

Sigmoid volvulus treated by mini-incision

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Abstract Definitive surgical management of sigmoid volvulus is usually via a midline laparotomy or laparoscopy. We report our experience with a series of five consecutive cases over a 10-year period. All patients had definitive surgery via a left iliac fossa mini-incision after prior decompression. For four patients, it was the first episode of sigmoid volvulus and one patient had a recurrent sigmoid volvulus after previous sigmoid colectomy. The latter patient had pan colonic megacolon diagnosed at initial surgery. All five cases were surgically treated successfully via a mini-incision on the left iliac fossa. There were no instances of recurrence at a median follow-up duration of 95 months (range 7–132 months). A left iliac fossa mini-incision is sufficient for the definitive management of non-perforated sigmoid volvulus. Larger studies are warranted to draw definitive conclusions.

Keywords Sigmoid volvulus · Mini-incision laparotomy

Introduction

Sigmoid volvulus is the most common form of volvulus. It is uncommon in developed countries as a cause of intestinal obstruction. However, its incidence in developing countries is much higher, accounting for close to 80 % of all intestinal obstructions in one series [1].

Sigmoid volvulus occurs when a long sigmoid colon twists about an elongated mesentery around a narrow pedicle. A high-fiber diet, advanced age, chronic constipation, previous surgery, neurologic or psychiatric conditions, megacolon and high altitude have all been described as predisposing factors for the development of sigmoid volvulus [1–3].

Up to 85 % of colonic volvulus presents as an acute obstruction [4]. Fifty percent of patients report a similar episode in the past [5]. Following the diagnosis of sigmoid volvulus, definitive surgery is needed, usually sigmoid colectomy via laparotomy or laparoscopy.

We describe our experience of five cases of sigmoid volvulus treated at a single center over a period of 10 years with a left iliac fossa mini-incision laparotomy alone.

Materials and methods

All cases with a diagnosis of sigmoid volvulus diagnosed at Seow-Choen Colorectal Centre from January 2003 to December 2013 were retrieved from a dedicated database for all patients seen.

Five consecutive patients (four males, one female) were diagnosed with sigmoid volvulus during the study period. At the time of surgery, the median age was 71 years (range 41–86 years). All patients complained of recurrent abdominal pain, distension and constipation with onset 3 months to 30 years prior to presentation. One patient had Trisomy 21, two patients had ischemic heart disease and one had hypothyroidism, while the remaining patient did not have any relevant medical history.

All of these patients presented with intestinal obstruction but on clinical examination none had an acute abdomen with signs of perforation or bowel ischemia. All had

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had an abdominal X-ray on initial admission. Two patients had undergone an abdominal computed tomography scan. All films showed evidence of distension or volvulus of the sigmoid described as long, redundant, kinked or tortuous. The patient with Trisomy 21 had megacolon and sigmoid volvulus treated with sigmoid colectomy 60 months prior to the current presentation of recurrent sigmoid volvulus.

Results

All patients underwent successful colonoscopic reduction within 24 h of admission followed by insertion of a rectal tube. Following colonoscopic decompression, the patients underwent left iliac fossa skin crease mini-incision with sigmoid colectomy and primary anastomosis without a defunctioning stoma. Median length of the incision was 4 cm (range 3–5 cm). Median duration of surgery was 60 min (range 45–170 min). Final histology mostly showed edematous mucosa or serosa, with some mild inflammatory infiltrate, associated with serosal, submucosal or mesenteric hemorrhage. One patient had melanosis coli. All patients had an uneventful postoperative course. Median postoperative hospital stay was 4 days (range 3–9 days).

Median follow-up duration was 95 months (range 7–132 months). All five patients were symptom free at their last follow-up visit, including the patient with prior sigmoid volvulus and megacolon treated with sigmoid colectomy who presented with recurrent volvulus 60 months later. This patient was also symptom free at 132 months of follow-up after repeat sigmoid colectomy using the mini-incision method.

Discussion

Transanal colonoscopic detorsion using a flexible endoscope is the initial primary therapy for sigmoid volvulus without peritonitis. Successful reduction is achieved in up to 80–90 % of cases [4, 6] and maintained with the insertion of a rectal tube and concomitant resuscitation of the patient. Most studies describe a significant recurrence rate after decompression alone [4, 7, 8]. Hence, definitive early surgery should be performed.

For patients with signs of perforation or gangrene, an immediate laparotomy should be performed using a long midline incision. The decision to perform Hartmann's procedure or sigmoid colectomy with or without a defunctioning stoma may then be made on a case-by-case basis.

Surgical management of patients without peritonitis following successful endoscopic decompression is more

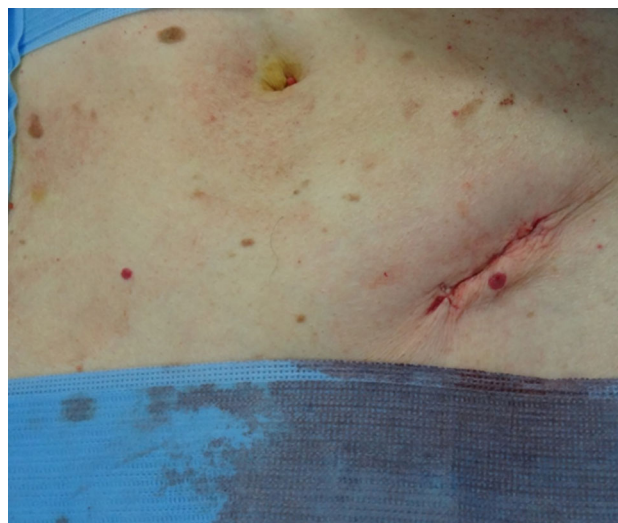


Fig. 1 A 4-cm skin crease left iliac fossa mini-incision following sigmoid colectomy for sigmoid volvulus

controversial. The classical definitive surgical approach has been midline laparotomy with sigmoid colectomy and primary anastomosis. However, non-resectional surgical approaches, aimed at decreasing the morbidity associated with colonic resection, have also been described. These include open, laparoscopic or endoscopic sigmoidopexy, as well as extraperitonealization of the sigmoid and mesosigmoidoplasty [9–12]. These alternatives have been used with mixed success. So far, no large randomized controlled trial has been conducted to compare their efficacy with that of resection and primary anastomosis.

Laparoscopic sigmoid colectomy is increasingly prescribed for sigmoid volvulus and is associated with improved morbidity due to speedier recovery parameters [13–16]. Some authors, however, have claimed that laparoscopy for sigmoid volvulus is unwarranted as it is technically difficult and too costly [17]. In order to simplify the technical difficulties of laparoscopic colectomy in sigmoid volvulus, it was proposed that laparoscopy be used only to help exteriorize the sigmoid colon through a mini-incision without preliminary dissection [18].

In this study, we used a 4-cm mini-incision without laparoscopy to exteriorize the twisted sigmoid volvulus (Fig. 1). So far, in our experience, we have found that the sigmoid colon in such patients is very long, redundant and very easily brought out without a need for either a long incision or laparoscopy (Fig. 2). Once exteriorized, vessel ligation and colonic resection were easily achieved extracorporeally. Furthermore, in the event that this exteriorization is not easily performed, the procedure may be converted to laparoscopic assisted. Due to the simplicity of this technique and the very low resultant morbidity, we urge surgeons to consider the use of the mini-incision as

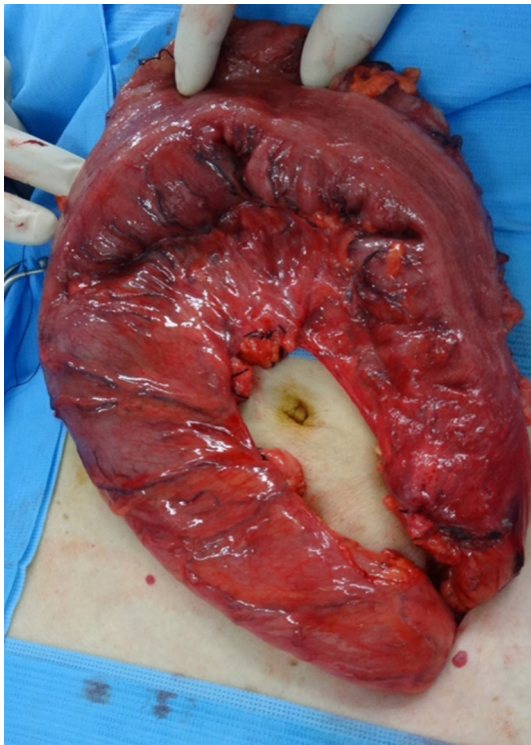


Fig. 2 Exteriorization of sigmoid volvulus through a left iliac fossa mini-incision

the initial approach for cases of sigmoid volvulus. Since our initial report of a high recurrence rate in sigmoid volvulus presenting with concomitant megacolon, we have advocated a total colectomy in all patients with sigmoid volvulus and megacolon [19]. However, the one patient who presented with recurrent sigmoid volvulus was not willing to undergo total colectomy and preferred a repeat mini-incision sigmoid colectomy, which was successfully performed.

Conclusions

Traditional midline laparotomy is not needed in elective surgery for sigmoid volvulus. Laparoscopic assistance is not required either as the sigmoid colon in sigmoid volvulus is easily exteriorized via a left iliac fossa mini-incision. This approach may be associated with significant cost savings while avoiding the added risks of both the long midline approach and laparoscopy. The left iliac fossa mini-incision is not just cosmetically appealing, but potentially associated with improved recovery and less pain. It is not technically difficult and results in good long-

term outcomes. Results of larger studies are required in order to draw definitive conclusions.

Conflict of interest None.

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