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ORIGINAL ARTICLE

Sigmoid Volvulus; Frequency of Postoperative Complications of Primary Repair

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ABSTRACT

Many regions of the world, including Pakistan, are affected by sigmoid volvulus, which is the most prevalent cause of major gut obstruction. The ingestion of high-fibre bulky foods, which seem to overburden the sigmoid colon, are two of the most common causes of sigmoid volvulus, along with irregular bowl habits. The most common clinical manifestations are abdominal discomfort, distension, constipation, nausea, and vomiting. The surgery of preference is resection and primary anastomosis since it avoids the need for a colostomy and the following reversal.

Objectives: The goal of this study was to investigate the prevalence of postoperative complications after primary surgery in individuals with viable or gangrenous sigmoid volvulus.

Place and Duration: This descriptive research was done in the surgical department of Sheikh Khalifa Bin Zaid Hospital (PGMI), Quetta and Fauji Foundation Hospital Rawalpindi for the duration of six months from January 2021 to June 2021.

Methodology: The researchers looked at patients who had a large gut obstruction and were suspected of having sigmoid volvulus based on clinical and radiographic evidence. In these individuals, laparotomy and sigmoid colon resection were done, followed by single-layer primary anastomosis to restore colon continuity. A total of 90 individuals were included in the research after informed consent.

Results: This research covered a total of 90 patients. With a male to female ratio of 2.5:1, there were 63 (70%) men and 27 (30%) females. Patients varied in age from 35 to 70 years old. The mean age of the patients was 50 + 1.30 years. The majority of the patients were between the ages of 41 and 45. All 90 patients (100%) had stomach discomfort, which was predominantly on the left side, followed by constipation in 84 (93.3 percent) and abdominal distension in 81 (90 percent). In 12 (13.3 percent) of the patients, vomiting was present, and in 3 (3.3 percent) of the patients, bleeding per rectum (due to related haemorrhoids) was evident. In 23 (25.6%) of the cases, various post-operative problems developed. Wound infection was found in 12 (13.3%) of the cases, with 9 men and three females being admitted to the hospital for antibiotics and daily dressings until the wounds healed. All of the wounds healed well. Pelvic abscess occurred in 4 (4.4%) of the patients. Three patients (3.3%) developed an enterocutaneous fistula, which was managed conservatively until the fistula healed. Only one patient (one percent) had ileus

Conclusion: When the gut is viable or gangrenous, resection with primary anastomosis is the best treatment option for sigmoid volvulus.

Keywords: Sigmoid-Diseases-Surgery, Anastomosis, Surgical methods, Colonic-diseases aetiology, Colonic-surgery

INTRODUCTION

A common cause of colonic blockage is sigmoid colon volvulus, which is defined as an aberrant twisting of the sigmoid colon around its mesentery[1-2]. In many parts of the globe, including Pakistan, India, Bengal, and most African nations, sigmoid volvulus is the most prevalent cause of a major gut blockage[3-4]. Males are more likely than females to have sigmoid colon volvulus, which is exceedingly unusual in infants and newborns. Irregular bowel habits, as well as the ingestion of high-fibre, bulky foods that seem to overburden the sigmoid colon, are all causes of sigmoid volvulus[5-6]. The gut eventually elongates and dilates, and volvulus develops as a result[7-8]. The signs of a major intestinal blockage include the passing of considerable amounts of flatus and faeces, which may be sporadic at first[9]. Excision of a gangrenous colon is required right away. Resection is followed by a colostomy and mucous fistula or Hartman's surgery in the presence of gangrene, depending on the surgeon's expertise and choice, as well as whether or not the distal loop can be brought to the skin. Because these individuals are often shocked and acidotic, this looks to be the best alternative. Those with gangrene have a mortality rate of 38 percent, which is eight times greater than when the colon is healthy[10]. The mortality rate after emergency surgery for acute sigmoid volvulus is low in the developing world, where sigmoid volvulus accounts for half of all significant bowel blockages. This is mostly because patients are generally young and healthy, and so have a stronger capacity to recover from the condition and its surgical treatment. As a result, a single phased therapy that provides a permanent cure eliminates the need for a colostomy, lowers the number of surgeries and associated morbidity and mortality, and decreases the length of hospital stay is preferable[11]. The study's goals were to assess the effects of primary anastomosis in sigmoid volvulus while the gut is still viable, as well as to identify the advantages of primary closure without stoma development in terms of lower morbidity and cost-effectiveness. The study's goals were to investigate the prevalence of postoperative complications of primary repair in patients with gangrene sigmoid volvulus, whether viable or gangrene.

METHODOLOGY

This descriptive research was done on 90 patients in the surgical department of Sheikh Khalifa Bin Zaid Hospital (PGMI), Quetta and Fauji Foundation Hospital Rawalpindi for the duration of six months from January 2021 to June 2021, after receiving approval from the Hospitals Ethical Committee. Clinical features such as pain abdomen, constipation, abdominal distension, and radiological findings such as bird beak deformity or coffee bean appearance of the large intestine were used to diagnose all patients with large gut obstruction and suspected sigmoid volvulus who presented with signs and symptoms of sigmoid volvulus. All sigmoid volvulus patients were admitted to the outpatient department or the surgical department's emergency room. Patients and their families were told about the surgical process, as well as the risks and advantages of the operation, after giving their informed permission. All patients had a thorough clinical examination, including a per-rectal examination, and information was recorded in the proforma. For the confirmation of sigmoid volvulus, special examinations such as X-ray abdomen (erect) were performed. The diagnosis was made based on the patient's medical history, physical exam,

and radiological results. Before surgery, all of the patients were resuscitated using intravenous fluids, antibiotics, nasogastric decompression, and catheterization. All of the patients had elective or emergency laparotomy after pre-operative treatment. Patients with sigmoid volvulus who had septicemia, haemodynamic instability, uncontrolled concomitant diseases such as diabetes, hypertension, COPD, or other causes of intestinal blockage such as tumours or TB were excluded from the research. These instances were eliminated because they would function as confounders, causing the study's conclusions to be affected.

RESULTS

This research covered a total of 90 patients. With a male to female ratio of 2.5:1, there were 63 (70%) men and 27 (30%) females. Patients varied in age from 35 to 70 years old. The mean age of the patients was 50 + 1.30 years. The majority of the patients were between the ages of 41 and 45. All 90 patients (100%) had stomach discomfort, which was predominantly on the left side, followed by constipation in 84 (93.3 percent) and abdominal distension in 81 (90 percent).

Table 1: Demographic features and clinical symptoms of the patients

Males	63(70 %)
Females	27(30 %)
Mean Age	50 + 1.30 years
Clinical Symptoms	
stomach discomfort	90 (100%)
abdominal distension	81 (90 %)
vomiting	12 (13.3 %)
bleeding per rectum	3 (3.3 %)

In 12 (13.3 percent) of the patients, vomiting was present, and in 3 (3.3 percent) of the patients, bleeding per rectum (due to related haemorrhoids) was evident.

Table 2: Clinical Signs of the patients

Visible peristalsis	78 (86.7%)
palpable gut loops	51 (56.7%)
tenderness	45 (50%)
symmetrical distension	10 (11.1%)
Guarding	9 (10%)
palpable mass	7 (7.8%)
Exaggerated bowel sounds	52 (57.8%)

Visible peristalsis was seen in 78 (86.7%) cases, palpable gut loops in 51 (56.7%) cases, tenderness in 45 (50%) cases, symmetrical distension in 10 (11.1%) cases, guarding in 9 (10%)cases, and palpable mass in 7 (7.8%) cases. In 52 (57.8 percent) of the patients, the bowel sound was exagerrated, whereas in 10 (11.1 percent) of the patients, it was diminished.

Special investigations, such as X-ray abdomen (erect), revealed tyre signs in 61 (67.8%) of patients, bird beak signs in 10 (11.%) of patients, and Coffee bean signs in 8 (8.9%) of patients.

Table 3: X-ray findings of the patients

tyre signs	61 (67.8%)
bird beak signs	10 (11.1%)
Coffee bean signs	8 (8.9%)

In 23 (25.6%) of the cases, various post-operative problems developed. Wound infection was found in 12 (13.3%) of the cases, with 9 men and three females being admitted to the hospital for antibiotics and daily dressings until the wounds healed. All of the wounds healed well. Pelvic abscess occurred in 4 (4.4%) of the patients, 4 of whom were male and none of whom were female.

All four male patients were re-examined and drained with positive results. On the third and fourth postoperative days, anastomosis leakage occurred in 3 (3.3 percent) male patients, all of which were re-explored and a colostomy done. There was no leakage in any of the female patients. Three patients (3.3%) developed an enterocutaneous fistula, which was managed conservatively until the fistula healed. Only one patient (one percent) had ileus. In the sample data, there was no mortality.

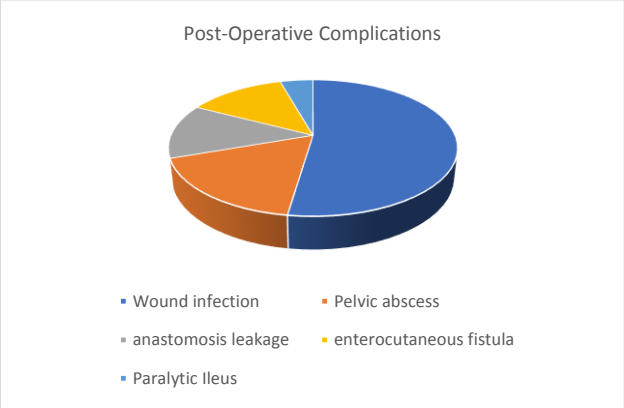

Figure 1: Post-Operative Complications

DISCUSSION

In underdeveloped nations, sigmoid volvulus is a prevalent cause of the major intestinal blockage. It is also a very 2- W" severe ailment in Pakistan, according to a few local research. This demonstrates the high rate of sigmoid volvulus in this section of Pakistan[11-12]. Males outnumbered females in this research, with a male-to-female ratio of 2.5:1, which is close to the 3:1 found by Turan M. This ratio is lower than in previous research, where Taj MH et al Bhuiyan MM and colleagues reported a 9:1 ratio, Zarin M et al reported a 6:1 ratio, and Mohtasimbillah reported a 10:11 ratio[13-14]. Our study's mean age was 50 + 1.30 years, which is similar to Manzoor A and Muhammad A's findings (mean age was 42.5 years)[15]. The average age in recent research was similarly 42 years. While Indian research supported our findings by revealing a mean age of 49 years, which is somewhat higher than the aforementioned studies[16]. Abdominal discomfort and constipation were evident in 93.3 percent of patients, while abdominal distension was reported in 90 percent of patients.

Vomiting and rectum haemorrhage were only seen in a few individuals. These findings are consistent with national and international research that reveal abdominal distension is the most prevalent first physical sign in 90% of patients. To corroborate the clinical diagnosis of sigmoid volvulus, special investigations were undertaken, including an x-ray abdomen (erect) that revealed tyre sign in 67.8 percent of patients, bird beak sign in 11.1 percent of cases, and coffee bean sign in 8.9 percent of cases. Ultrasound revealed dilated intestinal loops in 56% of patients, with gallstones in 2% of those who had them. In any instance, a barium enema and a CT scan of the abdomen and pelvis were not performed. Others have come to similar conclusions. In this research, wound infection was seen in 13.3 percent of patients with sigmoid volvulus, abscess was seen in 4.4 percent of cases, anastomosis leakage was seen in 3.3 percent of cases, and fistulae were seen in 3.3 percent of cases. These findings are consistent with those reported in other investigations[17-18]. There was no mortality in our research because we adopted the operational approach of resection with primary anastomosis, which has been described with promising outcomes and fewer postoperative problems by international and national studies[19-20]. Such outstanding outcomes might be explained by the use of suitable antibiotics and current intensive postoperative care for sigmoid volvulus patients. Our findings show that the majority of patients develop complications in the viable gut rather than the gangrenous gut, which is consistent with a local study by Zarin et al, who found that 17 (53.12 percent) patients in the gangrenous group and 9 (17.64 percent) cases in the viable group developed paralytic ileus, 2 (6.25 percent) patients in the gangrenous group developed anastomotic leakage leading to peritonitis, 2 (6.25 percent)[21-22]. The therapy during initial

repair is determined by whether or not the colon is gangrenous[23]. In developed nations, the prevalence of gangrenous colon is lower, around 10%, compared to rates as high as 25% in underdeveloped countries[24].

CONCLUSIONS

The use of aggressive resuscitation, prompt surgical relief of obstruction, appropriate antibiotics, accurate intra-operative assessment of the viability of the involved intestine loops, and modern postoperative intensive care will all help to reduce the mortality and morbidity associated with this life-threatening condition. Resection and primary anastomosis should be used to treat a viable sigmoid colon about a volvulus episode since they have a lower recurrence rate and fewer postoperative problems. Resection with primary anastomosis is a treatment worth using since it allows a surgeon to finish the whole surgical care of sigmoid volvulus in one step, which is a difficult alternative in patients with the gangrenous gut.

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