Sigmoid Volvulus: A Nonresective Alternative for Viable Sigmoid Colon.

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***Abstract**: Large bowel obstruction especially because of sigmoid volvulus is a common problem in the endemic belt like India, Pakistan. Many of the patients present with non gangrenous viable bowel which can be restored back easily. Though Elective resection of sigmoid colon is accepted as Gold standard but in our scenario once the volvulus is untwisted by decompression then the patient goes back and will return only when there is recurrence of volvulus. In such scenario it is advisable to do some type of definitive procedure in emergency setting so that the patient does not come back with the recurrence. As these patients come in the middle of night so available operative surgeons are usually youngsters who does not have much exposure to resection of bowel and further as it is a loaded bowel so the resection becomes even more difficult. So one has to compromise between the mortality associated with resection and recurrence associated with various pexy. In such circumstances, extraperitonealization is the good alternative technique as it does not require any resection, can be easily done, takes a shorter operating time and is not associated with recurrence.*

INTRODUCTION

Sigmoid Volvulus is a common cause of lower bowel obstruction in elderly individual but can be seen in childhood[1]. Incidence of sigmoid volvulus (SV) is common in Eastern Europe, Scandinavia, Ukraine and India but very uncommon in Britain, Western Europe and North America[2]. Sigmoid volvulus is the third most common cause of large bowel obstruction in the western world after cancer and diverticular disease, accounting for 4 percent of all cases of large bowel obstruction in the United States and U.K. It is relatively much more common in Eastern Europe, India and Africa accounting for 50 percent of all cases of intestinal obstruction[2].

ETIOLOGY

The cause of sigmoid volvulus is unclear. The primary predisposing factors include congenital redundancy of the sigmoid colon, combined with a narrow mesenteric base, chronic constipation, a high residue diet, and acquired megacolon. The high incidence of sigmoid volvulus in areas such as India, Pakistan and Russia has been attributed to the high fiber vegetable diet. Excessive use of laxatives, especially of the anthraquinone group, may lead to damage of the mysentric plexus of the bowel wall, resulting in loss of coordination of contracture. Anticholinergics, tranquilizers, ganglion blockers, and antiparkinsonian drugs commonly used in elderly patients have been implicated in producing acquired megacolon. Though neuropshychiatric disorders is present in the west but in Indian scenario it is not common[2]. Adhesions from previous abdominal surgery occasionally have been implicated in the genesis of sigmoid volvulus. Luminal obstruction and vascular compromise occurs when the torsion exceeds 180^0 and in about 70% cases torsion occurs in anticlockwise[3]. The mesosigmoid is found to be shrunken which may be seen upto 85% cases[4].

DIAGNOSIS

Plain radiograph is diagnostic in up to 90% cases[5]. Many signs like coffee bean sign, bent inner tubes, omega, Horse shoe, inverted U sign, central black band sign, Northern express sign has been described in plain X-Ray[6]. Barium enema may show bird beak appearance[7]. CT and MRI may be 100% diagnostic and they reveal twisted pedical as a whirled soft tissue mass[8]. Doppler ultrasound, and colonoscopy may be helpful in prediction colonic ischaemia.

TREATMENT

Since its description by Von Rokitansky in 1836[9] sigmoid volvulus has been managed by a variety of treatments : spontaneous reduction, blind flatus tube decompression, proctoscopic, sigmoidoscopic, colonoscopic decompression, detorsion after laparotomy, detorsion and fixation of sigmoid colon and resection of the colon, Bruusgaard[10] was of the opinion that all patients with sigmoid volvulus should be treated by non-operative measures while Sutcliffe[11] was of the opinion that all patients with sigmoid volvulus should be treated by resection and primary anastomosis. The results of various techniques when judged on the basis of mortality, morbidity and recurrence rate reveal that decompression methods have low mortality but unacceptably high recurrence, where as resection does not have any recurrence but has a high mortality rate.

There are three scenarios of sigmoid volvulus, it can present as volvulus with viable bowel, volvulus with non-viable bowel or may present as compound volvulus like iliosigmoid knot.

The treatment of sigmoid volvulus can be either nonoperative decompression or surgical management. The main criticism of sigmoidoscopic decompression is the recurrence of the disease, risk of traumatic perforation of the colon, and delay in operative treatment of patients with nonviable bowel. We always prefer surgery at first instance, because once the patient's condition improves by decompression, the patient will not return for elective surgery and will only present in case of recurrence of the volvulus.

If the bowel is viable then there are three options, either one can do decompression by blind flatus tube, or proctoscopic or sigmoidoscopic decompression or one can directly go for surgery and do untwisting of bowel followed by some pexy or one can do resection of bowel. If the bowel is resected then there are three options, either one can do primary resection and anastomosis or one can do a proximal diversion after primary resection and anastomosis or one can do Hartmann's procedure. If the bowel is found to be non viable then after doing the resection, one can go for primary anastomosis or proximal diversion or Hartmann's procedure. If the bowel is viable and untwisting is done then one must fix the bowel to prevent the recurrence of the disease. The fixation may be done by many ways. For fixation various techniques have been described as fixation to parieties, fixation by colostomy, mesh pexy etc. Bhatnagar in 1970 described extraperitonealization of the colon and he published his work on this technique in 1977 [12, 13].

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It is important to differentiate gangrenous vs. non-gangrenous bowel in the preoperative setting by the short duration of symptoms, more tender abdomen, association with nausea and vomiting, tachycardia, dehydration, passage of blood in stools and higher leucocyte count[2]. In 60 patients of Bhatnagar[15], 44 (73%) had gangrene confined to the area of constriction while in 16 (26%) it extended beyond the confines of constriction. In 11 of these 16 cases, the gangrene extended to the upper rectum and in 5 cases it extended into the adjoining descending colon. The importance of it is when doing the resection and primary anastomosis because of the very high chance of leak in case of compromised vascular supply.

Several authors are of the opinion that in the first instance sigmoid volvulus should be treated by decompression and resection and anastomosis should be treated as an elective procedure. Though this approach looks sound, the problem with patients of the 'volvulus belt' of India and Pakistan is that they do not want any further surgery if their symptoms are relieved, and they return to hospital only when there is a recurrence of volvulus. It is therefore advisable to have a definitive operation at the first instance. One has to choose between fixation of the colon and resection of the colon. As these patients usually present late and the bowel is not prepared for emergency resection, it is better to avoid resection. In such circumstances, fixation is the alternative. Fixation itself may be associated with a high rate of recurrence. If one gets the chance to re-explore the abdomen after a previous fixation operation then often the sutures which have been used for fixation in the first instance are not visible. Even if the fixation is in place, the redundant colon may twist causing recurrence. In order to prevent recurrence, one has to carry out fixation such that the whole of the colon is fixed. Whatever material is used for the fixation, ultimately it becomes ineffective; the best plan is to put the whole of the colon extraperitoneal. With this concept, Bhatnagar in 1970 described the operation of extraperitonealization of the sigmoid colon in cases of non-gangrenous sigmoid volvulus.[12]

The advantage of the technique is that is an easy operation, does not require opening of the bowel and does not require any resection. As the whole of the sigmoid colon is brought out into a closed space, there is no chance of rotation of colon. Furthermore, because of the large raw area the colon develops adhesions further reducing the chance of rotation. As the operation does not require any resection the mortality rate is reduced, and as the whole of the colon is in extraperitoneal compartment there is minimal chance of recurrence of the disease[14].

For any operation to be considered good for sigmoid volvulus, it should be easy, less time consuming, have low morbidity and mortality, and no recurrence rate. Resection and anastomosis in the elective situation has an acceptable mortality, but in the emergency situation where the general condition of the patient is not good and the bowel is not prepared, the complications of resection are tremendously high and unacceptable.

Hugely distended sigmoid colon may herald the proper vision so role of laparoscopy in mainly limited in elective setting where one can do sigmoid resection, sigmoidopexy and even extraperitonealization[16].

CONCLUSION

We are of the opinion that extraperitonealization of the sigmoid colon for sigmoid volvulus is an easy operation associated with minimal complications and is free of recurrence. The only drawback of the operation is sometimes the bulge in the lower abdomen and if a reoperation has to be performed then the surgeon has to be careful to avoid injury to the colon.

BIBLIOGRAPHY

1. **Burrell HC, Baker DM, Wardrop F, Evans DA.** *Significant plain film finding in sigmoid volvulus. Clin Radio 1994;49:317 – 9.*
2. **Bruusgaard C**. *Volvulus of the sigmoid colon and its treatment. Surgery 1947; 22: 466-70.*
3. **Bhatnagar BN.** *Prevention of recurrence of sigmoid colon volvulus : a new approach. A preliminary report. J R Coll Surg Edinb. 1970;15: 49 – 52.*
4. **Bhatnagar BN.** *Extraperitonealization of sigmoid for prevention of recurrence of volvulus : a follow-up study. Am J Proctol. 1977; 28:37-44.*
5. **Bhatnagar BN, Sharma CL, Gautam A, Kakar A, Reddy DC.** *Gangrenous sigmoid volvu lus : a clinical study of 76 patients. Int J Colorectal Dis. 2004; 19 : 134-42.*
6. **Javers BR, Baker SR, Miller JA.** *The Northern exposure sign : a newly described finding in sigmoid volvulus. Am J Radio 1999; 173 : 571 – 4.*
7. **Khanna AK, Kumar P, Khanna R**. *Sigmoid volvulus – study from a north India hospital. Dis Col Rectum 1999;42:1081 -4.*
8. **Khanna AK, Misra MK, Kumar K.** *Extraperitonealization for sigmoid volvulus : A reap praisal. Aust NZ J Surg 1995; 65:496 – 8.*
9. **Levsky JM, Den EI, Du Brow RA, Wolf EL, Rozenblit AM**. *CT findings of sigmoid volvu lus. Am J Roentgen 2010;194:136 – 43.*
10. **Meller MF, Drake DG**. *Colonic volvulus in children : value of barium enema for diagnosis and treatment in 14 children. Am J Roentgen 1994;162:1157 – 9.*
11. **Mehendale VG, Chaudhari NC. Mulchandani MH.** *Laparoscopic sigmoidopexy by extraperitonealization of sigmoid colon for sigmoid volvulus : two cases. Surg Laparosc Endosc Percutan Tech 2003 : 13 : 283 – 5.*
12. **Puneet, Khanna R, Gangopadhyay AN, Sahoo SP, Khanna AK.** *Sigmoid volvulus in child hood : report of six cases. Pediatr Surg Int 2000;16:132 – 33.*
13. **Raveenthiran V, Madiba TE, Atamanalp SS, De V.** *Volvulus of the sigmoid colon. Colorectal dis. 2010;12, e1-e17.*
14. **Shepherd JJ**. *The epidemiology and clinical presentation of sigmoid volvulus. Br J Surg 1969;56:353 – 9.*
15. **Sinha RS.** *A clinical appraisal of the volvulus of the pelvic colon with special reference to aetiology and treatment. Br J Surg 1969;56:838 – 40.*
16. **Sutcliffe MML.** *Volvulus of the Sigmoid colon. Br J Surg 1968;55: 903-10*

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