Acute colonic pseudo-obstruction

This is one of a series of statements discussing the utilization of GI endoscopy in common clinical situations. The Standards of Practice Committee of the American Society for Gastrointestinal Endoscopy prepared this text. In preparing this guideline, a MEDLINE literature search was performed, and additional references were obtained from the bibliographies of the identified articles and from recommendations of expert consultants. When little or no data exist from well-designed prospective trials, emphasis is given to results from large series and reports from recognized experts.

Guidelines for appropriate utilization of endoscopy are based on a critical review of the available data and expert consensus. Further controlled clinical studies are needed to clarify aspects of this statement, and revision may be necessary as new data appear. Clinical consideration may justify a course of action at variance to these recommendations.

Acute colonic pseudo-obstruction (ACPO) is characterized by massive colonic dilation in the absence of mechanical obstruction; synonyms include acute colonic ileus and Ogilvie’s syndrome. Ischemia or perforation are the feared complications of ACPO; spontaneous perforation has been reported in 3% to 15% of patients with a mortality rate of 50% or higher. The rate of perforation and/or ischemia rapidly increases with cecal diameters >10 to 12 cm and when the duration of distention exceeds 6 days.

In evaluating a patient with signs or symptoms of suspected acute colonic dilation (Fig. 1), mechanical obstruction should be excluded because surgical management may be required. Although initial conservative management for mechanical obstruction overlaps with the initial management of ACPO (e.g., nothing by mouth, intravenous fluids, nasogastric suction), the possibility of mechanical obstruction must always be considered particularly if there is no response to conservative management. If there is any suspicion of mechanical obstruction, a water soluble contrast enema of the rectum and distal colon should be obtained.

The causes of and predisposing factors associated with the development of ACPO are multiple (Table 1). Often more than one of these factors are present. Most commonly, this syndrome is associated with intraperitoneal or extraperitoneal surgery. Multiple case reports and case-series have linked postoperative ACPO to pelvic surgery (i.e., orthopedic, gynecology, and urologic) and lumbar spine surgery.

Based on LaPlace’s law, increasing diameters accelerate the rise in tension experienced by the colon wall. Although risk does increase with expanding dimensions, there is only a poor association with absolute diameters. Animal and retrospective data suggest critical thresholds of 9 cm for the transverse colon and 12 cm for the cecum; however, many patients present with dimensions greater than this without sequelae.
The acuity of onset and duration of persistent distension likely correlate with risk more strongly. Moreover, approximately 10% of patients have some degree of ischemia in the right colon at the time of colonoscopy. Spontaneous perforation has been estimated to occur in 3% to 15% of patients.⁴

The patients’ baseline state and prognosis for reversal of comorbidities should be incorporated into decisions regarding intervention for ACPO.

**CONSERVATIVE THERAPY**

The initial step in management of ACPO is to initiate therapy for potential contributing factors. Initial laboratory testing and management includes an evaluation for electrolyte and metabolic abnormalities (including phosphorous, magnesium, calcium, and thyroid functions) with parenteral correction. Blood cultures and empiric antibiotics are indicated if sepsis is suspected clinically. The patient should be maintained with nothing by mouth, and nasogastric decompression should be initiated. Roentgenographic progress should be monitored by measuring cecal diameter. Management should include discontinuation of narcotics, anticholinergic agents, and any other possible offending medications, exclusion of abdominal infection, mobilization out of bed if feasible, and appropriate medical and surgical management for significant concurrent illnesses. The direct benefits of any individual component of care are unknown because these recommendations have not been studied as single interventions. A trial of conservative measures alone is appropriate in the subset of patients who lack significant abdominal pain, signs of peritonitis, and who have one or more potential underlying factors that are reversible.

Conservative management usually includes placement of a nasogastric tube for proximal gut decompression, aggressive use of optimal body positioning, and often, placement of a rectal tube, with or without prior use of limited tap water enemas. The prone position with hips elevated on a pillow or the knee-chest position with the hips held high often aids the spontaneous evacuation of flatus. These positions should be alternated with right and left lateral decubitus positions regularly each hour, when feasible. When there is no pain and distention is not extreme (<12 cm) conservative measures can be used for 24 to 48 hours before entertaining overt medical or endoscopic intervention, particularly when reversible contributory factors are identified. During this interval, serial physical examinations for tenderness or signs of peritonitis should be performed and plain abdominal radiographs should be obtained every 12 to 24 hours.⁸ Serial laboratory tests such as complete blood cell count and electrolytes should be monitored. The reported success of conservative management is variable with rates from 20% to 92%.⁸ Sloyer et al.⁸ described successful resolution of ACPO in 23 of 25 patients with cancer (92%) who were managed with conservative measures alone. The mean cecal diameter was 11.7 cm (9-18 cm). Among the responding patients, the median time to resolution was 1.6 days (mean 3.0). There were no perforations or ACPO-related deaths. They concluded that most patients respond to conservative therapy, including frequent repositioning, within 3 to 6 days, and that invasive therapy should be reserved for those who progress or do not respond after that interval.

**PHARMACOLOGIC THERAPY**

A variety of pharmacologic agents have been tried for active reversal of ACPO. There are anecdotal reports of success using traditional prokinetic agents such as erythromycin, metoclopramide, and cisapride. These suggest inconsistent responses, with only gradual improvement over 12 to 24 hours of therapy. Cisapride is generally not available at this time. Although it is relatively benign, erythromycin (250-500 mg, every 6 hours) has not been evaluated in randomized studies.

The only consistently positive results have been with neostigmine. Neostigmine is an anticholinesterase parasympathomimetic agent used for postoperative reversal of nondepolarizing neuromuscular blockade and in the treatment of myasthenia gravis and postoperative urinary retention. Parasympathetic stimulation can also induce bradycardia, asystole, hypotension, restlessness, seizures,
Neostigmine. Stephenson et al.10 achieved satisfactory decompression in 11 of 12 patients treated with 2.5 mg of neostigmine administered intravenously over 1 to 3 minutes. Most recently, Ponec et al.11 reported the results of a double-blind randomized controlled trial. Twenty-one patients with cecal diameters of >10 cm despite 24 hours of conservative therapy were randomized to 2 mg intravenous neostigmine versus saline solution placebo. Ten of 11 patients randomized to neostigmine responded initially, and one responded after subsequent open label retreatment. None of 10 patients randomized to placebo experienced benefit, but all 8 in whom neostigmine was openly administered subsequently responded. Two patients required atropine for symptomatic bradycardia, and there were a variety of other minor side effects. They concluded that neostigmine should be considered in patients with ACPO who fail conservative therapy.

ENDOSCOPIC THERAPY
Approaches to mechanical decompression have included radiologic passage of decompression tubes under fluoroscopic guidance, colonoscopic decompression with or without placement of a decompression tube, and cecostomy by percutaneous, endoscopic, laparoscopic, and open surgical means. Among the invasive therapeutic options, colonoscopic decompression is preferred and has been reported in many series, now totaling many hundreds of patients.12-14 Among those series with more than 20 cases, success at the initial procedure, with or without tube placement varied from 61% to 78%, recurrence varied from 18% to 33%, almost all among patients without tube placement, and ultimate clinical success after one or more procedures was 73 to 88%. Complications occurred in 0% to 4% of patients and in-hospital, but unrelated, mortality rates were 13% to 32%. It remains unclear whether ischemia is an absolute contraindication to proceeding with decompression. The efficacy of colonoscopic decompression has not been established in randomized clinical trials. Also, perforations have been described in up to 3% of patients undergoing colonoscopic decompression.14

SURGICAL DECOMPRESSION
Surgical management, with cecostomy or colectomy, generally carries greater morbidity than endoscopic decompression. It is therefore reserved for patients who fail endoscopic and pharmacologic efforts and for those in whom exploration, lavage, or drainage of the peritoneal cavity might otherwise be indicated. This includes patients with predisposing intrabdominal processes as well as those with complications of free or contained perforation or peritonitis.15 Percutaneous cecostomy is also an option.

SUMMARY
Evidence-based classification
A = randomized controlled trial(s)
B = observational studies only
C = opinion or no data

Acute colonic pseudo-obstruction presents with features of large bowel obstruction, without a mechanical cause. It is thought to be due to an imbalance in the autonomic control of the colon. ACPO should initially be treated conservatively, while identifying and correcting potentially contributory metabolic, infectious, and pharmacologic factors (B). Active intervention is indicated for patients deteriorating during initial management and for those with signs or symptoms of ischemia, perforation, significant pain, fever, leukocytosis, or respiratory compromise (C). Most patients will respond to pharmacologic therapy with neostigmine, administered during close cardiovascular monitoring (A). Patients with contraindications to neostigmine and those failing or progressing despite pharmacologic management should be decompressed with more invasive methods, typically colonoscopy (B/C). Those with overt perforation or signs of peritonitis should generally be managed surgically. The only randomized controlled therapeutic trial for ACPO involves the use of neostigmine (A). Although it appears to be effective, there have not yet been any clinical trials directly comparing neostigmine with endoscopic decompression.

CLINICAL BULLETS
- Conservative therapy is the preferred initial management for ACPO.
- Active intervention is indicated for patients at risk for perforation, failing conservative therapy.
- Neostigmine is effective in the majority of
patients with ACPO as compared in a randomized clinical trial to placebo.

- In patients failing or having contraindications to neostigmine, colonoscopic, surgical, or radiologic intervention should be considered.

REFERENCES


Prepared by:

STANDARDS OF PRACTICE COMMITTEE

Glenn M. Eisen, MD, Chair
Todd H. Baron, MD
Jason A. Dominitz, MD
Douglas O. Faigel, MD
Jay L. Goldstein, MD
John F. Johanson, MD
J. Shawn Mallery, MD
Hareth M. Raddawi, MD
John J. Vargo, MD
J. Patrick Waring, MD
Robert D. Fanelli, MD, SAGES Representative
Jo Wheeler-Harbaugh, RN, SGNA Representative