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Jitin Bajaj
Senior resident
Department of Surgery, NSCB
Government Medical College,
Jabalpur, MP, India

Dileep Singh Thakur
Assistant Professor
Department of Surgery, NSCB
Government Medical College,
Jabalpur, MP, India

Deepti Bala Sharma
Associate Professor
Department of Surgery, NSCB
Government Medical College,
Jabalpur, MP, India

Dhananjaya Sharma
Professor and Head
Department of Surgery, NSCB
Government Medical College,
Jabalpur, MP, India

Correspondence:
Dileep Singh Thakur
Assistant Professor
Department of Surgery, NSCB
Government Medical College,
Jabalpur, MP, India

Is Primary Resection And Anastomosis, Without Proximal Stoma Safe In Gangrenous Sigmoid Volvulus?

Jitin Bajaj, Dileep Singh Thakur, Deepti Bala Sharma, Dhananjaya Sharma

Abstract

Introduction: Management of Sigmoid volvulus includes non-operative and operative measures. Our aim was to study the safety and efficacy of Emergency resection and primary anastomosis (ERPA) in viable and gangrenous sigmoid volvulus without a proximal colostomy.

Material & Methods: It was a prospective observational study at a single centre of seventy-four months duration. Included cases of both viable and gangrenous sigmoid volvulus were subjected to ERPA without proximal stoma. Hemodynamically unstable patients were excluded. Primary outcomes studied were leak, abdominal abscess, wound infection and mortality. Follow up period was one month.

Results: Total sixty-four cases comprising of fifty-one males and thirteen females came under the inclusion criteria. There were two cases of leak (3%), two cases of abdominal abscess (3%), thirteen cases of wound infection (20%), and no mortality.

Conclusion: ERPA is a safe and effective option for both viable and sigmoid volvulus in expert hands and in hemodynamically stable patients.

Keywords: Colon, Gangrene, Intestinal Volvulus, Sigmoid, Surgical Anastomosis, Volvulus

Introduction

Sigmoid volvulus (SV) is a common cause of large gut obstruction in many regions of the world, specially Asian and African countries [1]. Management of SV has been a constant topic of debate [2-4]. Non-operative reduction, solely, with rectal tube placement by rigid or flexible sigmoidoscopy is associated with a high recurrence rate (25-90%) [5-7]. A colostomy, after volvulus resection, entails its own morbidity to the patient. Then it also leads to a second surgery, colostomy closure, associated with its morbidity and mortality [8-10]. There have been studies on single stage resection and anastomosis of sigmoid volvulus [11, 12], but only a few have included gangrenous cases [13,14].

Our aim was to study whether ERPA, without a proximal stoma, is safe and effective in all cases of SV including the gangrenous ones. This can avoid complications of a stoma and second surgery.

Material & Methods

It was a prospective study done in authors' institute from August 2010 to October 2016. Inclusion criteria was adult patients (age more than 18 years) of sigmoid volvulus. Exclusion criteria was patients having hemodynamic instability and American Society of Anaesthesiologists grading (ASA) > III.

Permission was taken from the institutional ethical committee, and procedures were performed by experienced surgeons (DBS, DST) after taking informed and written consent from the patients and their relatives. Patients who opted to take part in the study were subjected to resuscitation with emergency laparotomy, derogation & decompression of the gut, with resection and primary colorectal anastomosis (detailed procedure follows). Patients who opted out were excluded from the study and subjected to resection of volvulus with

proximal colostomy. Primary outcomes studied were leak, intra-abdominal abscess, wound infection, and mortality. Operative procedure: Under general anaesthesia, laparotomy was done and volvulus part was derogated and resected. Mobilisation of colon & rectum gave healthy (pink colour, lustre, oozing margins) and tension free margins, helping to perform end-to-end colorectal anastomosis in two layers, without performing on-table bowel lavage. Inner layer of the anastomosis was done with vicryl (polyglactin 910) 3-0 RB, and the outer one with silk 2-0 RB. Bilateral abdominal drains were put and abdomen was closed in two layers.

Patients were monitored closely. NG tube was taken out on third day. Oral fluids were started on fifth postoperative day and semi-solids were started on the next day. Drains were taken out on sixth day. Ultrasound examination was done on eighth day to assess for any intra-abdominal abscess, or free fluid. Patients were discharged as soon as they resumed their full diet, and followed up for one month. Patients were divided into Group A- the viable group, and Group B- the gangrenous group. Data was collected in the Microsoft excel sheet and analysis was performed with SPSS 19.0 software.

Observation and results

Total sixty-four cases, fifty-one males and thirteen females (Male to female ratio = 3.92), came under the inclusion criteria. Mean age was forty-five years and ranged from fifteen to fifty-six years.

Fifty patients had viable colon and rest of them had gangrenous colon. Table 1 shows the case distribution.

Primary outcome of the surgeries were leak, abdominal abscess, and wound infection. Table 2 shows the analysis of outcome.

Table 1: Distribution of cases according to sex and diagnosis

	Viable colon	Gangrenous colon	Total
Males	42	9	51
Females	8	5	13
Total	50	14	64

Table 2: Primary outcome after surgeries

	Group A= Viable Group B= Gangrenous		P Value
	A=50	B=14	
	N	N	
Leak	1 (2%)	1 (7%)	0.39
Abdominal Abscess	1(2%)	1(7%)	0.39
Wound infection	7(14%)	6(42%)	0.02
Mortality	0	0	1.0

Leak: We found a single case of leak in each group. Immediate re-exploration, abdominal toileting, repair of the dehiscence and ileostomy managed them. Total parenteral was replaced with enteral nutrition after 5 days.

Abdominal abscess: A single case of abdominal abscess was found in each group. USG guided needle aspiration and antibiotics managed them. Patients continued with oral diet, and discharged on 15th postoperative day.

Wound infection: Thirteen cases with a statistically increased rate ($P=0.02$) in the group B (42%) as compared to the group A (14%) was found. All got resolved with antibiotics, cleaning and dressing. Of the total cases, superficial wound infections were 69.2% ($n=9$), and deep

were 30.7% ($n=4$).

Mortality: No mortality was found in our study.

Discussion

SV is a common cause of large bowel obstruction [1,15]. Management options range from non-operative reduction by rectal tube placement, Hartman's procedure and proximal stoma, to primary resection and anastomosis of the volvulus. All these procedures have their pros & cons – non-operative reduction having high incidence of recurrences, Hartman's procedure with its associated morbidity and need of a second surgery to maintain the intestinal continuity [8], and primary resection and anastomosis with its chances of increased leak, abscess and wound infection.

Elective resection of sigmoid colon and anastomosis (ELRSA) after endoscopic decompression is the most logical procedure with mean mortality of 8%, low recurrence of 1.2% and morbidity of 13 – 26% [1]. However, since endoscopes and its experts may not be available in emergency settings in all hospitals, its reservations for use only in-uncomplicated cases, and reluctance of patients to undergo elective surgery after relief of acute symptoms, it is often not a practical option.

Growing evidence of results is now available for ERPA in SV. Many authors showed that sigmoid resection and primary anastomosis can be carried out safely when gut is viable [11, 12, 16, and 17]. Only a few studies have been done on gangrenous colon [13, 14] showing promising results with resection of SV and primary anastomosis alone. It can be carried out safely without on-table colonic lavage or colonic diversion [1, 12, and 13]. Some authors who reported good results with on-table lavage subsequently published equally good results without it [14, 17].

Wide variations in documentation of morbidity, mortality and lack of randomized controlled trials (RCTs) are the sources of continuing controversy of ERPA in SV. Hence, it is difficult to arrive at a consensus. This led us to evaluate the role of ERPA in our institutional setup. All cases had primary resection and anastomosis without any on-table colonic lavage or diversion procedure.

Resection of the volvulus part was done to prevent its recurrence [18]. Patients were divided into two groups, based on the gut viability, to compare primary outcomes between them.

The leak rate was low (total 3%: 2% in viable group and 7% in gangrenous group) and comparable to other series [13, 16, 19]. Mobilisation of splenic flexure and upper half of rectum provided tension free healthy margins that helped in reducing the leak rates.

Intra-abdominal abscess was also low (total 3%: 2% in viable group and 7% in gangrenous group). Similar results were documented in other series [13, 16, and 19].

Wound infection was common in our series (20%), and was significantly more common in the gangrenous group ($P=0.02$). One can explain it by increased chance of bacterial translocation and bacteraemia. Other series also showed higher wound infection rate [13, 14, and 16].

Nonrandomized series now provide overwhelming level-4 evidence for the safety of ERPA in SV [1, 11]. We compared ERPA in viable as well as in gangrenous SV which showed difference in only high wound infection rate. This morbidity can be managed easily as compared to colostomy management. Good antibiotics, better

monitoring equipment, and peri-operative management now gives us a chance to do major undertaking in the emergencies also. We excluded extremely morbid patients with ASA grade > III and hemodynamically instability considering the probability of decreased perfusion at the anastomotic site.

The study was done at a single centre with a strict protocol. Experienced consultants performed all the surgeries to enhance the safety. It was a prospective study of seventy-four months duration, which helped in accurate data acquisition and analysis.

However, there were limitations with our study. Mobilisation of the splenic flexure and rectum needs expert hands, which may not be available in emergencies. Since, junior faculty and residents generally handles the surgical emergencies in the middle-of-night, the technical nuances become difficult to accomplish.

Conclusion

Emergency resection and primary anastomosis is safe in sigmoid volvulus in both viable and gangrenous ones, in hemodynamically stable patients and in expert hands provided anastomosis is done taking healthy and tension free margins. It has acceptable morbidity with avoidance of un-necessary colostomy.

Conflict of interest

There was no conflict of interest in our study.

References

1. Raveenthiran V, Madiba T, Atamanalp S, De U (2010) Volvulus of the sigmoid colon. *Colorectal Disease* 12 (7Online):e1-e17
2. Seow-En I, Seow-Choen F (2014) sigmoid volvulus treated by mini-incision. *Tech Coloproctol* 18 (12):1169-1171. doi:10.1007/s10151-014-1230-0
3. Christodoulidis G, Symeonidis D, Koukoulis G, Balogiannis I, Spyridakis M, Tepetes K (2011) Side-to-side anastomosis fashioned as stoma after sigmoid resection for sigmoid volvulus: a case report. *Tech Coloproctol* 15 Suppl 1:S33-36. doi:10.1007/s10151-011-0749-6
4. Alhindawi R, Kelly N, Holubar S (2008) Incisionless Hartmann's procedure: an innovative minimal access technique for surgical treatment of sigmoid volvulus in debilitated patients with faecal incontinence. *Tech Coloproctol* 12 (4):337-339. doi:10.1007/s10151-008-0445-3
5. Atamanalp, S. S. (2013). Sigmoid volvulus: diagnosis in 938 patients over 45.5 years. *Tech Coloproctol*, 17(4), 419-424. doi: 10.1007/s10151-012-0953-z
6. Kuzu MA, Aslar AK, Soran A, Polat A, Topcu O, Hengirmen S (2002) Emergent resection for acute sigmoid volvulus: results of 106 consecutive cases. *Dis Colon Rectum* 45 (8):1085-1090
7. Chung YF, Eu KW, Nyam DC, Leong AF, Ho YH, Seow-Choen F (1999) Minimizing recurrence after sigmoid volvulus. *Br J Surg* 86 (2):231-233. doi:10.1046/j.1365-2168.1999.01034.x
8. Kassi AB, Lebeau R, Yenon KS, Kathe E, Diane B, Kouassi JC (2011) Morbidity and mortality of Hartmann's procedure for sigmoid volvulus at the University Hospital of Cocody, Abidjan. *West Afr J Med* 30 (3):169-172
9. Yajko RD, Norton LW, Bloemendal L, Eiseman B (1976) Morbidity of colostomy closure. *Am J Surg* 132 (3):304-306
10. Pokorny H, Herkner H, Jakesz R, Herbst F (2005) Mortality and complications after stoma closure. *Arch Surg* 140 (10):956-960, discussion 960. doi:10.1001/archsurg.140.10.956
11. Akcan A, Akyildiz H, Artis T, Yilmaz N, Sozuer E (2007) Feasibility of single-stage resection and primary anastomosis in patients with acute noncomplicated sigmoid volvulus. *Am J Surg* 193 (4):421-426. doi:10.1016/j.amjsurg.2006.08.077
12. Nuhu A, Jah A (2010) acute sigmoid volvulus in a West African population. *West Afr J Med* 29 (2):109-112
13. Sule AZ, Misauno M, Opaluwa AS, Ojo E, Obekpa PO (2007) One stage procedure in the management of acute sigmoid volvulus without colonic lavage. *Surgeon* 5 (5):268-270
14. Raveenthiran V (2004) Restorative resection of unprepared left-colon in gangrenous vs. viable sigmoid volvulus. *Int J Colorectal Dis* 19 (3):258-263. doi:10.1007/s00384-003-0536-6
15. Gingold D, Murrell Z (2012) Management of colonic volvulus. *Clin Colon Rectal Surg* 25 (4):236-244. doi:10.1055/s-0032-1329535
16. Naseer A, Ahmad S, Naeem M, Safirullah (2010) One stage emergency resection and primary anastomosis for sigmoid volvulus. *J Coll Physicians Surg Pak* 20 (5):307-309. doi:05.2010/jcpsp.307309
17. De U, Ghosh S (2003) 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* 73 (6):390-392
18. Larkin JO, Thekiso TB, Waldron R, Barry K, Eustace PW (2009) Recurrent sigmoid volvulus - early resection may obviate later emergency surgery and reduce morbidity and mortality. *Ann R Coll Surg Engl* 91 (3):205-209. doi:10.1308/003588409x391776
19. Iqbal T, Zarin M, Iqbal A, Tahir F, Iqbal J, Wazir MA (2007) Results of primary closure in the management of gangrenous and viable sigmoid volvulus. *Pak J Surg* 23 (2):118-121