Case report

Ischemic pancolitis: A rare presentation of a relatively common disease

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SUMMARY

Background: Ischemic colitis represents the most common form of gastrointestinal ischemia. Ischemic colitis may be classified into gangrenous and non gangrenous forms. High morbidity and mortality and urgent operative intervention are the hallmarks of gangrenous ischemic colitis. Patient-Methods: A 78-year-old man was admitted to our department with severe, generalized, abdominal pain, diarrhea and vomiting. A flexible sigmoidoscopy, demonstrated patchy areas of mucosal necrosis while the entire mucosa appeared edematous, cyanotic, dusky and black with pseudopolyps and subepithelial hemorrhage. A sub-total colectomy was performed with a colostomy of ascending colon and rectal preservation. The patient recovered uneventfully and the histopathology documented the diagnosis of extensive ischemia. Conclusion: Fulminant universal colitis is a rare form of colon ischemia. Colonoscopy and aggressive treatment with surgical resection of the affected segment should be considered early to minimize adverse outcomes. Perioperative colonoscopy is the procedure of choice to establish the extent of ischemic damage and determine the extent of resection. Ischemic colitis represents the most common form of gastrointestinal ischemia. Colonic blood supply is lower than that of any other intestinal segment. It decreases during strenuous physical activities precipitating in colonic ischemia in the setting of pre-existing mesenteric microvascular atherosclerosis.[1,2] It usually occurs in the elderly with concomitant illnesses such as shock, colon cancer or after surgical intervention in the aorta and the mesenteric vessels. It might also spontaneously appear in apparently healthy individuals. Inherited and acquired risk factors have been suggested to play an important role in the pathogenesis of ischemic colitis.[3,4] Ischemic colitis may be classified into gangrenous and non gangrenous forms. The latter can also be subdivided into transient and chronic forms. Therapy and outcome varies depending on the severity of the disease.

Key words: Ischemic colitis, abdominal pain, colonoscopy

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CASE REPORT

A 78-year-old man was admitted to our department with a one-day history of severe, generalized, abdominal pain, diarrhea and vomiting. The pain started suddenly the previous night, after strenuous effort in his work and gradually became worse. He had a long-standing history of hypertension and diabetes mellitus. His medication included an ACE inhibitor and a sulfonylurea. At the time of admission his vital signs were abnormal (*BP*: 90/50 mmHg, 110 bpm) and his body temperature was elevated at 37,8 ^{o}C. On physical examination he had quite a distended abdomen with diffuse abdominal tenderness. Rectal examination was painful and showed normal stool color while nasogastric aspiration returned dark blood. Fecal occult blood test was positive. Metabolic acidosis (arterial pH=7.32, PCO_2=24.7 mmHg, PO_2=98.4 mmHg) and signs of septic shock were present.

Initial laboratory investigation was as follows: *white blood cell count*, 16.4 x 10^3/μl (normal, 3.8 – 10.5 x 10^3/μl); *hemoglobin*, 10.9 g/dl; *hematocrit*, 30.6%; *platelet count*, 135 x 10^9/L (normal, 150 – 400 x 10^9/L); *blood urea nitrogen*, 73 mg/dl; *creatinine*, 1.3 mg/dl; *CRP*, 4.27 mg/dl (normal, <0.5 mg/dl); *glucose*, 275 mg/dl. Intravenous nor-

mal saline was given for extracellular volume resuscitation. An urgent esophagogastroduodenoscopy did not reveal the source of bleeding. A following flexible sigmoidoscopy, demonstrated patchy areas of mucosal necrosis while the entire mucosa from rectum to the rectosigmoid junction appeared edematous, cyanotic, dusky and black with pseudopolyps and subepithelial hemorrhage (figure 1).

Emergency abdominal computed tomography revealed a marked gaseous distention of large bowel and diffuse circumferential wall thickening, with cecum and ascending colon relatively unaffected (figure 2). The major mesenteric vessels were patent, therefore angiography was not indicated. The endoscopic appearance of dusky large bowel mucosa along with the patient's past and current medical history and the signs of intravascular volume depletion, led us to the diagnosis of fulminant ischemic colitis. The patient was maintained on continuous oxygen supply, intravenous fluids and bowel rest to ensure adequate colonic perfusion. Empiric broad-spectrum antibiotics were given to minimize bacterial translocation and to treat sepsis. A nasogastric and a rectal tube were placed due to colon distention. As the signs of sepsis and peritoneal irritation persisted despite conservative management, the patient underwent an emergency operation. A sub-total colectomy was performed with a colostomy of ascending colon and rectal preservation. At laparotomy, all affected bowel proximal to the rectum was resected. A colonoscopy was performed in the operating room to ensure normal surgical margins. Although the external appearance of the bowel was normal, the endoscopic appearance of the mucosa was dusky and necrotic extending from rectum to the hepatic flexure. The cecum appeared free from disease and ascending colon with severe mucosal edema, hemorrhagic infiltration and irregularly shaped ulcerations. The patient recovered uneventfully from his operation and was discharged on 11th postoperative day. Biopsy specimens of the rectum taken from the flexible sigmoidoscopy revealed inflammatory cells infiltration and necrosis of the colonic epithelium with focal sparing of the base of the crypts, submucosal edema, vascular congestion, hemorrhage and fibrin thrombi. The histopathology of the resected bowel documented the diagnosis of extensive ischemia (figure 3). An extensive thrombophilic screening performed during hospitalization was negative.

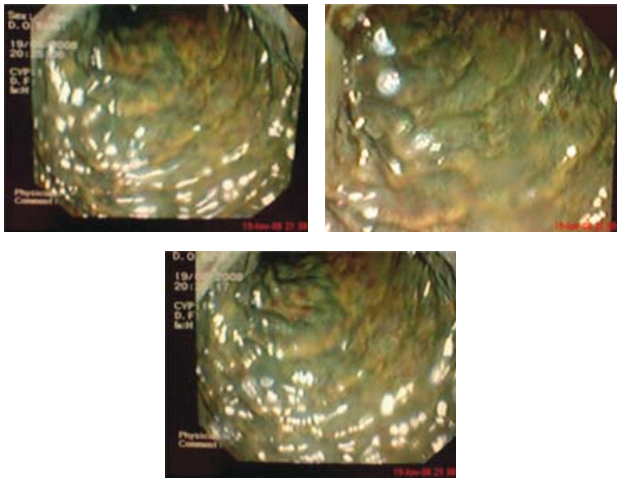

Figure 1. Dusky appearance of the distal colon. Close-up shows the dark discoloration with the absence of normal appearing mucosa.

Figure 2. Abdominal CD showing marked gaseous distention of large bowell and diffuse circum ferential wall thickening.

DISCUSSION

Fulminant universal colitis is a rare form of colon isch-

Figure 3. Speciment of the resected bowel.

emia (<5% of cases) with only a handful of cases documented.[5-7] It has an acute and very severe onset that involves the entire colonic mucosa and may progress to gangrene with transmural infarction leading to necrosis and death. It is a highly lethal disease with a 75% mortality rate.[5] Diagnosis requires a high index of clinical suspicion. The chronology of symptoms and the clinical situations upon which these symptoms appear must be taken into account. The presence of diarrhea, abdominal pain and tenderness, mild lower gastrointestinal bleeding should prompt consideration of ischemic colitis as a cause.[8] Special attention must be paid to the presence of conditions that predispose to the disease such as hard physical activity, dehydration, medications, thrombophilic tendency and surgery in aorta or cancer.[9] The original attack precipitating the ischemic event often cannot be established, but frequently occurs in the elderly patient with diffuse disease of small segmental vessels and various co-existing morbidities.[10] Diagnosis requires early colonoscopy (<48 h). Although other imaging techniques (CT scan) may provide information for the extent of the disease or suggest the diagnosis, endoscopic visualization of colonic mucosa with histologic analysis of the biopsies is the gold standard for confirmation of the disease. Colonoscopy and aggressive treatment with surgical resection of the affected segment should be considered early to minimize adverse outcomes.[1,5] Most cases are mild and resolve spontaneously with conservative therapy.

Clinical suspicion of colonic infraction justifying an emergency laparotomy should arise if there are signs of clinical deterioration despite conservative therapy, such as sepsis, persistent fever and leukocytosis, peritoneal irritation, protracted pain diarrhea or bleeding, protein-losing colopathy for more than 14 days, free intra-abdominal air, or extensive gangrene endoscopically.[11] About 20% of patients with acute ischemic colitis will require surgery with an associated mortality rate of up to 60%.[12,13] At laparotomy, the diagnosis is confirmed and all affected bowel resected. It is important to ensure normal surgical margins. The external appearance of the bowel may be normal during laparotomy since the serosa may be unaffected, despite extensive mucosal damage. The extent of resection should be guided by the distribution of disease seen on preoperative studies. Some authors have reported on intraoperative techniques such as Doppler ultrasonography, intraoperative colonoscopy, evaluation of the antimesenteric serosal surface by hand-held, photoplethysmography, pulse oximetry or transcolonic oxygen saturation and intravenous fluorescein for assessment of colonic viability.[14,15,16] In general the resected segment should be opened in the operating room and examined for mucosal injury. If needed, additional colon should be removed. A colectomy is followed by colostomy or ileostomy. Patients with left – sided ischemic colitis undergo resection with a proximal stoma and a distal mucous fistula or Hartman pouch. Primary anastomosis is unusual. Rarely, an ileocolostomy may be performed in patients with right-sided IC and viable ileum and transverse colon. In a series by Longo et al, stoma was closed in 75% of patients with IC who underwent segmental resection vs only a third of those with total colonic involvement.[9] As mentioned above perioperative colonoscopy is one of the procedures that help in establishing the extent of ischemic damage and determine the extent of resection.

CONCLUSIONS

The etiology of ischemic colitis is multifactorial and the clinical presentation variable. An acute nonocclusive, self-limited compromise in intestinal blood flow which is inadequate for meeting the metabolic demands of a region of the colon is the underlying pathophysiology. The diagnosis is based on the combination of clinical suspension, endoscopic and histological findings.

Therapy and outcome depend on the severity of the disease. Most cases of non gangrenous form are transient and resolve without any complications. High morbidity and mortality and urgent operative intervention are the hallmarks of gangrenous ischemic colitis. In conclusion, preoperative or intraoperative colonoscopy helps in de-

fining the right surgical margins, which are invisible by the surgeon during operation. Thus, a second reoperation is avoided[5]. The above approach translates into better outcomes.

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