COMPARISON OF PRIMARY ANASTOMOSIS VERSUS SIGMOID COLOSTOMY IN THE MANAGEMENT OF SIGMOID VOLVULUS

Shehla Faridoon, Ainul Hadi, Farrukh Ozair Shah, Rashid Aslam, M. Iftikhar, Muhammad Alam

ABSTRACT

Objective: To compare the postoperative results of primary anastomosis and sigmoid colostomy in the management of sigmoid volvulus.

Material and method: The study was conducted in the Department of Surgery, Hayatabad Medical Complex Peshawar from January 2013 to june 2016. A total of 25 patients who presented to emergency department with sign and symptoms of sigmoid volvulus were considered. Patients with viable gut had resection and primary anastomosis while colostomy was brought out in those who had unhealthy gangrenous or perforated gut.

Results: Twenty five patients presented with sigmoid volvulus; including 23 males and 2 females, with male to female ratio 11.5:1. Age range was 21-80 years. Thirteen (52%) patients had resection and primary anastomosis. Out of remaining 12 patients, 8(32%) had double barrel colostomy while 4(16%) had Hartman's procedure. Post operative complications were wound infection 6(24%), paralytic ileus (20%), anastomotic leak (4%) and colostomy related complications (4%). Mortality was 8%.

Conclusion : Resection and primary anastomosis is a safe procedure in uncomplicated cases while in complicated cases colostomy should be performed to reduce morbidity and mortality.

Key Words : Sigmoid volvulus, Resection and Primary anastomosis, Hartman's procedure.

INTRODUCTION

Acute sigmoid volvulus can be defined as twisting of the sigmoid colon around its own axis which if left untreated can lead to complications like ischemia gangrene and perforation.[1,2,3] The common cause of large bowel obstruction in adult is sigmoid volvulus and it is the most common form of volvulus of gastrointestinal tract.[4] Sigmoid volvulus is the cause of about 8% of all types of intestinal obstruction.[5] Sigmoid volvulus is not very common in western countries like Europe and America where it accounts for 2-5% of intestinal obstruction.[4,6] However it is frequently seen in developing countries like Africa, south Asia and Russia where it accounts for 20-50% of acute intestinal obstruction.[4,6,7]

The exact etiology of sigmoid voluvulus is unclear however several factors are considered to be responsible for it which include chronic constipation, high fiber diet and enemas containing herbal extract like ginger and pepper.[2,4,8] The predisposing factors leading to twisting of the mesentry of sigmoid colon are long redundant mesentry and narrow attachment of the mesentry.[2,4]

Department of Surgery HMC Peshawar

Address for correspondence:
Shehla Faridoon
Department of Surgery HMC Peshawar
Contact: 0333-9222595
Email: virgo_1spt86@yahoo.com

Sigmoid volvulus has four cardinal symptoms including abdominal pain, distention, constipation and vomiting later on.[2,5,8]

By the time patient becomes symptomatic, the colon has already distended to enormous proportion and plain abdominal X-ray of the abdomen shows typical "omega" sign or "coffee bean" sign, air fluid level and "bird beak" deformity at the site of torsion.[2,5,8] Upon examination, the Digital Rectal Examination shows an empty rectum.[9]

Several approaches for the management of sigmoid volvulus considered with varying results include non operative procedure like proctoscopy, rigid sigmoidoscopy and contrast enemas.[5] The operative procedures are resection and primary anastomosis, Hartman's procedure or a double colostomy, sigmoid colopexy and mesosigmoidoplasty.[5,7]

In emergency situation, surgical treatment is the appropriate treatment for those who present with perforation, peritonitis and gangrene.[10]The purpose of the study is to compare the results of primary anastomosis and sigmoid colostomy in the management of sigmoid volvulus.

MATERIAL AND METHOD

This was a prospective observational study of 25 patients at surgical unit of Hayatabad Medical Complex Peshawar Pakistan from January 2013 to June 2016.

A total of 25 patients including both males and

females, with mean age of 60 years were considered in this study. They presented to the emergency department with signs and symptoms of large bowel obstruction. Patients with diabetes, hypertention and carcinoma and iliosigmoid knotting were excluded from the study. Diagnosis of sigmoid volvulus was made by taking detailed history, clinical examination, abdominal X-ray and ultrasound abdomen. Investigations performed were full blood count (FBC), blood urea and random blood sugar, serum electrolytes, X-ray chest and ECG for the patients above the age of 45 years.

All the patients were resuscitated with intravenous (I/V) Ringer lactate before surgery. Nasogastric tube and Foleys catheter passed to monitor intake output record. Patients were started on broad spectrum antibiotics (inj. Ceftriaxon 1 gram (I/V) twice daily and metronidazol 500 mg (I/V) thrice daily.

An informed consent was taken from all the patients. Laprotomy was performed under general anaesthesia through midline incision in all cases. A distended loop of bowel was delivered of the wound and diagnosis confirmed. Gut viability was checked and sigmoid colon untwisted. Redundant colon was resected and primary anastomosis was performed in those patients who had viable gut. Double barrel colostomy was performed in patients who had loaded, inflamed or perforated gut. Hartmans procedure was performed in patients who had gangrenous gut and double barrel stoma was not possible as the distal stump was too short to be brought out without any tension. Peritoneal cavity was washed in all cases with 4-5 liters of normal saline (N/S) and abdomen was closed with a drain placed in the pelvis. Patients were shifted to surgical ward after surgery and their vitals were strictly monitored. Postoperatively patients were orally allowed after 24-72 hours when gut motility was regained. Patients were discharged within 5-7 days and instructed to visit surgical OPD after 10 days. Skin stitches were removed after 10-14 days and postoperative complications like wound infections were noted.

Patients undergoing primary anastomosis were followed up for 1 month, while those with double barrel stoma or Hartman's procedure were advised to revisit OPD after 6 week. Distal loopogram was performed and they were readmitted for the stoma reversal.

Outcome of the two procedures analyzed in terms of mortality, morbidity and hospitalization time.

RESULTS

In this study, 25 patients who were operated in emergency for sigmoid volvulus. There were 23(92%) males and 2(8%) were females. Male to female ratio was 11.5:1.There ages ranged from 21-80 years with mean age of 60 years. The most commonly affected age group was 40-59 years and the number of patients involved were 13(52%). Similarly the least affected group was 21-39 years and the number of patients affected were 4(16%).

Out of total 25 patients, 13(52%) underwent resection and primary anastomosis, 8(32%) underwent resection and double barrel colostomy while 4(16%) had gangrenous gut with or without perforation due to which stoma was not possible and Hartman's procedure was performed

Post operatively wound infection was noted in 24%, which was treated conservatively with local dressing and antibiotics. Paralytic ileus occurred in 20% cases and treated by correcting electrolyte imbalance. One patient had anastomotic leak which was re-explored and stoma was brought out. Stomal complications like retraction noted in one (4%) patient which was subjected to stomal refashioning. Total mortality was 8%.The mean hospital stay was 6 days in those who had resection and primary anastomosis while it was 4 days for those who underwent double barrel colostomy and Hartman's procedure.

Table 1: Age and sex distribution (n=25)

Age in years	Male=23	Female=2	Total=25
	Number of cases	Number of cases	Frequency
21-39	3(13%)	1(50%)	4(16%)
40-59	12(52.1%)	1(50%)	13(52%)
60-80	8(34.7%)	0(0%)	8(32%)

Table 2: Procedure performed (n=25)

Procedure	No of cases	Percentage
Resection & primary anastomosis	13	52%
Resection & double barrel colostomy	8	32%
Hartmans procedure	4	16%

Table 3: Complications (n=25)

Complications	EEA	Double barrel Colostomy	Hartman's Procedure
Wound infection	5 (20%)	0	1(4%)
Anastomotic leak	1(4%)	0	0
Colostomy related complications	0	1(4%)	0
Paralytic ileus	3 (12%)	0	2(8%)
Mortality	1(4%)	1(4%)	0
Hospital stay	6 days	4 days	4 days

DISCUSSION

Sigmoid volvulus is the commonest form of large bowel obstruction in many parts of the world.[4,6,7,11,12] It has age and sex predilection as it is more common in men and less common in women. It may be attributed to a wider pelvis and is mostly seen in elderly population with long term neurological and psychiatric illness because antipsychotic drugs and sedatives interfere with colonic motility resulting in chronic constipation.[2,4]

In our study 25 patients who were operated in emergency for sigmoid volvulus, the number of male patients was 23(92%) while female were 2(8%) with male to female ratio was 11.5:1 which is consistent with other studies conducted locally.[4,5,13] The age range of patients was from 21-80 years with mean age of 60 years and the most commonly affected age group was 40-59 which is consistent with other studies.[4,5,6,13,14,15]

The prospective randomized study available in the literature shows that sigmoid volvulus resection done either as one stage resection with primary anastomosis or stoma formation (double barrel/ Hartman's procedure) has the lowest recurrence rate and is a safe procedure.[4,7,13,16,17,18,19] This was also observed in our study where 52% of patients had resection and primary anastomosis, 32% had resection and double barrel colostomy while 16% patients who had gangrenous gut with or without perforation had Hartman's procedure. Okello et al also found similar findings in his series.[20]

We found the most common postoperative complication was superficial wound infection in 24% of patients which is consistent with Khan M et al and they were treated by stitch removal, wound wash and regular daily dressing.[11,20] Similarly other complications like paralytic ileus was noted in 20%, anastomotic leak and stoma retraction in 4% each while mortality was 8%. These results are comparable to another study carried out by Pattayak S et al.[2]

We found that there is no statistical difference in the outcome of the different groups. The mean hospital stay was 6 days in resection and primary anastomosis group and 4 days in stoma formation group.[2,20]

CONCLUSION

Resection and primary anastomosis can be safely done in uncomplicated sigmoid volvulus. However in complicated sigmoid volvulus like gangrene and perforation with or without peritonitis, double barrel colostomy or Hartman's procedure should be performed to reduce mortality and morbidity.

REFFERENCES

1. Lou Z, Yu En-Da, Zahag W, Meng Rong-Gui, Hao Li-Qiang, Fu Chuan-Gang. Appropriate treatment of acute sigmoid volvulus in the emergency setting. Published online 2013 Aug 14; 19(30): 4979-83.
2. Pattanayak S, Saha D, Bara KB, Nayak KS. Comparison of primary anastomosis with Hartman's procedure in management of acute sigmoid volvulus. Int Surg J. 2016 Nov; 3(4): 2079-82.
3. Katsikogniannis N, Machairiotis N, Zarogoulidis P, Sarika E, Stylianaki A, Zisoglou M, Zervas V, Bareka M, Christofis C, Iordanidis A. Management of sigmoid volvulus avoiding sigmoid resection. Case Rep Gastroentrol, 2012;6:293-09.
4. Munir A, Khan I. management of viable sigmoid volvulus by mesosigmoidoplasty. GJMS 2009 Jan-Jun;1(7):07-09.
5. Chang PH, Jeng CM, Chen DF, Lin LH. A case report and literature review of sigmoid volvulus in children. Medicin 2017 Dec; 92:52(e9434)
6. Assan A, Slivanov I. Sigmoid volvulus : management by resection and primary anastomosis.East Cent Afr J Surg 2001; 6: 1-2.
7. Samuel JC, Ainkuotu A, Msiska N, Cairns BA, Muyco AP, Charles AG. Re-examining treatment strategies for sigmoid volvulus: an analysis of treatment and outcomes in Lilongwe Malawi. Glob j Surg. 2010 Oct; 1(2): 149-53.
8. Coban S, Yilmaz M, Terzi A, Yildiz F, Ozgor D, Ara Cengiz, Yologlu S, Kirimlioglu V. Resection and primary anastomosis with or without modified blowhole colostomy for sigmoid volvulus. 2008 Sep 28;14(36): 5590-04.
9. Williams M, Steffes CP. Sigmoid volvulus in a 46 year

old man. Case report and literature review. J Hosp Phys 2006;1:33-06.

10. Suleman O, Kesaaf AA, Ayhan KM. Sigmoid volvulus : long term surgical outcomes and review of the literature. S Afr J Surg.2012;50:09-15.

11. Khan M, Ullah S, Jan MA, Naseer A, Ahmad S, Rehman AU, Primary anastomosis in the management of acute sigmoid volvulus without colonic lavage. JPMI 2007; 21: 305-08.

12. Ward s, Khan D, Edward T, Daniels I. Sigmoid volvulus: a new twist to an old problem. Intr J Surg 2010; 27: 2:1-8.

13. Zarin M, Ahmad I, Wahid D, Aslam V. Management of volvulus of sigmoid colon by resection and single layer primary anastomosis. Pak J Surg 2003; 8: 02-04.

14. Hadi A, Khan N, Shah SM, Bangash A. Emergency management of sigmoid volvulus: experience of Lady Reading Hospital Peshawar. J Postgrad Med Inst 2006; 20: 82-05.

15. Iqbal T, Zarin M, Iqbal A, Tahir F, Iqbal J, Wazir MA. Results ofprimary closure in the management of gangrenous and viable sigmoid volvulus.Pak J Surg 2007; 23: 118-21.

16. Larkin JO, Thekiso TB, Waldron R, Barry K, Eustace P W. Recurrent sigmoid voluvulus- early resection may obviate later emergency surgery and reduce morbidity and mortality. Ann R Coll Eng.2009 Apr; 91(3): 205-09.

17. Safioleas M, Chatziconstantinou C, Ghazanfar S. Six year experience of sigmoid volvulus. Pak J Surg 2008; 24:0 5-08.

18. Sule A, Misauno M, Opaluwa AS, Ojo E, Obekpas PO. One stage procedure in the management of acute sigmoid volvulus without colonic lavage. The Surgeon. 2007; 5: 268-70.

19. Akcan A, Akyildiz H, Artis T, Yalmaz N, Sozuer E. Feasbility of single stage resection and primary anastomosis in patients with acute non-complicated sigmoid volvulus. Am J Surg. 2007; 193: 421-06.

20. Okello TR, Ogwang DM, Kisa P, Komagum P. Sigmoid volvulus and ileosigmoid knotting at St. Marry's Hospital Lacor in gulu, Uganda. East Cent Afr J Surg.2009; 14:58-64.