Chapter 17
Large Bowel Obstruction

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17.1 Introduction

Acute mechanical bowel obstruction is a common surgical emergency frequently encountered by the acute care surgeon. While nearly 80 % of mechanical bowel obstructions occur in the small bowel, approximately 20 % present in the large bowel [1, 2]. Because of the potential life-threatening complications, timely recognition and management are crucial.

Large bowel obstruction (LBO) classically describes any physical or mechanical obstruction to the flow of intraluminal contents through the colon or rectum. It is well recognized that not all obstructions are completely mechanical; some can be functional, and this should be recognized in the differential diagnosis. LBOs are an important subject for acute care surgeons, as they have been classically recognized as a surgical emergency [2]. Due to the varied etiology and symptoms on

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presentation, it is imperative for the treating physician to recognize the symptoms, formulate a differential diagnosis, perform correct diagnostic testing, and institute prompt treatment.

17.2 Etiology

Large bowel obstruction may be caused by a variety of etiologies. In general, the causes of large bowel obstruction may be categorized as either mechanical or physiological. Mechanical large bowel obstruction refers to the physical obstruction to the flow of feces through the colon or rectum. This may be due to luminal, mural, or extramural obstruction of the bowel. As a physiological response to the obstruction, intestinal contractility increases in an attempt to relieve the obstruction. The majority of mechanical LBOs are due to neoplasms, with colorectal cancers accounting for nearly 50% of all LBOs. Incidentally, 10–30% of colorectal cancers present with LBO as the chief presenting symptom. Other common causes of mechanical LBO include colonic volvulus and diverticulitis, which combined account for roughly 25% of LBOs. Unlike mechanical small bowel obstruction, adhesive bowel disease rarely causes LBO. Less common causes of mechanical LBO include ischemic stricture, intussusception, fecal impaction, hernias, and foreign objects. Physiological causes of LBO are conditions which mimic mechanical LBO; however, no physical obstruction exists. Causes include acute colonic pseudo-obstruction (ACPO or Ogilvie's syndrome), colonic ischemia, ileus, toxic megacolon, and inflammatory etiologies such as ulcerative colitis and Crohn's disease (Table 17.1). Although most LBOs occur in the elderly, in general, no age or sex differences have been identified for LBO; rather, incidence is affected by the underlying etiology.

Table 17.1 Causes of acute colonic pseudo-obstruction

Common (>95 %)	Colorectal cancer (60–80 %)
	Volvulus (11–15 %)
	Sigmoid
	Cecum
	Transverse colon
	Diverticulitis
	Acute colonic pseudo-obstruction (Ogilvie's syndrome)
	Toxic megacolon
Uncommon (<5 %)	Hernia
	Intussusception
	Inflammatory/ischemic bowel disease
	Extrinsic compression from abscess or mass
	Fecal impaction
	Foreign body

17.3 Clinical Presentation of Acute Large Bowel Obstruction

The signs and symptoms of large bowel obstruction vary greatly and depend on the cause, chronicity, and location of the obstruction. Regardless of the cause of obstruction, patients with LBO commonly present with complaints of generalized colicky abdominal pain, progressive abdominal distention, and failure to pass stool or flatus. As the disease process evolves, constipation may progress to obstipation. Unlike small bowel obstruction, nausea and vomiting are not common presenting symptoms. If they do occur, it is often far later in the course of the disease. Symptoms may present acutely, as in the case of colonic volvulus and intussusception, or may be chronic in cases of more indolent etiologies, such as colorectal cancers.

In large bowel obstruction, the colon becomes distended with air, fluid, and stool proximal to the site of blockage, leading to increased intracolonic pressure. As this pressure increases, the

intramural pressure within the colonic wall may exceed the capillary pressure, leading to mucosal ischemia. If venous occlusion occurs, localized bowel wall edema and transudation of fluid ensues [3]. This may occur in conditions which cause a twist in the mesentery, such as colonic volvulus, or in conditions causing direct pressure on the mesenteric vessels. Following Laplace's law, the cecum is more susceptible to vascular compromise and perforation due to the greater wall tension [4]. As such, patients frequently complain of right lower quadrant pain, even in the presence of left-sided lesions.

A closed loop obstruction occurs when both the proximal and distal portions of the bowel are occluded. This may occur in colonic volvulus or if the ileocecal valve is competent, which occurs in about 75 % of patients, preventing decompression of colonic contents into the distal small bowel [5, 6]. When present, a closed loop obstruction increases the risk of ischemia and perforation.

Patients with untreated LBO may have signs of dehydration, septicemia, a distended abdomen, and a palpable mass. Any signs of sepsis, such as high fever, persistent tachycardia despite resuscitation, shock, or peritonitis, should raise the suspicion for an acute surgical process and most often requires emergent surgical intervention [7, 8].

17.4 Diagnosis

As with any surgical disease, a thorough history and physical exam should be undertaken, with special attention focused on the abdominal and rectal exams. The symptomatology of LBO varies widely, and as such, chronicity of symptoms plays an important role in narrowing the differential diagnosis. The etiology of the LBO may be suggested by the signs and symptoms at the time of presentation. Patients who present with

mechanical causes, such as volvulus, often describe a specific beginning of symptoms, which can be delineated on history. In contrast, malignant obstructions often present after a protracted course, with symptoms of partial obstruction which spontaneously resolve prior to presentation with complete obstruction. A review of symptoms should focus on timing of symptoms, recent alterations in bowel habits, changes in stool caliber, presence of melena or hematochezia, changes in weight, and abdominal pain or pain with defecation. Pertinent medical history should include whether the patient has had constipation or diarrhea, history of chronic laxative or narcotic use, and previous surgical history. A family history of colorectal cancers should be noted.

Important findings on physical exam include abdominal distention, tympany, palpable abdominal mass, and symptoms of peritonitis, such as abdominal rigidity, rebound tenderness, and guarding. A digital rectal exam should be performed assessing for rectal mass, impacted stool in the rectal vault, and blood.

Initial blood work should be obtained to include a complete blood count with differential (CBC) and a basic metabolic panel (BMP). A marked leukocytosis suggests possible ischemia or perforation. A basic metabolic panel (BMP) helps determine the degree of dehydration and aids in the correction of electrolyte and acid-base abnormalities. Lactic acid may be helpful in identifying colonic ischemia; however, elevated lactate is a late sign and may be falsely normal if venous obstruction prevents entry of lactic acid into the systemic circulation. If malignancy is suspected, a carcinoembryonic antigen (CEA) level should be obtained.

Plain abdominal radiography is usually the first diagnostic imaging performed in patients suspected of having LBO [5, 7, 8]. Plain films have the advantage of being quick, inexpensive, and may be done as a portable series if needed. The examination should include supine and upright imaging to detect the presence of pneumoperitoneum and exclude small bowel

obstruction. However, an incompetent ileocecal valve will allow decompression of the LBO into the distal small bowel, and the resultant small bowel distention may mimic a distal small bowel obstruction [8]. Although plain radiographs may confirm a clinical diagnosis of LBO, they often cannot accurately determine the site or cause of the obstruction [9]. The reported sensitivity for the detection of LBO is similar to that for the detection of small bowel obstruction; however, the specificity is considerably lower [5, 10, 11]. The presence of intraperitoneal free air, a cecal diameter greater than 12 cm indicating impending perforation, or the diagnosis of large bowel volvulus often warrants emergent surgical exploration, and additional imaging may be unnecessary.

In cases where urgent surgery is not indicated or plain radiography is nondiagnostic, further imaging is warranted. While water-soluble contrast enema (CE) had previously been viewed as a valuable study for LBO to differentiate mechanical from functional issues, it is less often utilized with the proliferation of multi-detector computed tomography (MDCT). It does, however, remain an important clinical tool for select patients. Water-soluble iodinated contrast is given as a retention enema and multiplanar fluoroscopic films are obtained. CE has been proven to be a sensitive (63–96 %) and specific (80–96 %) examination for the diagnosis of LBO [7, 9, 12, 13]. CE does, however, have its drawbacks, namely, patient discomfort and the need for a procedural radiologist, which may not be available 24 h a day. Additionally, while CE provides information on the degree and anatomic location of the obstruction, it often does not determine the cause of the obstruction nor the degree of inflammation or ischemia present.

Multi-detector computed tomography has now become the imaging modality of choice, with a reported sensitivity of 93 % and a specificity of 96 % [8, 14, 15]. MDCT has the advantage of being rapid and well tolerated and provides accurate large bowel morphology. In the absence of acute kidney injury, chronic kidney disease, or allergy, MDCT should be performed

with the addition of intravenous contrast, which improves the ability to identify the presence of a mass, inflammation, or bowel wall ischemia. The MDCT, when associated with multiplanar reconstruction and volume rendering, has a documented sensitivity of 83 %, specificity of 93 %, and an accuracy of 91 % in identifying ischemic complications [14, 15]. In cases of malignancy, MDCT has the added benefit of detecting local and regional metastases. Oral contrast is often unnecessary and not well tolerated in the setting of obstruction. Rectal water-soluble contrast may be administered to aid in the identification of distal colonic obstruction. MDCT also has the added benefit of identifying any complicating features, such as pneumatosis intestinalis and a cecal diameter greater than 12 cm, both indicative of impending perforation.

17.5 Initial Management of Large Bowel Obstruction

Although the definitive management of LBO depends on the underlying etiology, the initial treatment generally remains the same. Patients with LBO are usually intravascularly depleted and may sequester large volumes of fluid in the interstitial space. Additionally, patients may present with vomiting, leading to further electrolyte and volume losses. As such, initial treat should focus on volume resuscitation and minimizing ongoing ischemia. These efforts should be implemented even before the definitive diagnosis is made. The choice of resuscitation fluid will depend on serum electrolyte analysis and clinical assessment. An indwelling urethral catheter allows for measurement of urine output and helps guide resuscitation. Patients with hemodynamic instability may require central venous access in order to assess central venous pressure and response to resuscitation. Should vomiting be present, nasogastric decompression should be instituted.

17.6 Specific Causes and Treatment

17.6.1 Colorectal Cancer

Colorectal cancers are the most common cause of large bowel obstruction in the United States and Western Europe. Between 7 and 29 % of patients with colorectal cancers present with acute large bowel obstruction [16, 17]. The typical presentation is of a more insidious onset. Most patients report long-standing constipation and colicky abdominal pain. Emergency presentation of colorectal cancer more commonly occurs in advanced stages of the disease, frequently occurring in elderly patients with significant comorbidities [18]. Morbidity and mortality are extremely variable. American Society of Anesthesiologists (ASA) grades 3–4, preoperative renal failure, and the presence of proximal colon perforation with or without peritonitis have been identified as predictors of unfavorable outcome following surgery for malignant LBO [19–21]. The management of colorectal cancers involves a complex, multimodal approach and is far beyond the scope of this chapter. However, some key concepts will be discussed in detail.

17.6.1.1 Obstructing Right Colon Lesions

For obstructing cancers involving the proximal colon, situated between the cecum and splenic flexure, right hemicolectomy with primary ileocolic anastomosis is considered safe in the emergent setting, as long as this can be performed following the rules of oncologic resection [17, 18]. Published anastomotic leak rates of 2.8–10 % have been reported and are similar to those reported for elective resections [17, 22–24]. Single stage operation has several advantages. It allows for resection of the obstructing lesion and proximal distended colon; it provides

immediate restoration of bowel continuity, obviating the need for a second operation for ostomy takedown, and alleviates the psychosocial impact associated with an ostomy. In patients with a mechanical obstruction, preoperative bowel preparation is contraindicated due to lack of benefit and risk of harm, and it should not preclude primary anastomosis [25]. Similarly, on-table lavage lengthens the operation, increases the risk of spillage, and does not have any beneficial effects on primary anastomosis [25, 26]. Primary resection and anastomosis should only be used in the absence of hemodynamic instability and generalized peritonitis secondary to free perforation as the risk of mortality rises significantly. In this situation, proximal diversion with mucous fistula should be performed.

17.6.1.2 Obstructing Left Colon Lesions

Traditionally, the management of left-sided lesions has differed from that of right-sided lesions because colocolonic and colorectal anastomoses have been regarded as more susceptible to leakage [27]. Surgical management of obstructing lesions of the left colon has evolved from a three-stage procedure (proximal colostomy, second-stage tumor resection, and third-stage stoma closure) to management with a single stage operation. While the three-stage operation has fallen out of favor, opinion is still divided as to the optimal management of left-sided lesions. Frequently performed in the emergency setting, the Hartmann's procedure (primary resection with end colostomy), first described in 1921, has been advocated as it is technically less complex, can be performed quickly, and avoids the morbidity associated with an anastomosis. This should be considered the procedure of choice in high-risk patients. There are disadvantages of this operation. Subsequent stoma reversal is only performed in approximately 60 % of patients, usually due to advanced age or significant comorbidities [28, 29]. Additionally,

stoma reversal is associated with significant morbidity and mortality, up to 60 % and 35 %, respectively.

The single stage operation, when used in appropriate patients, has proven feasible in the management of left-sided malignant obstructions [30–32]. This procedure combines the treatment of the disease and restores intestinal continuity in a single operation, thus avoiding the morbidity and mortality associated with colostomy and its reversal. Optimal patient selection is of utmost importance, as the single stage operation should not be performed in the setting of peritonitis or shock.

More recently, the use of colonic stent placement to relieve obstruction and avoid emergency surgery has been utilized. Since their introduction in the early 1990s, colonic stents have been used for palliation or as a bridge to surgery for obstructing lesions of the left colon. The procedure involves fluoroscopic or endoscopic placement of a metallic stent at the site of obstruction. The stent is allowed to self-expand, thus maximizing the patency of the bowel. Colonic stents are indicated in patients who are deemed non-operative candidates due to the extent of malignant disease or those who are considered high-risk operative candidates due to underlying comorbidities [27, 33]. The use of colonic stents and endoscopic management of LBO will be discussed in detail in the ensuing chapter.

17.6.2 Colonic Volvulus

Colonic volvulus is the axial rotation of the colon around its mesentery. Volvulus is thought to be an idiopathic condition, probably with an anatomical basis. The condition results in complete or partial obstruction of the colon and causes impingement of the blood supply. Although colonic volvulus is relatively rare in the United States and Western Europe, accounting for only 1–7 % of all large bowel obstructions, it is much more common in parts of Africa, South Asia, and South America and is the most common cause for large bowel obstruction [34–36].

17.6.2.1 Cecal Volvulus

Colonic volvulus may occur in any segment of the colon which is mobile and attached to a long mesentery that is fixed to the retroperitoneum by a narrow base; however, the mesenteric anatomy is such that colonic volvulus is most common in the sigmoid colon. Volvulus may also involve the right colon and terminal ileum (cecal volvulus), the cecum alone (cecal bascule), and, rarely, the transverse colon. Cecal volvulus occurs when the cecum is poorly fixed and highly mobile or when there is anomalous fixation of the right colon to the retroperitoneum. However, anatomic variation alone does not account for the wide variation in incidence of cecal volvulus throughout the world. Factors such as previous abdominal operations, chronic constipation, high-fiber diets, ileus, distal colon obstruction, and late-term pregnancy have all been identified as predisposing factors in the development of cecal volvulus [37–39]. Cecal bascule, though considered by most as a volvulus, is actually the anterosuperior folding of the cecum over the ascending colon, without axial rotation. This occurs less commonly than true rotational volvulus and is less likely to cause vascular compromise [37, 39]. Cecal volvulus and sigmoid volvulus exhibit different patient demographics. While sigmoid volvulus presents more commonly in elderly men, the majority of patients with cecal volvulus are younger women [40].

The typical presentation of patients with cecal volvulus is the acute onset of abdominal pain and distention. Depending on the acuity of symptoms, patients may be able to identify the exact time of onset. Cecal volvulus may resolve spontaneously; thus, many patients give a history of chronic, intermittent symptoms. Because cecal volvulus involves both the cecum and terminal ileum, symptoms of distal small bowel obstruction may also be present. In the early stages of the disease, patients may complain of mild abdominal pain; however, as the obstruction progresses, vascular compromise may lead to gangrene and peritoneal signs. On physical exam, a palpable mass may be noted in right lower quadrant.

If the presentation is suspicious for cecal volvulus, plain abdominal radiography is often diagnostic. The classic finding is the "coffee bean" sign, whereby the distended cecum is displaced out of the right lower quadrant into the left upper quadrant. Should contrast enema be performed, a classic "beak" sign, representing the point of torsion, will be demonstrated. Occasionally, contrast enema may reduce the volvulus, negating the need for emergent operation.

The patient with cecal volvulus may initially be managed with decompression; however, surgical resection remains the mainstay of treatment. Colonoscopic decompression, while commonly used for sigmoid volvulus, has not shown long-term efficacy as the sole treatment for cecal volvulus [41–43]. Although it is rarely advocated as a definitive treatment because of its high recurrence rates of 20–70 %, colonoscopic decompression is considered a temporizing measure, allowing surgical intervention to be performed on an elective or semi-elective basis [41, 44–47].

Operative management of cecal volvulus can be divided into two broad categories: resective versus non-resective procedures. In general, non-resective procedures are not advocated due to the exceedingly high recurrence rates, reported up to 75 % for cecal detorsion and 20–30 % with the addition of cecopexy [38, 48–50]. Primary resection of the cecal volvulus is the primary method of management. At operation, untwisting of the torsed cecum is not recommended, as septic shock may result from rapid intravascular influx of toxins from the gangrenous segment [8, 51]. The majority of patients can be resected and primarily anastomosis in the same setting. When gangrenous changes, perforation, or hemodynamic instability is encountered, resection with end ileostomy and mucous fistula or a planned second-look operation may be necessary.

17.6.2.2 Sigmoid Volvulus

Volvulus of the sigmoid colon is the most common form of volvulus in the United States. Sigmoid volvulus occurs when the sigmoid colon is significantly elongated (dolichosigmoid) and the mesocolon is narrow at its base. Sigmoid volvulus most commonly affects elderly males. Similar to cecal volvulus, it is generally agreed that sigmoid volvulus does not occur with dolichosigmoid alone; otherwise, children, who have a baseline redundancy in their sigmoid colon, would be most affected [52, 53]. The two most common predisposing factors are chronic constipation and the use of psychotropic medications, as evidenced by the high incidence among chronically institutionalized, elderly patients, with poor intake of fluids and dietary fiber [52–54].

The clinical presentation depends on the duration and degree of colonic torsion, but, in general, sigmoid volvulus presents in a similar fashion as cecal volvulus; abdominal pain, cramping, distention, and obstipation are hallmark signs. However, as previously noted, patients with sigmoid volvulus are typically elderly, chronically ill individuals. This may preclude their ability to provide a useful history and physical exam may be of limited use. These patients are often brought in by their caregivers who note that the patient has not had a bowel movement, appears distended, and may be obtunded. This leads to a delay in the diagnosis, sometimes for up to 48–72 h. Approximately 30–60 % will report previous similar episodes [37, 55, 56]. If an incomplete obstruction exists which may occur with torsion of less than 180°, allowing liquid stools to pass, paradoxical diarrhea may be a presenting feature.

In 60–90 % of cases, plain abdominal radiographs alone are sufficient to establish the diagnosis [5, 57, 58]. The massively distended ahaustral sigmoid loop will be oriented with its apex

in the right upper quadrant, giving rise to the classic "bent inner tube," "coffee bean," or "omega" configuration of the bowel, being specific to sigmoid volvulus, and is present in up to 60 % of cases [58, 59] (see Fig. 17.1). In the emergency setting, MDCT is often the diagnostic examination of choice for non-specific gastrointestinal problems and is often performed first. A "beak" sign may be seen at the point of obstruction and, if necessary, may be confirmed with the addition of rectal contrast. Similar findings are generally found on barium or water-soluble contrast enema; however, these studies should not be utilized if gangrene or perforation is suspected.

Unlike cecal volvulus, the primary strategy for treating sigmoid volvulus is early sigmoidoscopic or colonoscopic decompression followed by elective surgery [35, 44, 53, 60–62]. An alternative to decompression by flexible sigmoidoscopy is the

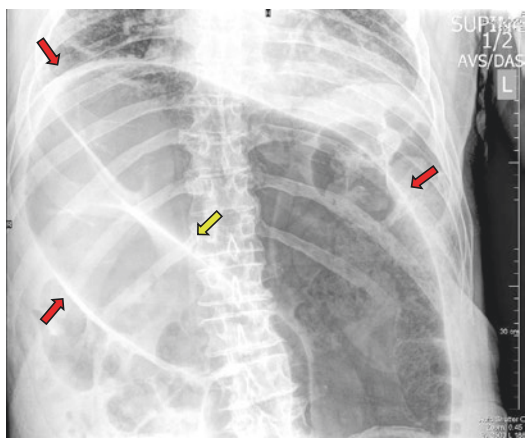

Fig. 17.1 65-year-old man with a sigmoid volvulus. Supine anteroposterior radiograph of the abdomen demonstrates the classic "coffee bean" sign (*red arrows*) in sigmoid volvulus. The apex of the volvulus points toward the right upper quadrant. Note also the central cleft (*yellow arrow*) of the coffee bean

use of rigid proctoscopy with the placement of a rectal decompression tube. However, the location of the obstruction is often beyond the limit of the rigid proctoscope. Because the recurrence rate following decompression approaches 90 %, elective or semi-elective resection should be performed during the same hospital admission [55, 61, 63, 64]. Definitive surgery should be performed within 2–7 days following decompression, barring complications. If, at the time of surgical exploration, the colon is viable, a number of treatment options exist. Detorsion alone should be avoided as it carries an unacceptable recurrence rate. Rectopexy, both laparoscopic and open, have been shown to be reliable approaches in acute and elective settings. If the bowel appears only mildly compromised, primary resection and anastomosis should be considered. However, in the setting of gangrene or perforation, a Hartmann procedure or damage control operation should be performed. Occasionally, patients present with long-standing or recurrence sigmoid volvulus with resultant megacolon, in which case a subtotal colectomy with ileorectal anastomosis may be warranted.

17.6.3 Acute Colonic Pseudo-Obstruction

Acute colonic pseudo-obstruction (ACPO) refers to a syndrome defined by abnormal colonic distention in the absence of mechanical obstruction. Ogilvie's syndrome is an eponym for acute colonic pseudo-obstruction. Ogilvie's syndrome is believed to be a functional disturbance of colonic motility often observed in hospitalized patients as a result of hemodynamic, metabolic, pharmacologic, inflammatory, or postoperative conditions. Although not a mechanical obstruction, ACPO may present with features similar to mechanical LBO. The clinical features of Ogilvie's syndrome include abdominal distention, with or without abdominal pain, in hospitalized or institutionalized patients with serious underlying medical and

surgical conditions. Patients usually present with constipation; however, passage of flatus or stool is reported in up to 40 % of patients. In a large retrospective series of 400 patients, Vanek et al. reported the most common predisposing conditions associated with Ogilvie's syndrome were non-operative trauma (11 %), infections (10 %), and cardiac disease (10 %) [65]. Additional predisposing [65, 66] factors, such as severe metabolic derangements, sepsis, gastrointestinal infections, medications, and spinal cord injuries, have also been implicated in the development of Ogilvie's syndrome [65–67]. Although the diagnosis of ACPO may be suggested by the clinical presentation, mechanical obstruction must be ruled out. Plain abdominal radiographs will show varying degrees of colonic dilation (see Fig. 17.2). In contrast to mechanical LBO, air will be noted in the rectum. If the diagnosis is in question, mechanical obstruction can be excluded by performing a water-soluble contrast enema or rectal contrast-enhanced MDCT scan. This has the added benefit of creating an osmotic effect which may be therapeutic in decompressing the colon. MDCT may also identify signs of impending perforation, such as a cecal diameter of greater than 9 cm, or signs of colonic ischemia.

Treatment of ACPO is primarily medical. Nasogastric decompression should be used in patients with concomitant paralytic ileus. Electrolyte and metabolic abnormalities must be corrected, and offending medications, such as opioids, anticholinergic agents, norepinephrine, and dopamine, should be minimized or discontinued if possible. Success of conservative management is variable, ranging from 20 to 92 %. If these measures are ineffective, intravenous neostigmine should be administered. Neostigmine is highly effective in inducing colonic decompression; however, relapse is common and occurs in 40 % of patients [68, 69]. In patients whom medical management has failed, colonoscopic decompression should be performed [4, 70]. This may be performed without the use of bowel preparation and advancement to the hepatic flexure usually results in

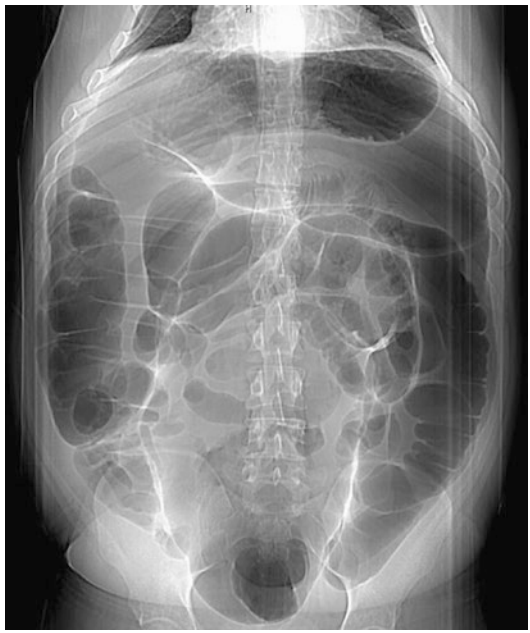

Fig. 17.2 47-year-old man with developmental delay and Ogilvie's syndrome. Computed tomography scout film demonstrates massive gaseous distention of the colon overlying dilated loops of small bowel (paralytic ileus)

adequate decompression [70]. To increase therapeutic benefit, decompression tube placement at the time of colonoscopy may reduce recurrence, but controlled trials with this intervention are not available.

Surgical management is rarely necessary and should be reserved for patients who have failed pharmacologic and endoscopic management or those who have clinical signs of colonic ischemia or perforation. Surgical options include a venting stoma (cecostomy) or colectomy. Ogilvie's syndrome is one of the few conditions where cecostomy is indicated. Tube

cecostomy should be performed only in patients without evidence of ischemia or perforation. It can be performed laparoscopically or through a limited right lower quadrant incision. A large Foley catheter is left in place for 2–3 weeks to allow venting of the colon. Cecostomy can be performed under local anesthesia. In cases of ischemia or perforation, laparotomy is indicated. Segmental or subtotal resection may be performed, as dictated by the extent of colon involvement. In the event a colectomy is needed; an end stoma and mucous fistula should be performed and anastomosis avoided.

17.7 Summary

Acute large bowel obstruction is a complex syndrome frequently encountered by the acute care surgeon. In the United States, the majority of large bowel obstructions are caused by colorectal carcinoma, colonic volvulus, and diverticulitis. The treating physician must include physiological causes of LBO in the differential diagnosis. Acute colonic pseudo-obstruction may mimic mechanical bowel obstruction; however, the treatment is drastically different. The astute surgeon must rapidly evaluate the patient and implement the appropriate treatment algorithm so as to limit morbidity and mortality. Ultimately, the treatment needs to be tailored to the individual situation.

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