Video Journal and Encyclopedia of GI Endoscopy (2014) 2, 20–25

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CLINICAL CASE REPORTS

Endoscopic Decompression, Detorsion, and Reduction of Sigmoid Volvulus ☆

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Received 11 August 2013; received in revised form 26 October 2013; accepted 31 October 2013

KEYWORDS
Sigmoid volvulus;
Endoscopy;
Endoscopic decompression, detorsion and reduction (EDDR);
Endoscopic decompression;
Endoscopic reduction;
Video

Abstract
Background: Colonic volvulus is a loop of bowel twisted around the site of mesenteric attachment leading to bowel obstruction. The sigmoid colon is involved in a majority of these cases. If untreated, sigmoid volvulus leads to bowel ischemia, perforation, sepsis, and potential death.
Patients and methods: In this video manuscript, we present two patients with uncomplicated sigmoid volvulus that were successfully managed by emergent endoscopic decompression, detorsion, and reduction (EDDR) and temporary colon decompression tube placement as a bridge therapy to elective and definitive surgical interventions. Detailed endoscopic evaluation and techniques are described. In addition, classic radiological findings such as the "coffee bean" sign on plain radiograph and the "whirl" sign on computed tomography are shown.
Results: After successful EDDR with subsequent bowel preparation and medical resuscitation, both patients underwent elective surgical resection of the sigmoid colon with primary anastomosis without post-operative complications.
Conclusions: Sigmoid volvulus is a medical emergency and diagnosis requires a high index of suspicion. Emergent EDDR and decompression tube placement should be utilized as a first line treatment for patients with uncomplicated sigmoid volvulus.

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Video related to this article

Video related to this article can be found online at http://dx.doi.org/10.1016/j.vjgien.2013.10.003.

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1. Case reports

- Both patients, a 70-year-old and a 75-year-old man presented with abdominal distension, cramps, and nausea.
- On abdominal examination, there was no peritoneal signs and the abdomen was tympanic on percussion.
- Blood white blood cell count was within normal limits.
- Abdominal plain radiograph showed markedly distended ahaustral sigmoid loop arising from the left lower quadrant and extending towards the diaphragm (Figure 1).
- Computed tomography of the abdomen and pelvis revealed spiraled loops of collapsed bowel and mesentery which were twisted around their vascular supply (Figure 2).
- Emergent surgery and gastroenterology consults were obtained.
- Both patients were diagnosed with sigmoid volvulus and emergency endoscopic intervention was requested.
- Emergent endoscopic decompression, detorsion, and reduction (EDDR) was successfully performed and the procedure is described below.

Figure 1 Plain radiographic image of abdomen showing the markedly distended ahaustral sigmoid loop arising from the left lower quadrant and extending towards the diaphragm, a "coffee bean" or "bent inner tube" sign.

- After 2–3 days of hospital stay, the patients underwent elective sigmoid colon resection with primary anastomosis after colon preparation and medical treatment.
- Their post-operative course was uneventful and they both enjoy no recurrence of volvulus up-to-date.

2. Materials

- Pediatric colonoscope (Olympus PCF-Q180AL, Olympus America, Center Valley, PA).
- Colon depression set (Cook Medical, Winston-Salem, NC).
  - The colon decompression set includes:
    - A drainage catheter: 14 French × 175 cm (has 10 side ports).
    - A guiding catheter: 6 French × 182 cm.
    - A wire guide: 0.035 in. × 480 cm.

3. Endoscopic procedure

3.1. Endoscopic decompression, detorsion and reduction (EDDR) through flexible sigmoidoscopy

- Use intermittent and low air insufflation through the endoscope during endoscopy.
- The rectum was empty and not dilated.
- Spirally twisted or converging colon mucosa (a "whirl" sign) was seen at the rectosigmoid junction signifying the distal point of torsional obstruction (Figure 3).
- The endoscope was gently advanced through the apex of the converging mucosa into the dilated sigmoid colon.
- Mild mucosal ischemic changes (loss of vascular patterns, patchy erythema, edema, and erosions) were noticed within the volvulus (Figure 4).
- Immediate and aggressive endoscopic evacuation of air and fluid stool was performed in order to *decompress* the dilated sigmoid colon.
- After the dilated sigmoid colon was decompressed, the endoscope was advanced through the sigmoid colon toward the proximal point of torsional obstruction.
- Spirally twisted sigmoid or descending colon mucosa was observed signifying the proximal point of torsional obstruction.

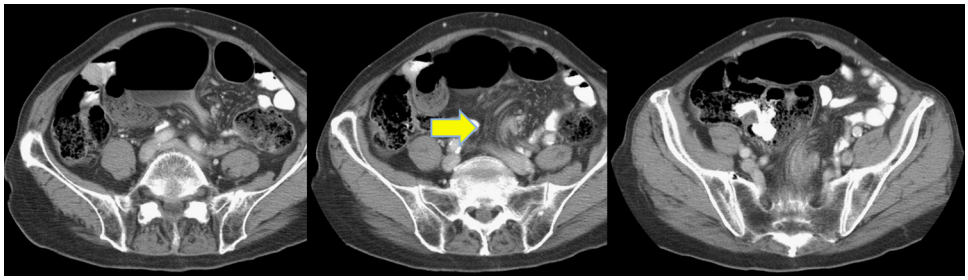

Figure 2 Selected images of computed tomography showing spiraled loops of collapsed bowel and mesentery which are twisted around their vascular supply, a "whirl" sign (arrow).