ORIGINAL RESEARCH PAPER

General Surgery

A COMPARATIVE STUDY BETWEEN HARTMANN'S PROCEDURE VERSUS PRIMARY RESECTION AND ANASTOMOSIS IN CASES OF ACUTE SIGMOID VOLVULUS AT MADRAS MEDICAL COLLEGE, RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL, CHENNAI, TAMIL NADU

KEY WORDS: Hartmann's procedure, sigmoid volvulus, Resection anastomosis.

S. P. Gayathre	Institute of General Surgery, Madras Medical College, Rajiv Gandhi Government General Hospital, Chennai, Tamilnadu, India
M. Senthil Kumar*	Institute of General Surgery, Madras Medical College, Rajiv Gandhi Government General Hospital, Chennai, Tamilnadu, India. *Corresponding Author
R. Kannan	Institute of General Surgery, Madras Medical College, Rajiv Gandhi Government General Hospital, Chennai, Tamilnadu, India
S. Karthik	Institute of General Surgery, Madras Medical College, Rajiv Gandhi Government General Hospital, Chennai, Tamilnadu, India
Manasa Ananda	Institute of General Surgery, Madras Medical College, Rajiv Gandhi Government General Hospital, Chennai, Tamilnadu, India
R. Jayachander	Institute of General Surgery, Madras Medical College, Rajiv Gandhi Government General Hospital, Chennai, Tamilnadu, India

ABSTRACT

BACKGROUND: Sigmoid volvulus contributes to 8% of abdominal surgical emergency in India. It causes significant morbidity and mortality as it usually seen in patient with higher age mostly 5 or 6th decade. It can present as acute type or sub-acute type or chronic form. Treatment is always surgery. But which procedure is best is still debatable.

AIM: To compare Hartmann Procedure Versus Primary Resection and Anastomosis in acute sigmoid volvulus.

METHODS: This prospective study was conducted in 50 patients, admitted with acute sigmoid volvulus in Institute of General Surgery, Madras Medical College, Rajiv Gandhi Government General Hospital, Chennai, Tamilnadu. Patients were divided in to two equal groups. Group A underwent Hartmann's procedure. Group B patients underwent resection and primary anastomosis. All patients with sigmoid volvulus were taken after excluding patients with gangrenous bowel. Outcome measured in terms of mortality, wound infection, duration of surgery and hospital stay, colostomy complications and anastomotic leak.

RESULTS: There was significant difference in terms of lesser hospital stay, wound infection in Resection anastomosis group and no significant differences in duration of surgery and mortality.

CONCLUSION: Primary resection and anastomosis is a single stage operation suitable in all cases with uncomplicated acute sigmoid volvulus.

INTRODUCTION

Sigmoid volvulus is an abdominal surgical emergency. India is included in regions of the world the volvulus belt. It causes significant morbidity and mortality. A volvulus is when sigmoid colon twists about its mesentery usually anticlockwise1-3. The rotation can cause obstruction to the lumen if it is >180° torsion and also cause vascular occlusion in the mesentery if it is >360° torsion6. Majority of colonic obstruction involves sigmoid colon in 90% of cases. It is a type of closed loop obstruction. It can present as acute type or sub-acute type or chronic form. Aetiology is multifactorial Overloaded redundant pelvic colon, Narrow attachment of sigmoid mesocolon, long sigmoid loop with a narrow mesentery, high fibre diet and chronic constipation. Investigations: Plain X-ray:(diagnostic in 70-80%) sign - omega sign—single, grossly distended loop of colon arising out of the pelvis and extending towards the diaphragm. Coffee-bean sign or Bent-inner tube sign4. CT scan show characteristic mesenteric whorl. Treatment: Naso gastric tube aspiration, IV fluids, Catheterisation and Antibiotics and then surgery. Management of sigmoid volvulus is still controversial. Non-resective procedures like pexy has high recurrence rates. Tube decompression7 only helps to tide over emergency so that patient can be taken for elective surgery. Surgery is the treatment in acute sigmoid volvulus. If volvulus is gangrenous, resection is necessary. The Hartmann's procedure8 can be done in gangrenous bowel but has high stoma complications and second surgery for closure of colostomy is needed. Hence primary resection and anastomosis6 is a better and safe alternative for treatment of sigmoid volvulus especially in a viable bowel. So it depends on the general status of the patient, viability of the gut, presence of perforation or peritonitis and the surgeon's skill.

METHODS

From January 2019 to December 2019, 50 patients who presented with acute large bowel obstruction due to sigmoid volvulus at emergency department in the Institute of General surgery, Madras Medical College, Rajiv Gandhi Government General Hospital, Chennai, were considered eligible for the study. Those patients who had gangrenous bowel, previous abdominal surgery, serum albumin levels less than 3.5gm/dL, were excluded. After approval by local bioethics committees, informed consent was obtained preoperatively on hospital admission. Routine blood investigations Complete hemogram, renal and liver function tests, coagulation profile, ECG, Viral markers were done. Plain X-ray and CT scan were taken as a standard protocol. After resuscitation with naso gastric tube aspiration, IV fluids, catheterisation and antibiotics and then emergency laparotomy was done 4-6. Based on laparotomy finding of viable bowel patients were divided into two equal groups. Group A underwent Hartmann's procedure. Group B patients underwent resection and primary anastomosis9-10. Operations were all performed with the patients under general anaesthesia by experienced surgeons. All patients received a standard post-operative care. Outcome of the two procedures analysed in terms of duration of surgery, mortality, wound infection, colostomy complications, anastomotic leak and hospital stay. In this study, the results of the two groups were compared and analysed by using Chi-square test and paired T test.

RESULTS

Mean age at presentation was 55years. Our study involved 33

males and 17 female with M:F ratio of 2:1. Average duration of surgery between the groups wasn't significant with in Hartmann's Procedure group A was 108 minutes whereas Resection and Anastomosis group B was 105 minutes (CHART-1). Average duration of hospital stay were 9 days in Hartmann's Procedure Group A and 8 days in Resection and Anastomosis group B. Mortality (CHART 3) was comparable with 1 in Hartmann's procedure Group A and 2 in Resection and Anastomosis group B. Wound infection (CHART3) was higher in Hartmann's procedure Group A(8 patients) than in Resection and Anastomosis group B (4 patients).Colostomy complications were seen in 5 patients in Group Hartmann's procedure Group A. Anastomotic leak11 occurred in 1 patient in Resection and Anastomosis group B.

DISCUSSION

Sigmoid volvulus Patients present with most commonly pain abdomen, abdominal distension, vomiting, obstipation, suggesting intestinal obstruction. Plain radiograph of abdomen can diagnose almost 86% cases. CT scan can be taken to rule out malignant cause of obstruction. The aim of surgery in acute sigmoid volvulus is to relieve the obstruction and prevent future and further complications. Endoscopic decompression7 can be done in stable patients to relieve obstruction and a elective surgery can be planned. Hartmann's procedure1-5 may reduce the mortality in failure of decompression, gangrene, perforation. Problem with Hartmann's Procedure are colostomy complications and need for second surgery. Primary resection and anastomosis is a single stage procedure and has many advantages over Hartmann's procedure. Anastomotic leak12 is a important dangerous life threatening complication in case of primary resection and anastomosis, which can be avoided by proper case selection, adequate skills and a good post-operative care. We found that the complication like Hospital stay, Duration of surgery was low in primary resection and anastomosis compared to other studies. Wound infection is common with Hartmann's compared to resection and anastomosis. Mortality is similar in both groups.

CONCLUSION

Primary resection and anastomosis is a single stage surgery and is most suitable in all cases with uncomplicated viable bowel. It is superior to other procedures and safer with satisfactory results. Hartmann's Procedure can be reserved for gangrenous bowel and unstable patients.

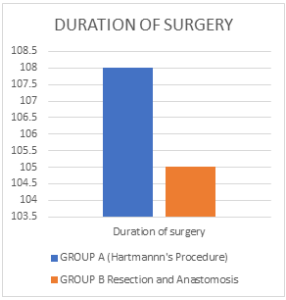

CHART 1

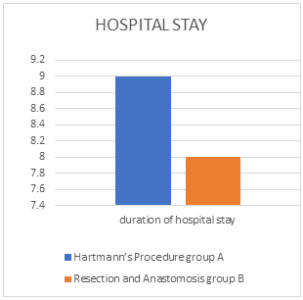

CHART 2

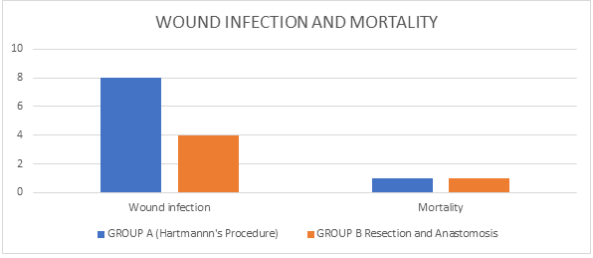

CHART 3

REFERENCES

1. Naaeder SB, Archampong ED. One-stage resection of acute sigmoid volvulus. Br J Surg. 1995;82:1635-6.
2. De U, Ghosh S. Single stage primary anastomosis without colonic lavage for left-sided colonic obstruction due to acute sigmoid volvulus: a prospective study of one hundred and ninety-seven cases. ANZ J Surg. 2003;73:390-2.
3. Oren D, Aydinli B, Yildirgan MI, Baasoglu M,and Polat KY et al.; The management of sigmoid volvulus and the safety of resection: with 827 cases.], 2007;50(4):489-497
4. Tiah, Ling; Sigmoid volvulus: diagnostic - twists and turns. Eur J Em Med., 2006;13(2):8487.
5. Yasaiel O, Fawcet MT, Rosaki J; Management of sigmoid volvulus: is early surgery justifiable ??., 2013;83(1-2):74-78.
6. Schakelford's Surgery of the Alimentary tract
7. Bruusgaard C. Volvulus of the sigmoid colon and its treatment. Surgery. 1947;22:46678.
8. Lal S, Morgenstern R, Vinjirayer E, Matin A. Sigmoid volvulus an update. Gastrointestinal endoscopy clinics of North America. 2006;16:175–187.
9. Grosman EM, Longoo WEand ,Johnson. 'Sigmoid volvulus in veterans medical centre'. Dis Colon Rectum. 2000:414-8.
10. Trenti L, Biondo S, Golda T, et al. Generalized peritonitis due to perforated diverticulitis: Hartmann's procedure or primary anastomosis? Int J Color Dis. 2011;26:377–84. https://doi.org/10.1007/s00384-010-1071-x.
11. Salem L, Flum DR. Primary anastomosis or Hartmann's procedure for patients with diverticular peritonitis? A systematic review. Dis Colon Rectum. 2004;47:1953–64.
12. Richards CH, Roxburgh CSD. Scottish Surgical Research Group (SSRG) Surgical outcome in patients undergoing reversal of Hartmann's procedures: a multi centre study. Col Dis. 2015;17:242–9. https: //doi. org/ 10. 1111/codi.12807.