

Treatment of Volvulus of the Colon by Colonoscopy

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The flexible colonoscope has notable advantages over rigid instruments and can be offered as an alternative and (probably) preferable method for non-surgical reduction of colonic volvulus. When operative intervention is called for because of repeated bouts of sigmoid volvulus, colonoscopy offers a means of preoperative deflation of the twisted loop, allowing time to prepare the bowel and correct systemic disturbances such as electrolyte imbalance. The first successful management of a case of recurrent sigmoid volvulus using fiberoptic flexible colonoscopy is presented. It is suggested that the fiberoptic colonoscope may have similar application for instances of volvulus occurring more proximal than in the sigmoid colon. Sigmoid volvulus in children even though rare might also be amenable to correction by colonoscopy.

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SINCE ITS INTRODUCTION the fiberoptic colonoscope has established itself as a valuable diagnostic and versatile therapeutic tool for diseases of the colon.^{14,15} An additional therapeutic application appears to be the management of colonic volvulus. Recently we had an opportunity to treat such a case with this instrument and the successful results form the basis of this report. A review of the literature fails to disclose previous application of colonoscopy in this context.

Case Report

A 73-year-old Caucasian woman was hospitalized twice, last in September, 1974, because of diffuse colicky abdominal pain associated with constipation of several days' duration, unassociated with nausea, vomiting or fever. History revealed two previous episodes of sigmoid volvulus. The first, several years ago, had been relieved at another hospital by sigmoidoscopy. The second episode 5 months prior to the current episode, represented her first admission to the Beth Israel Medical Center at which time she had a similar constellation of symptoms.

Examination on the first admission revealed an enormously distended abdomen with hyperactive bowel sounds and tenderness on the left side. The rectum was empty on digital examination. X-ray studies consisted of an obstructive series which showed a hugely distended sigmoid colon extending across the abdomen. Barium enema confirmed the suspected diagnosis of volvulus of the sigmoid colon. None of the clinical findings suggested bowel strangulation.

On the fourth day of hospitalization, colonoscopy was performed. The colonoscope could be passed to and through the site of volvulus. Large amounts of gas and liquid stool were aspirated, reducing the volvulus and eliminating the distension completely. Post-colonoscopy, the patient tolerated well a gradual increase in her oral intake. Surgical corrective measures to prevent recurrent volvulus were recommended but refused by the patient.

Examination on the second admission 5 months later disclosed an elderly female in acute distress. Pertinent findings consisted of a markedly distended and tympanitic abdomen with audible hyperactive bowel sounds. No palpable mass was detected. Complete blood count and urinalysis were within normal limits.

A survey radiograph of the abdomen showed findings consistent with a sigmoid volvulus with distended colon extending across the abdomen to right upper quadrant area (Fig. 1).

Parenteral fluid therapy was administered, a Miller-Abbott tube inserted, and the patient was transferred immediately to the endoscopy unit. Colonoscopy on the unprepared bowel revealed the rectum and distal sigmoid colon to be unusually distensible by AIE insufflation and atonic. The colonoscope was advanced without difficulty to a level of insertion of 105 cm, at which point the tip appeared to be located in the midsigmoid colon radiologically (Fig. 2). Here, the large bowel was quite dilated and contained large amounts of gas and dark green liquid stool, aspiration of which immediately relieved the abdominal distention (Fig. 3).

Symptoms subsided but the patient failed to pass flatus spontaneously. Miller-Abbott tube decompression was continued as well as intravenous fluid therapy. Pain and distension were absent following colonoscopy but the patient failed to pass flatus when the Miller-Abbott tube was clamped off.

Colonoscopy was repeated 5 days after the first procedure to determine if any mechanical obstruction still was present. Scout films of abdomen before the second colonoscopy were reported that the sigmoid loop appeared to ascend high in the abdomen, extending under the right leaf of the diaphragm. This loop corresponded to

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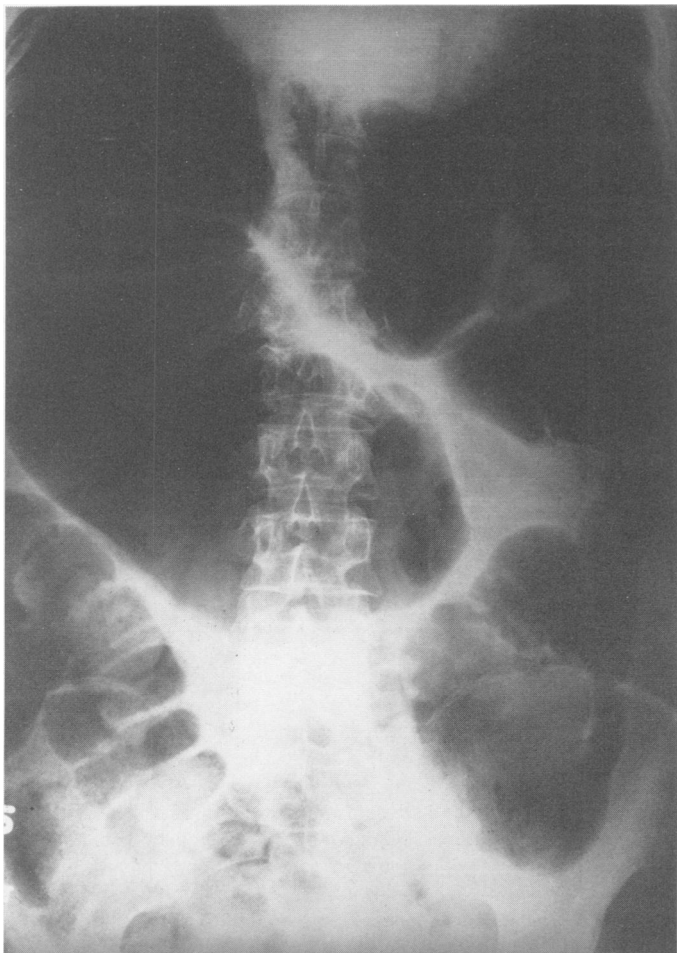


FIG. 1. Flat film of abdomen showing sigmoid volvulus.

the dilated loop noted on the previous radiograph (Fig. 1). The appearance suggests recurrence of the sigmoid volvulus. With the colonoscope in the large dilated sigmoid loop, gastrografin was introduced. It outlined the descending colon and the left transverse colon proximal to the volvulus; these parts of the colon were not dilated. The dilated sigmoid colon was emptied via the colonoscope. After removal of the instrument, the markedly dilated loop was no longer evident radiologically, and the rectum and distal sigmoid colon appeared normal. The tip of the Miller-Abbott tube was in the distal small bowel.

Because of the recurrent episodes of sigmoid volvulus the patient finally accepted surgery. At operation, she was found to have a large redundant loop of sigmoid colon twisted upon itself. There were many adhesions between the greater omentum and the sigmoid colon and the anterior abdominal wall which maintained the sigmoid loop in an abnormal position. A previous appendectomy was the probable cause of these adhesions. After resection of the sigmoid colon and end-to-end colocolostomy, the postoperative course was one of continued ileus with a normal spontaneous bowel movement not occurring until the 15th postoperative day. She was discharged 9 days later in good condition and having fairly regular bowel movements.

Discussion

In the United States sigmoid volvulus is said to be the third most common cause of colonic obstructions,

being responsible for 4% of these.^{4,7,9,10} It is more frequent in countries whose populations subsist on diets consisting of high bulk and large residue.^{2,5,6} Elective surgical repair without resection carries with it an operative mortality of 8–16%.^{8,10,11} Occurring, as it does, mostly in elderly individuals, the mortality rises sharply to 38–50% when emergency resection is performed.^{10,11} The indication here usually is the presence of or suspicion of bowel strangulation. Lesser procedures, such as detorsion and/or sigmoid tube colostomy with sigmoidopexy, also carry with them a significantly high mortality rate (10% or more)^{10–12} but are not nearly as effective in terms of late results.

Use of the rigid sigmoidoscope and/or intubation for preliminary decompression of a sigmoid volvulus is an established procedure.¹ If successful, it serves to prepare these patients for elective surgery with reduced risk.

When the rigid sigmoidoscope cannot reach the site of volvulus and effectuate decompression, operative intervention is called for under conditions which sharply

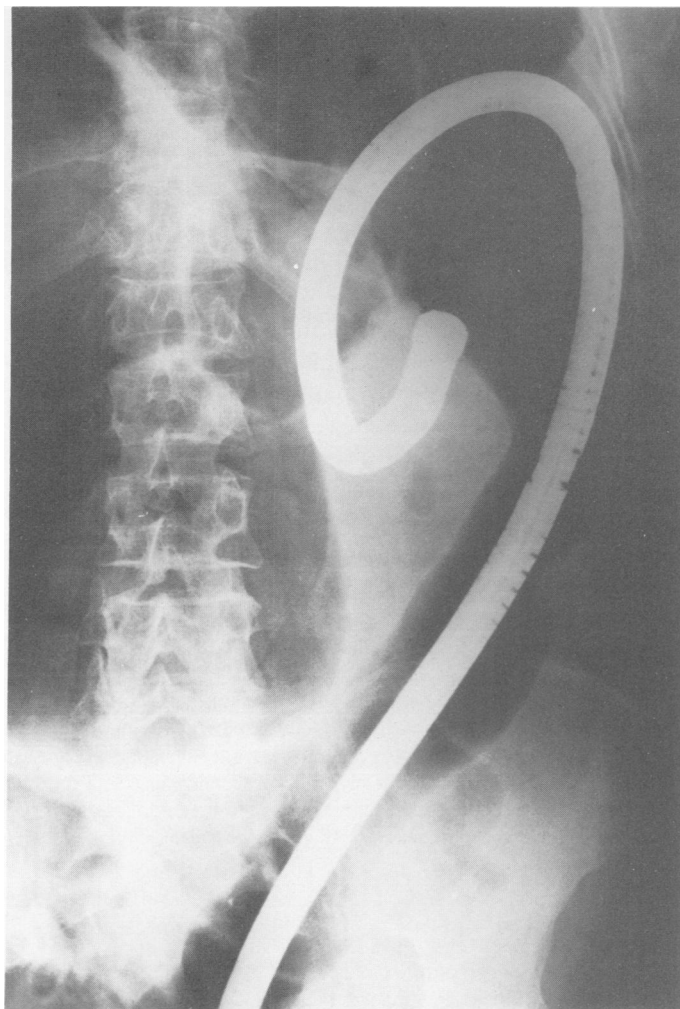


FIG. 2. Abdominal radiograph with colonoscope inserted. The tip of the instrument is seen entering the twisted segment of sigmoid colon.

raise the expected mortality rate to the range of 50%. The shorter of the commonly employed flexible fiberoptic colonoscopes, with its effective length of 105 cm, now makes possible effective endoscopic decompression with minimal risk, if performed with care and judgement.

The association of adynamic ileus and volvulus is well known.² The atonic proximal bowel, sometimes greatly distended, edematous, and friable, as is the twisted loop itself, must be carefully protected against perforation by gentleness and restraint on the part of the colonoscopist.

If colonoscopy reveals bloody drainage, or dark purple colonic mucosa, the use of fiberoptic colonoscope to reduce the volvulus should be immediately abandoned in favor of prompt laparotomy. Other clinical findings suggesting bowel strangulation are absolute contraindications to the use of the colonoscope for reduction of volvulus.

Conclusion

The flexible colonoscope has notable advantages over rigid instruments and can be offered as an alternative and (probably) preferable method for non-surgical reduction of colonic volvulus. When operative intervention is called for because of repeated bouts of sigmoid volvulus, colonoscopy offers a means of preoperative deflation of the twisted loop, allowing time to prepare the bowel and correct systemic disturbances such as electrolyte imbalance.

The first successful management of a case of recurrent sigmoid volvulus using fiberoptic flexible colonoscope is presented. It is suggested that the fiberoptic colonoscope may have similar application for instances of volvulus occurring more proximal than in the sigmoid colon.

Sigmoid volvulus in children even though rare¹³ might also be amenable to correction by colonoscopy.

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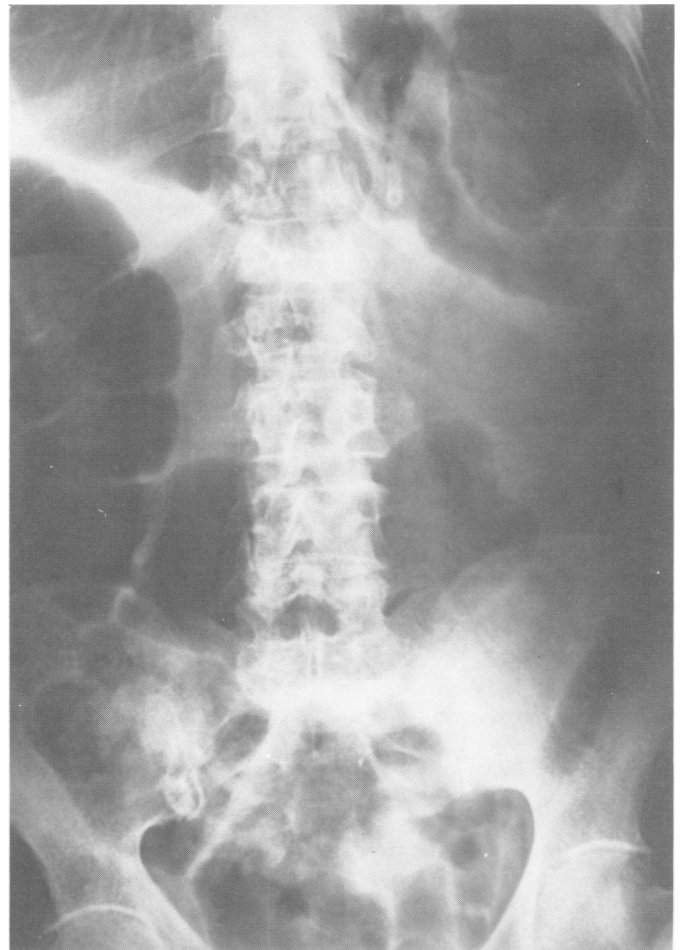


FIG. 3. Abdominal radiograph taken immediately after endoscopic decompression of sigmoid volvulus. Residual gas is present in the uninvolved large bowel.

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