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AN EXPERIENCE OF SIGMOID COLON VOLVULUS AT EMMERGENCY WARD LRH

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ABSTRACT

BACKGROUND: Sigmoid volvulus is a serious condition due to rotation of sigmoid colon. Volvulus often presents with abdominal colic and distention. It can be managed conservatively by colonoscopic decompression, followed by optimization of patient and finally surgical procedure. The present study was based on the comparison of resection of sigmoid colon and double barrel colostomy or resection and primary anastomosis

OBJECTIVE: Objective of the study was to compare the results of primary anastomosis and colostomy in patients presenting with sigmoid volvulus.

METHODOLOGY: In this study a total of 48 patients with sigmoid volvulus coming to Accident & Emergency Department were included. All the patients were examined and investigated. After diagnosis based on x-ray erect abdomen all the patients were admitted in Accident and Emergency ward. After admission Full Blood count, urea, sugar, S. Electrolysis and ECG were also performed. Patients were catheterized and a nasogastric tube passed for gastric decompression. All the patients were given intravenous fluids antibiotics and prepared for surgery as facilities for colonoscopic sigmoidscopic decompression were not available and decompressions by rectal tube was unsuccessful

RESULTS: Among the cases with sigmoid volvulus there were 36 males and 12 were females. Majority 28 cases were in age range of 61-70 years. Eight patients had gangrene of sigmoid colon, 23 patients had resection and colostomy while 20 had resection and primary anastomosis. Among the postoperative complications, 05 patients had wound infection and 01 wound dehiscence. Two patients died because of sepsis and cardiopulmonary complications.

CONCLUSION: Patients presenting as acute abdomen should have urgent laparotomy as soon as possible. Decompression by colonoscope is the gold standard procedure for stable patients with sigmoid volvulus. Sigmoidectomy and primary anastomosis is the procedure of choice as it not only avoids second admission and operation, but it also avoids the side effects and care of stoma, which is major cause of morbidity and mortality.

KEYWORD:

INTRODUCTION

The commonest cause of large intestine obstruction[1] is sigmoid volvulus. Sigmoid volvulus is the twisting or axial rotation of sigmoid colon about its mesentry . Sigmoid loop can rotate partially or completely. Complete rotation can leads to a close loop of obstruction with resultant ischemia, secondary to vascular occlusion.[1,2]

Sigmoid volvulus is a life threatening condition. The resulting rotation of sigmoid colon is due to a long sigmoid mesentery. The rotation is around mesenteric axis.[3] Sigmoid volvulus is common throughout much of Africa, India, Iran and Russia.[4]

The third most common cause of large bowel obstruction in western world is Sigmoid volvulus.[5] The sigmoid colon rotates almost always occurs in anti-clockwise direction.[1] Volvulus with rotation greater than 180 degree produces obstruction of the intestinal lumen and mesenteric vessels.[6,7] Complete obstruction of lumen and vessels leads to ischemia and gangrene of bowel. The factors leading to

volvulus are increased length of colon, distention of colon, a narrow base and long length of mesentery and chronic constipation. Chronic constipation and increased bowel gases leads to colonic distention and tendency to twist.

Clinical presentation of sigmoid volvulus includes colicky abdominal pain with distension. This pain and distention may be relieved by passage of flatus and loose stool. In acute stage, abdominal pain, constipation and distension is the commonest presentation.[8,9] In gangrene sigmoid volvulus, blood in the rectum is found on digital rectal examination. Clinical and radiological findings are diagnostic. On radiological finding there will be bird beak deformity at the sight of torsion.[10]

The sigmoid volvulus can be managed conservatively by enema, endoscopic deflation and minimal invasive procedure ,mini-lap colopexy.[10,11] The aim is to reverse the abnormal rotation . Fluids and electrolytes must be corrected and antibiotics should be given as soon as possible. Colostomy for sigmoid volvulus was the operation of choice in the past. Colostomy is associated with complications of stoma associated with high cost of care. Colostomy is associated with repeated hospitalization.[11] To reduce the cost of stoma care and avoid its complications a single step surgery can be performed in the form of resection and primary repair of both the gangrenous and viable sigmoid colon.[12,13,14] Resection and anastomosis is better than two-stage surgery in term of morbidity and economy. Psychological and social complication of colostomy are avoided by opting for single stage procedure.[13,14]

Objective of the study was to enlist the various types of surgical management and to compare postoperative complication of resection and primary anastomosis with resection and colostomy in patients presenting with sigmoid volvulus.

MATERIAL AND METHODS

This study was conducted in surgical A unit of Govt; Lady Reading Hospital, Peshawar from September 2008 to July 2009 after getting approval from ethical committee for this study. The study was started at Emergency ward LRH, Peshawar. All the patients with sigmoid volvulus coming to Accident & Emergency Department were included in the study. All the patients with abdominal distention and absolute constipation were examined clinically and DRE performed .The diagnosis was confirmed on X ray erect abdomen. The patients were admitted after diagnosis and investigations. Informed consent was obtained from all the patients. They were briefed about the surgical procedure and risks and benefits of the operation. Full Blood count, urea, sugar, S. Electrolysis, x-ray and ECG were also performed. Patients were prepared for surgery by gastric decompression and catheterization. Intravenous fluids and antibiotics were given to all patients followed by rectal decompression. Facilities for colonoscopic sigmoidscopic decompression were not available. Decompressions by rectal tube was performed in every case but found unsuccessful in all cases . All the studied variables like demographic features, post-operative complications, like leakage, intraabdominal abscess, ileus, fistula and wound infection were analyzed for descriptive analysis. Mean $\pm$ standard deviation was calculated for age, and for sex male to female ratio was calculated. The results were expressed and presented through frequency tables, graphs and charts.

RESULTS

The number of patients visiting emergency ward LRH during the study period was 48. Cases with sigmoid volvulus were admitted during the study period, among these 36 were males while 12 were females with male to female ratio of 3: 1. Majority of patients 37% were in age range of 61-70 years, followed by 35% in the age range of 51-60 years, 25% were in the age range of 71-80 years and 02% were in the age range of 41-50 years with mean age of 63.78+7.32 years.

Minimum age was 50 years and maximum was 80 years .

Resection and colostomy was performed in 23 patients while five patients had gangrene of sigmoid colon so Hartmann's procedure was performed in those patients . 4% of patients were already suffering from respiratory tract infection and compromised renal profile resulting in there death. Patients already receiving drugs for mid to moderate hypertension were 10%. Resection and primary anastomosis was performed in 20 patients. In those 20 patients with primary anstomosis a rectal tube was passed across the anastomosis during surgery. The anastomosis was done in two layers inverting technique. Peritoneal lavage was performed in every patient. Among the postoperative complications, 05 patients had wound infection and 01 wound dehiscence. Sepsis and cardiopulmonary complication lead to death of two patients

TABLE NO 01: VARIOUS CHARACTERISTICS OF PATIENTS (n=48)

DEMOGRAPHIC DATA		NO. OF CASES	PERCENTAGE
Age	41 - 50 years	01	02.%
	51 - 60 years	17	35%
	61 - 70 years	18	37.5%
	71 - 80 years	12	25.4%

TABLE NO 02: SURGICAL PROCEDURES PERFORMED IN SIGMOID COLON VOLVULUS PATIENTS

SURGICAL PROCEDURES	NO OF PATIENTS	PERCENTAGE
RESECTION AND PRIMARY ANASTOMOSIS	20	41.6%
RESECTION AND COLOSTOMY	23	47.99%
HARTMANN'S PROCEDURE	5	10.41%

TABLE NO 03: POSTOPERATIVE COMPLICATIONS AND THEIR PERCENTAGE

POSTOPERATIVE CO MPLICATIONS	NO OF CASES	PERCENTAGE
WOUND INFECTION	5	13.5%
WOUND DEHISENCES	1	2.6%
ANASTOMOTIC LEAK	0	0%
SEPTICEMIA	1	2.6%
CHEST INFECTION	2	5.2%

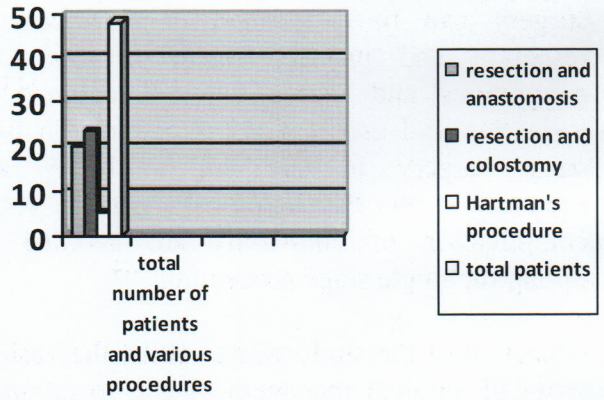
TABLE NO 04: GENDER WISE DISTRIBUTION OF SIGMIOD VOLVULUS

TOTAL	MALE	FEMALE
48	36	12
100 %	73 %	27 %

TABLE NO 05: MORTALITY AND SURVIVAL RATE DURING SURGICAL INTERVENTION FOR SIGMOID COLON VOLVULUS

NO OF PATIENTS	SURVIVED	EXPIRED
48	46 (95%)	2 (5%)

TABLE NO 06



DISCUSSION

Sigmoid volvulus is the most common cause of large gut obstruction, being more common in India and Africa[15]. Sigmoid volvulus constitute almost half of cases of intestinal obstruction

(small and large gut).[15] The condition was also recognized by ancient Greeks. They used a long suppository and anal installation to untwist the bowel.[16] The presentation of patient is with abdominal distention absolute constipation, nausea, vomiting (late sign) and dehydration. The abdomen is tense with hyper resonant note and sometime tender. DRE findings are empty rectum. Blood staining of finger on DRE is sign of gangrenous sigmoid colon.

X-ray erect abdomen is diagnostic however, flexible endoscopy is more accurate.[7] Several radiologic diagnostic signs are described such as omega or horseshoe sign, bird's beak sign, liver overlap signs and empty left iliac fossa sign.[17]
First ano-endoscopic derotation followed by an elective surgical operation would be a preferred choice of procedure.[18] Endoscopic reverse rotation or rectal tube untwisting converts an emergency procedure into a more desirable elective one. Sigmoidoscopy can be performed as initial procedure in those patients who are relatively stable having no peritoneal signs of inflammation.

Sigmoidoscopic decompression is successful in 70% to 90% of cases. Flexible sigmoidoscopy is safe technique. Sigmoidoscopy not only untwist the bowel but also allows direct visualization of mucosa, so that ischemia could be excluded[19] and we can safely proceed with conservative management. Sigmoidoscopy allows us to place rectal tube to maintain decompression and to prevent immediate rotation again. Apart from sigmoidoscopy and rectal tube insertion barium enema has also been described as a way of achieving decompression of sigmoid colon.[7]

Non operative reduction of volvulus as a sole method of management carries high risk of recurrence. Endoscopy is not definitive management as they were associated with 87% recurrence.[7] Nonoperative reduction of sigmoid volvulus along with management of dehydration and sepsis should be followed by surgery. When surgery was done as semi elective procedure the mortality was zero.[16]

To have a permanent cure some sort of resection of sigmoid colon with or without anastomosis must be performed.[20] Procedures having no resection are not successful and not recommended for gangrene and compound volvulus. Procedures involving correction of rotation only and laparotomy with untwisting and fixation of colon is associated with significant mortality[21]. Less extensive and conservative surgery is not recommended.

Laparoscopic sigmoidectomy after colonoscopy decompression on nine patients is a good authentic procedure.[22] The long colonic mesentery can be easily manipulated and resected by laparoscopy and the shortened base facilitates a stapled primary anatomosis.[23] The other advantage of laparoscopy is reduced blood loss, less post operative pain and less duration of post operative ileus.[24]

Studies done on feasibility of one stage procedure using on table lavage are encouraging[25]. The advantage of this procedure is to have a single operation having no colostomy and lesser hospital stay and avoiding a second operation on weak frail patients. At the same time avoiding morbidity and mortality associated with colostomy. Resection and primary anastomosis is associated with risk of longer operative time and large quantity of irrigating fluid. Although an emergency resection and primary anastomosis is controversial subject, however there is growing acceptance of one stage procedure. Literature review of results of studies of primary anastomosis on unprepared bowel for malignant and non malignant colonic obstruction are promising.[16]

Lowest recurrence rates are associated with Hartmann's procedure and resection with primary anastomosis.[26] Other technique used in management of sigmoid volvulus are sigmoidectomy and recently percutaneous

endoscopic colostomy.[27] Endoscopic decompression is the gold standard procedure for a clinically stable patient [28] . Urgent laparotomy should be performed endoscopy if endoscopy fails or signs of peritonitis occur. Meso-sigmoidoplasty is associated with high rates of recurrence (10-70%) and mortality.
In our study there were 75.01% males and 22.9% were female patients. In a study of sigmoid volvulus, there were 96.3% males and 3.7% female. [15] Variations in the incidence of male and female could be due to sample size selection in different studies.

In another study sigmoid volvulus was found in the young age group of 21-30 with an average of 25.7 years. This is not common in other studies which show an average of 52 years in high endemic areas 7 and 67 years in the United States by Wuepper et al.[16] In our study mean age was found to be 63.78 years which is consistent with the studies mentioned above.

The procedure of choice for Sigmoid volvulus is resection and primary anastomosis having a mortality of 8% and a morbidity of 13-26%.[28] In our series resection and primary anastomosis was performed in 20 patients with excellent results . All the patients with primary anastomosis had rectal tube placed during surgery allowing rectal decompression and healing of anastomosis. Patients were selected for primary anastomosis on basis of variability and vascularity of colon. Patients with doubtful colon had double barrel colostomy rather than primary anastomosis. Our overall mortality was 4.16 and morbidity 16.75% which are comparable to studies by other authors.[28] Anastomotic leak was not observed in our series after resection and primary anastomosis. Sigmoid volvulus is an important cause of intestinal obstruction in pregnancy and constitutes 25% to 44% of patients presenting with intestinal obstruction in pregnancy.[29] Resection with primary anastomosis is the method of choice in definitive management of sigmoid volvulus.[30]

CONCLUSIONS

- Patients presenting as acute abdomen should have urgent laparotomy as soon as possible
- Sigmoidectomy and colostomy is the procedure taught traditionally
- Sigmoidectomy and primary anastomosis is the procedure of choice. Traditional teaching is to perform colonic anastomosis after colonic lavage but contrary to this teaching colonic anastomosis was performed with excellent results supported by data from other authors[16].
- Sigmoidectomy and colostomy should be reserved for patients with doubtfully viable colon and those patients in whom we want to have relatively less time consuming procedure.

REFERENCES

1. Winslet MC. Intestinal obstruction. In: William NS, Blustrode CJK, O'Connell PR, editors. Bailey and Love's short practice of surgery. 25th ed. London: Hodder Arnold, 2008:1188-1203.
2. Mahmoud N, Rombeau J, Ross HM, Fry RD. Colonic volvulus. In: Townsend CM, Beauchamp RD, Evers BM, Mattox KL, eds. Sabiston's textbook of surgery: the biological basis of modern surgical practice. 18th ed. Philadelphia: WB Saunders, 2008: 1602-80.
3. Akinkuotu A, Samuel JC, Msiska N, Mvula C, Charles AG. The role of the anatomy of the sigmoid colon in developing sigmoid volvulus: a case-control study. Clin Anat. 2011;24:634-7.
4. Samuel JC, Msiska N, Muyco AP, Cairns BA, Charles AG. An observational study addressing the anatomic basis of mesosigmoidopexy as a rational treatment of non-gangrenous sigmoid volvulus. Trop Doct. 2012;42:44-5.
5. Coban S, Yilmaz M, Terzi A, Yildiz F, Ozgor D, Ara C, et al. Resection and primary anastomosis with or without modified blow-hole colostomy for sigmoid volvulus. World J Gastroenterol. 2008;14:5590-4.
6. Ward S, Khan D, Edwards T, Daniels I. Sigmoid volvulus: A wew twist to an old problem. Internet J Surg. 2011;27:2. [Online] 2011 [Cited on 2013 April 52]. Available at:http://archive.ispub.com/journal/the-internet-journal-of-surgery/volume-27-number-2/sigmoid-volvulus-a-new-twist-to-an-old-problem.html
7. Weingrow D, McCague A, Shah R, Lalezarzadeh F. Delayed presentation of sigmoid volvulus in a

young woman. West J Emerg Med. 2012;13:100-2.
8. Lau KC, Miller BJ, Schache DJ, Cohen JR. A study of large bowel volvulus in urban Australia. Can J Surg. 2006;49:203-7.
9. Tiah, L, Goh, SH. Sigmoid volvulus: diagnostic twists and turns. Eur J Emerg Med. 2006;13:84-7.
10. Khan AN, Macdonald S, Weinberg EP, Coombs BD, Krasny RM, Lin EC. Sigmoid volvulus. [Online] 2008 [Cited on 2013 April 12]. Available from: URL//:http://www.emedicine.com/sigmoid_volvulus.htm.
11. Turan M, Sen M, Karadayi K, Koyuncu A, Topeu O, Yildiris C, et al. Our sigmoid colon volvulus experience and benefits of colonoscope in detortion process. Rev Esp Enferm Dig. 2004;96:32-5.
12. Raveenthiran, V. Restorative resection of unprepared left-colon in gangrenous vs. Viable sigmoid volvulus. Int J Colorectal Dis. 2004;19:258-63.
13. Sule AZ, Misauno M, Opaluwa AS, Ojo E, Obekpa PO. One stage procedure in the management of acute sigmoid volvulus without colonic lavage. Surgeon. 2007;5:268-70.
14. Zarin M, Ahmad I, Wahid D. Management of volvulus of sigmoid colon by resection and single layer primary anastomosis. J Surg Pak. 2003;8:2-4.
15. Welch GH, Anderson JR. Acute volvulus of the sigmoid colon. World J Surg. 1987;11:258-62.
16. Larkin JO, Thekiso TB, Waldron R, Barry K, Eustace PW. Recurrent sigmoid volvulus - early resection may obviate later emergency surgery and reduce morbidity and mortality. Ann R Coll Surg Engl. 2009;91:205-9.
17. Hirao K, Kikawada M, Hanyu H, Iwamoto T. Sigmoid volvulus showing "a whirl sign" on CT. Intern Med. 2006;45:331-2.
18. Cirocchi R, Farinella E, La Mura F, Morelli U, Trastulli S, Milani D, et al. The sigmoid volvulus: surgical timing and mortality for different clinical types. World J Emerg Surg. 2010;5:1.
19. Das R, Hagger RW. Endoscopic fixation of rectal decompression tube for sigmoid volvulus. Ann R Coll Surg Engl. 2008;90:425-6.
20. Kuzu MA, Aşlar AK, Soran A, Polat A, Topcu O, Hengirmen S. Emergent resection for acute sigmoid volvulus: results of 106 consecutive cases. Dis Colon Rectum. 2002;45:1085-90.
21. Lal SK, Morgenstern R, Vinjirayer EP, Matin A. Sigmoid volvulus an update. Gastrointest Endosc Clin N Am. 2006;16:175-87.
22. Cartwright-Terry T, Phillips S, Greenslade GL, Dixon AR. Laparoscopy in the management of closed loop sigmoid volvulus. Colorectal Dis. 2008;10:370-2.
23. Sadot E, Greenstein AJ, Zisman SR. Laparoscopic approach for metachronous cecal and sigmoid volvulus. JSLS. 2010;14:561-5.
24. Schwenk W, Haase O, Neudecker J, Müller JM. Short term benefits for laparoscopic colorectal resection. Cochrane Database Syst Rev. 2005;(3):CD003145.
25. Sule A, Obepka PO, Iya D, Ogbonna B, Momoh J. Intraoperative colonic irrigation in the management of left sided large bowel emergencies in Jos University Teaching Hospital, Nigeria. East Afr Med J. 2000;77:613-7.
26. Akcan A, Akyildiz H, Artis T, Yilmaz N, Sozuer E. Feasibility of single-stage resection and primary anastomosis in patients with acute noncomplicated sigmoid volvulus. Am J Surg. 2007;193:421-6.
27. Chiang LL, Lai HS, Ni YH, Hsu WM. Management of sigmoid volvulus based on Ladd's procedure: a case report. Pediatr Neonatol. 2009;50:129-31.
28. Katsikogiannis N, Machairiotis N, Zarogoulidis P, Sarika E, Stylianaki A, Zisoglou M, et al. Management of sigmoid volvulus avoiding sigmoid resection. Case Rep Gastroenterol. 2012;6:293-9.
29. Ribeiro Nascimento EF, Chechter M, Fonte FP, Puls N, Valenciano JS, Fernandes Filho CL, et al. Volvulus of the sigmoid colon during pregnancy: A case report. Case Rep Obstet Gynecol. 2012;2012:641093.
30. Suleyman O, Kessaf AA, Ayhan KM. Sigmoid volvulus: long-term surgical outcomes and review of the literature. S Afr J Surg. 2012;50:9-15.

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