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A STUDY ON SIGMOID VOLVULUS

General Surgery

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ABSTRACT

Volvulus of the sigmoid colon is one of the commonest causes of large bowel obstruction.

The incidence of sigmoid volvulus is quite high in our country. Even though many literatures have come since the beginning of this century, our knowledge about the disease, is still insufficient, particularly the etiology of this disease and the reasons for the difference in the clinical features of the disease in the western countries compared to the east is still elusive.

There are many methods employed in the treatment of volvulus, each having its own merits and demerits, claims and counter claims by its own advocates indicating that the exact management of this disease is far from clear.

50 cases, of sigmoid volvulus were admitted in our hospital from December 2001 to May, 2004.

Of these 50 cases, 3 cases came in a moribund condition and could not be resuscitated, and later went on against medical advice. 3 cases got reduced spontaneously with soap and water enema.

44 cases underwent emergency surgery.

10 cases had viable bowel. Primary resection and anastamosis was done with a mortality rate of 20%. A more careful surgery would have reduced the mortality to 10%.

34 cases had nonviable bowel. Of these, 5 patients underwent Hartmann's procedure, 3 cases because of the bad state of the patient and 2 cases because of technical difficulty in anastamosis giving a mortality and morbidity rate of 20% each.

29 patients with gangrenous bowel underwent resection and anastamosis with a mortality rate of 6.89% and a morbidity rate of 24.13%. The morbidity rate was high in patients with surgical delay of more than 4 days than in patients with early intervention (28.5% Vs 9.7%) and a preoperative blood urea level more than 40 mg% than with a lower blood urea level (42.9% Vs 12.9%).

AIM OF THE STUDY

1. To study the incidence of sigmoid volvulus in our region.
2. To study the etiological and epidemiological factors associated with this condition.
3. To review the various modalities of treatment available for sigmoid volvulus and to analyse the merits and demerits of each procedure.
4. To analyse the results of treatment, the mortality rate, morbidity rate and the recurrence rate and an attempt is made to find a solution to reduce the same.

MATERIALS AND METHODS

All patients with the diagnosis of sigmoid volvulus by the admitting surgeon and those patients diagnosed preoperatively or peroperatively as a case of sigmoid volvulus admitted between December 2017 and May 2018 were taken up for the present study.

KEYWORDS

Teneligliptin, FRAP, Anti Oxidant Assay,nitric Oxide, Dpp4 Inhibitor, Ascorbic Acid

A total of 56 consecutive case were recorded. Of these, 4 cases were found to be ileosigmoid knotting which were diagnosed preoperatively as sigmoid volvulus and were excluded from the study. One patient was not willing for surgery and went against medical advice. He was also not included in this study. One patient who was convalescing well went AMA on the 5th POD due to some personal family problem and that case was also excluded from the study.So a total of 50 cases qualified for the present study.

All the patient were thoroughly examined and basic investigations necessary to arrive at a diagnosis and to assess the fitness for surgery were made. All the information were entered in a proforma specially designed for the study.

The patients age, sex, his locality, social economic status were obtained.

The patients' symptoms and its duration were obtained. Any previous history of similar illness suggestive of recurrent volvulus was noted. Any previous history of surgery noted. History of habitual constipation, use of laxatives was noted. Neuropsychiatric assessment was made. The patients' vital parameters were recorded. Hydration status assessed. Abdomen examined for distension, prominent intestinal loops and signs of peritonitis or perforation.

Basic investigations like urine examination, HB% estimation, blood sugar, urea level estimations were made. Plain X – ray abdomen was taken for all cases. Barium enema and sigmoidoscope examination were not done, because these investigations were not available in an emergency setup. With these investigations the cases were taken up for surgery.

Preoperative resuscitation measure, instituted for the patient was noted. The anaesthetic risk of the patient to undergo laparotomy was graded.

Operative details included

Type of anesthesia, Incision, Confirmation of diagnosis,Viable or non viable bowel,Etiology for the volvulus,No. Of turns and direction of the twist,Surgical method and techniques,Peritoneal soiling if any,Peritoneal lavage, Closure Morbidity is defined in terms of duration of hospital stay and associated complications like faecal fistula, wound infection, wound dehiscence, resuturing and relaparotomy. Other complications like deep vein thrombosis, pulmonary atelectasis, pulmonary embolism were also considered as morbidity. When all these complications did not prolong the hospital stay, more than 16 days postoperatively, then they were not considered as morbidity.

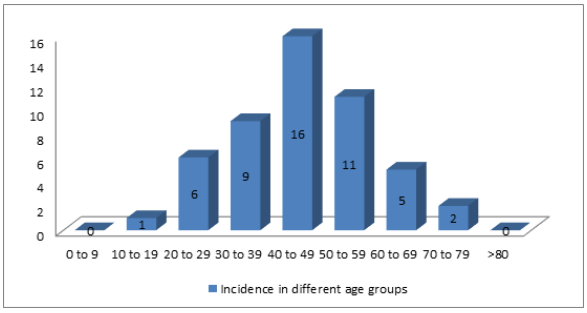
OBSERVATION

1. Incidence

50 Cases of sigmoid volvulus were admitted in the period between December '17 and May 18' which comprised 17.24% of all cases of intestinal obstruction during the period.

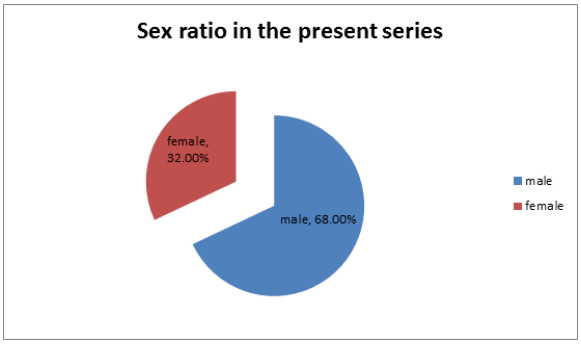
2. Age Incidence

In our series only 12% of the cases occurred in patients more than 60 years. 68% of the cases occurred in the age group 35 years – 55 years. The youngest patient in this study was a male patient 18 years old and the oldest patient was 70 years.



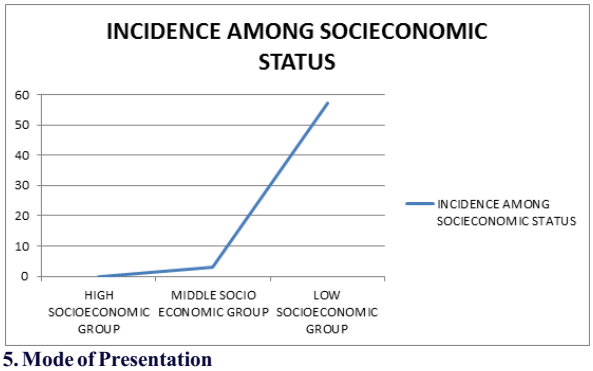
3. Sex Distribution

There were 34 male patients and 16 female patients with a male : female patients ratio of 2.12 (9:4) or (2 : 1)



4. Occupation and Socio Economic Status

Of the 50 cases studied, 47 cases were from lower socio economic group (94%). Only 3 patients (6%) belonged to middle socio economic group. Most of the patients are agricultural labours.



5. Mode of Presentation

Most of the cases presented late in a dehydrated state.The duration of symptoms ranged from 7 hrs to 10 days with a mean duration of 2.5 days. In about 37 patients (74%) the interval between the onset of symptoms and hospital admission was 2 to 3 days. The most common symptom was abdominal pain and distension. Other features include constipation and vomiting.Mild degrees of dehydration was present in almost all patients, whereas 68% of patients (n = 34) were moderately dehydrated. In 6 patients the blood pressure (BP) was very low (< 90 syst), including 2 patients whose BP was not recordable.

6.Dietary Habits

Most of the patients (more than 95%) were used to a mixed diet consisting of cooked cold rice, twice or thrice a day with few fibre containing diet like vegetables and fruits and occasionally (once in 40 – 45 days) non vegetarian diet. Even though these patients are hailing from villages where plenty of vegetables are available, this economically weaker section of society has no access to vegetable and fruits.

Most of the patients did not give history of constipation. No patient used laxatives.

5 patients gave history suggestive of sub acute recurrent volvulus, which got relieved spontaneously. No patient had any neuropsychiatric illness in our series.One patient was pregnant – 12 weeks of gestation. In one patient 30 months back, sigmoidopexy had been done.Another patient underwent laparotomy 10 years back.

INVESTIGATIONS

The diagnosis was reached in most of the cases by clinical examination alone. It was confirmed by plain X – ray abdomen, which was taken for all patients.However the diagnosis could not be established clinically or radiologically in 4 cases. Of these one case had features of paralytic ileus and 3 other cases had features of only small intestinal obstruction pattern with multiple gas fluid levels yielding an overall diagnostic accuracy in upto 92% of cases. The commonest radiological finding was a dilated, ahaustral loop of sigmoid.

HB % estimation was made only in 38 cases preoperatively. Of these, in 19 patients the HB % was below 10g% . The lowest value was 7.4g%.

In 10 cases the urea level was more than 40mg%. In the rest 40 a cases, the urea level was within normal range.

TREATMENT

Of the 50 cases to sigmoid volvulus got admitted in our hospital during the said period of study, 3 cases could not be taken up for surgery as they wee in moribund state.Of the remaining 47 cases, 3 patients got reduced spontaneously or with soap and water enema.The remaining 44 cases were taken up for emergency surgery.The anaesthesia given was either spinal or epidural.

Abdomen was opened mainly by a midline incision. One case with previous laparotomy midline scar, the abdomen was opened through the existing scar. In 3 cases, abdomen was opened by a left para median incision.

FINDINGS

34 patients had gangrenous bowel. One patient, sigmoidopexy done 30 months back admitted with recurrence had gangrenous bowel.

2 cases had fibrous bands arising from the apex of the loop and attached to the anterior abdominal wall (4%). Mesenteric adhesion was found in one case (2%). In all remaining cases, there was a long mesocolon and narrow attachment.

Elective Surgery

3 patients with volvulus which got reduced spontaneously are taken for elective surgery.

These 3 patients after thorough bowel preparation with oral neomycin or erythromycin or tetracycline, parenteral antibiotics like ampicillin and gentamycin and metronidazole, and daily enemas were taken up for elective surgery after 3 days (in the next theatre day), through one patient with all this preparations was to be taken as emergency and not electively as planned for the patient developed recurrence within 3 days.

All 3 patients recovered well and were discharged within 12 days (Mean hospital stay 11.3 days).

Emergency Surgery

Of the 44 emergency surgeries, 34 cases had gangrenous bowel and only 10 cases were found to be having viable loop.

1. Of the 10 cases with viable loop all patients underwent resection and anastamosis. During resection due to accidental slipping of the clamp, gross peritoneal contamination with faecal matter occurred in one case. 2 Deaths occurred (AMA, At request). Of those 2 deaths, one case was the patient who had accidental gross peritoneal contamination giving the mortality rate of 20%. The morbidity rate is 20% (2 cases out of 10).
2. Of the 34 cases with gangrenous bowel, 29 cases underwent resection and anastamosis and Hartmann's procedure was carried out in the rest of the 5 cases.

Sigmoid Resection and Primary Anastamosis

Of the 29 cases for which sigmoid resection and primary anastamosis was done, one patient developed peritonitis, features of septicaemia and shock and died in the 7th postoperative day. Another patient had a postoperative fall in blood pressure and since blood was not available at the time patient could not be resuscitated and was discharged AMA on the 1st postoperative day. So with these two cases, the mortality rate was 6.89%.

Seven patients met with postoperative complications. Two patients developed burst abdomen and required resuturing. Two patients developed faecal fistula of which two patients underwent relaparotomy and transverse colostomy. Two other patients underwent relaparotomy for features of intestinal obstruction. Jejunal loop was adherent to the DT site and caused intestinal obstruction in one case, whereas the other case proved to be of negative laparotomy with only dilatation of all the intestinal loops. The latter case was not included in the morbidity and was discharged on the 16th postoperative day. One case developed wound gapping and required hospitalization for 21 days. The morbidity rate in this study for resection and anastamosis for gangrenous bowel is 24.13%.

Mean Hospital stay is 15.5 days.

Hartmann's Procedure : Was done in 5 cases. In two cases, after resection, the distal end was too low to anastamose safely and in three other cases, the general condition was very poor and hence Hartmann's procedure was preferred in the above 5 cases. One patient with a very poor general condition preoperatively went AMA on 3rd postoperative day with severe fall in blood pressure. One patient developed wound dehiscence and needed secondary suturing and was hospitalized for 37 days. The mortality rate for this procedure was 20% and morbidity rate also 20%.

Of the 44 emergency surgeries done, 10 cases had viable bowel and 34 cases had gangrenous bowel i.e. 22.72% had viable bowel and 77.27% almost 80% of the cases had gangrenous bowel.

Over all (when elective cases also included), 72.34% of cases had gangrenous bowel.

Complications common to all major surgeries like deep vein thrombosis, pulmonary embolism, did not occur in any of the cases. Two patients developed mild respiratory infection but resolved with adequate antibiotic therapy and physiotherapy and did not affect the outcome.

POSTOPERATIVE COMPLICATIONS FOR RESECTION AND ANASTOMOSIS IN GANGRENOUS BOWEL

COMPLICATIONS	NO OF CASES
FAECAL FISTULA	2
ADHESIVE INTESTINAL OBSTRUCTION	1
BURST ABDOMEN	2
WOUND INFECTION AND DEHISCENCE	1

POSTOPERATIVE COMPLICATIONS FOR RESECTION AND ANASTOMOSIS IN VIABLE BOWEL

COMPLICATIONS	NO OF CASES
BURST ABDOMEN	**1**
WOUND GAPPING	**1**

RESULTS OF THE STUDY

1. The incidence of sigmoid volvulus in our region is 17.24% of all intestinal obstructions.
2. The commonest age group affected is 35 – 55 years (68%).
3. The male : female ratio is 2 : 1
4. 94% of the patients are from lower socio economic class.
5. The predisposing factors are long pelvic mesocolon, and narrow attachment at the base, 4% of the case were due to bands and adhesions and 2% of the cases were due to mesenteric adhesions. Faecal loading and constipation was not a factor in the causation.
6. Clinical and radiological investigation (plain X-ray abdomen) resulted in correct diagnosis in more than 90% of the cases.
7. Emergency resection and anastamosis was the surgical – procedure carried out in almost all cases whether the bowel is viable or not, with the mortality of 6.89%, and only 5 cases underwent Hartmann's procedure with does not give any added advantage over resection and primary anastamosis, though it is preferred in patients with poor general conditions.
8. The overall mortality for all cases of resection and anastamosis whether the bowel is viable or not, is 10.2%.
9. Surgical delay and a raised preoperative blood urea levels were the two factors associated with significant morbidity in patients undergoing emergency resection and anastamosis.
10. In the hands of experienced surgeons, good results can be obtained with emergency primary resection and anastamosis irrespective of whether the bowel is viable or not, even in rural hospital when adhered to sound surgical principles.

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