostomy was the preferred treatment for severely complicated cases like gangrene, perforated bowels that would need reversal anastomosis in second stage.[8] Primary resection and anastomosis were performed during non-risky, clear sigmoid volvulus. Wound gaping, abscess of pelvic, resurgery were identical. If Hartmann's procedure does little to decrease mortality after decompression or gangrene or perforation, but a second stage of anastomosis is required for all patients at a future stage. Complication such as hospital stay and duration of surgery was found to be less in contrast to other studies. Wound infection in contrast to resection and anastomosis was similar to Hartmann's. In the event of a primary resection and anastomosis, anastomotic leak is a significant life-threatening risk and was seen in 12% of the patients. De et al analysis showed that the anastomotic leakage was 1.01 per cent.[9] Raveendhiran, In his study of primary resection anastomosis, anastomotic leakage was observed in 10% of the sample population.[10] There is no discrepancy in the results of the research performed by Okello et al and Akcan et al.[11,12]

CONCLUSION

The duration of operation, wound infection is less in the main anastomosis group in contrast to that of the Hartmann method group, differs considerably in their lower hospital stays. Thus, in non-Gangrenous, non-perforated acute volvulus, the primary resection anastomosis is fine, healthy. In Perforation, peritonitis and weak general or vital conditions, Hartmann may be preferred and performed in complicated volvulus, where gangrene is present. However, a second level of anastomosis should be undertaken in all patients later on.

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How to cite this article: Ravi V, Jahangir M. Comparison of Primary Resection Anastomosis with Hartmann's Procedure in the Management of Acute Sigmoid Volvulus. Ann. Int. Med. Den. Res. 2019; 5(1):SG34-SG36.

Source of Support: Nil, **Conflict of Interest:** None declared