Acute Colonic Pseudo-obstruction Mimicking Colon Cancer on CT: a case report

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ABSTRACT

A 45-year-old female patient presented with severe abdominal pain and nausea for one day. Radiograph of the kidney, ureter, and bladder (KUB) revealed marked distension of the feces-filled bowel loop in the right lower abdomen. Contrast-enhanced computed tomography (CT) findings revealed a short segmental wall thickening and luminal narrowing at the hepatic flexure of the colon, marked distension and markedly thin walls of the ascending colon and cecum (maximum cecal diameter, 10.2 cm), and partially collapsed distal colonic loop. Provisional diagnosis of colonic obstruction with colon tumor, possibly cancer, was made based on the CT findings. Emergency laparotomy revealed marked distension of the ascending colon and cecum, along with a serosal tear; however, no obstructive lesion or adhesion band was found. Therefore, a final diagnosis was made of acute colonic pseudo-obstruction. Our findings indicate that acute colonic pseudo-obstruction might be mistaken for colon tumor on CT images.

Keywords: colon, acute pseudo-obstruction, CT

INTRODUCTION

Acute colonic pseudo-obstruction (ACPO), also known as Ogilvie’s syndrome, refers to the marked distension of the colon, without obstructive lesions; it can mimic mechanical bowel obstruction in terms of both clinical and radiological characteristics [1-5]. The condition can progress rapidly, and it leads to necrosis and perforation of the cecum in up to 15% of cases, with a mortality rate of 50% [6-8]. Because of the smooth contour of the colon at the transition area, ACPO might mimic colon tumor on CT images [9]. Early detection and prompt management are essential for minimization of the morbidity and mortality rates in patients with ACPO. Here, we present a case of a patient with acute colonic pseudo-obstruction mimicking colon cancer on CT images.

CASE REPORT

A 45-year-old female patient presented with severe abdominal pain and nausea for one day. Severe tenderness and rebound pain were noted at the right abdomen. Urine analysis revealed a white blood cell count of 45-50 per high power field. The other laboratory findings, including the serum white blood cell count and electrolyte (potassium and sodium) levels, were within the normal limits. The patient had been healthy before onset of her symptoms, and she reported no past history of medical issues, except for hemorrhoidectomy many years ago. KUB revealed marked distension of the ascending colon and cecum (maximum cecal diameter, 10.2 cm), and partially collapsed distal colonic loop. Provisional CT diagnosis of colon tumor, possibly cancer, was made based on the CT findings. Emergency laparotomy revealed marked distension of the ascending colon and cecum, along with a serosal tear; however, no obstructive lesion or adhesion band was found. Therefore, a final diagnosis was made of acute colonic pseudo-obstruction. Our findings indicate that acute colonic pseudo-obstruction might be mistaken for colon tumor on CT images.
Figure 1. a. KUB shows distension of the cecum and ascending colon (between arrows). The small bowel gas pattern is unremarkable. b-e. Contrast-enhanced CT in the axial (b and c), reformatted sagittal (d), and coronal (e) planes reveals marked distension and thin walls of the ascending colon and cecum, a maximum cecal diameter of 10.2 cm (measured between the arrows in b and d), a segmental and regular wall thickening at the hepatic flexure causing luminal narrowing (thin arrows in c-e), and partial collapse of the distal colonic loop (thick arrows in c and d).
Acute colonic pseudo-obstruction

Acute colonic pseudo-obstruction (ACPO) is a syndrome which presents clinical symptoms similar to those of mechanical obstruction, along with a marked distension of the colon in the absence of mechanical obstruction. The condition is also referred to as Ogilvie’s syndrome, after Sir Heneage Ogilvie, who first described the condition in 1948 [3-4]. The clinical features of ACPO include abdominal pain and tenderness, nausea and/or vomiting, constipation, and fever. It most often affects patients in their late middle age (over 60 years of age) and shows a slight predominance of incidence in men. The condition commonly occurs in patients who are hospitalized or institutionalized; have severe underlying medical or surgical conditions (such as prolonged bed rest post-surgery, pulmonary disease, cardiovascular disease, infectious diseases, neurological or traumatic events), electrolyte imbalance, or metabolic disorders; or are on anticholinergic medication [4-8]. However, as seen in the present case, ACPO may occur in a patient without any etiology [3].

Even in the absence of the obstructive lesions, acute colonic distension might progress rapidly, leading to necrosis and even perforation of the colon, especially at the cecum. If left untreated, the risk of spontaneous cecal perforation in ACPO is as high as 15%, with a mortality rate of 50% [7]. According to Laplace’s law, the pressure required to stretch the wall of a hollow organ is inversely proportional to its radius. Because the cecum is the widest part of the colon, it is more vulnerable to distension and perforation [8].

Although cecal diameter > 12 cm has been found to be associated with a higher incidence of perforation, no clear relationship has been established between cecal diameter and perforation. However, the duration of cecal distension does correlate with the risk of perforation [6-7], and prolonged cecal dilatation over 2-3 days should prompt aggressive management for decompression by colonoscopy or surgery. Cecal diameter > 14 cm, delay in colon decompression, and old age can increase the incidence of colonic perforation [8].

The parasympathetic nervous system increases the contractility of the colon, whereas the sympathetic nervous system decreases its motility. Although their exact pathophysiology in causing colonic pseudo-obstruction is still unclear, imbalance in autonomic innervation can lead to excessive parasympathetic suppression or sympathetic stimulation [6]. The etiology may be parasympathetic dysfunction, which causes impairment of peristalsis and progressive bowel dilatation. At the splenic flexure, the parasympathetic innervation of the colon transitions from the vagal nerve for the proximal portion to the sacral plexus for the left colon [5]. Therefore, the transition zone, i.e., the cut-off area of the dilated segment of the colon, is characteristically present at the splenic flexure or adjacent to it. However, it may also occur at the sigmoid colon or hepatic flexure [5, 10, 12-13], as observed in the present case.

Colonic pseudo-obstruction must be differentiated from mechanical obstruction. The former is diagnosed by exclusion of other causes of obstruction, such as adhesion, acute gastric dilation, colonic volvulus, strictures, tumors, and fecal impaction [8, 12]. Adhesive bands seldom obstruct the colon, and present as abrupt transitions on CT images. Malignant tumors may exhibit irregular margins. Although regular, symmetric, and homogeneous wall thickening is usually attributed to benign conditions such as inflammation, bowel edema, and ischemia, it can also occur in small or well-differentiated adenocarcinomas [9]. The transition area of the colon in the present case exhibited regular wall thickening, which led to the erroneous CT diagnosis of colon tumor resulting in bowel obstruction.

Isolated colonic pseudo-obstruction can occur in two forms — acute and chronic. The acute form is transient and reversible; it causes severe abdominal distension and usually occurs in elderly patients with medical illnesses or after major surgical procedures [4, 5, 7-8]. The most severe complications of acute isolated colonic pseudo-obstruction are ischemia and perforation.

Chronic pseudo-obstruction is a rare and heterogeneous clinical condition observed in idiopathic or other non-bowel disorders. It usually exhibits recurrence and is established based on a history of chronically dilated colon. The condition may be associated with malabsorption and malnutrition. Perforation is less likely to occur in chronic pseudo-obstruction than in its acute counterpart [8].

There are several approaches for the management of patients with ACPO [2-4, 6]. Conservative management is instituted initially, which includes bowel rest (nothing per os) as well as nasogastric and rectal tube decompression. These supportive measures can successfully treat the majority of the patients. In addition, patients should maintain electrolyte balance, discontinue narcotics, and have the underlying infection treated.

Medical treatment is initiated if the symptoms do not improve after 1-2 days of conservative management or if the cecal distension increases over 12 cm [3]. Neostigmine, a reversible acetyl cholinesterase inhibitor, counteracts the sympathetic-parasympathetic imbalance by stimulating the muscarinic receptors, thus enhancing colonic motor activity. This drug can prompt colonic decompression in 91% of the cases [2]. However, neostigmine has a side effect of inducing bradycardia and, therefore, necessitates intensive monitoring of the patient.

Decompression therapy should be reserved for patients unresponsive to conservative and medical treatments [2, 4]. Colonoscopy with or without placement of a decompression...
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tube can remove air from the colon, allowing decompression, thus decreasing the rate of perforation. Colonoscopy has been found to be more effective than neostigmine in the treatment of Ogilvie’s syndrome [11]. However, this procedure should not be performed if the bowel is already perforated or signs of peritonitis are observed.

Surgical decompression should be performed in patients refractory to medical and endoscopic management and in those exhibiting peritonitis or perforation [6]. Cecostomy has high success rates in patients without bowel perforation. However, in cases with bowel ischemia or perforation, segmental or subtotal colectomy is the procedure of choice. Cases with cecal perforation exhibit higher mortality rates compared to those with ischemia [8].

Management of acute pseudo-obstruction by early mobilization of hospitalized patients, prevention of constipation, and administration of medications for enhancing the propulsion of fecal material is aimed at prevention rather than treatment [8].

In conclusion, acute pseudo-obstruction may mimic colon tumor on CT images. Early detection and prompt management are essential for minimization of the morbidity and mortality rates. As evident from the findings of the present case, although the condition is initially diagnosed as colon cancer, the relatively smooth margins of the narrowed lesion site might indicate the possibility of colonic pseudo-obstruction. In such a scenario, the patient must be placed under close observation for a short period of time before surgery and managed by medical treatment with, for example, neostigmine in order to enhance colonic motor activity, which might relieve the symptoms in cases with acute colonic pseudo-obstruction.

REFERENCES