

Ascending colon necrosis secondary to acute pancreatitis. A case report and literature review

Erika Barlandas Quintana M.D.

Luis Mauricio Vera Manzano M.D.

Adolfo Cuendis Velázquez M.D.

Aurora de Fátima Chávez Hernández M.D.

Marie Pherez Farah M.D.

Christian Marcelo Carrión Astudillo M.D.

Asya Zubillaga Mares M.D.

Mexico City, Mexico.

Case Report

GENERAL SURGERY



BACKGROUND. Acute pancreatitis is a common cause of abdominal pain, associated with a wide spectrum of complications. Colonic disease secondary to acute pancreatitis is uncommon, reported only in 1% of the patients. However, if present, there is an important rise in mortality.

CASE PRESENTATION. We present a 29-year-old male referred to the emergency department with clinical evolution, biochemical tests and tomographic images that suggested complicated acute appendicitis. Diagnostic laparoscopy was performed and necrotic patches covering all ascending colon were observed. Later, necrotic pancreatitis was manifested.

DISCUSSION. The diagnosis of the colonic involvement in a patient with acute pancreatitis represents a clinical challenge. It can be suspected for bad progression or image studies demonstrating colonic disease, but the definitive diagnosis is made intraoperative.

CONCLUSION. This emphasizes the importance of a high index of suspicion for the enteral complications in a patient with severe acute pancreatitis. Because of its low specificity and often late presentation, the risk of morbidity and mortality associated increases.

KEY WORDS: necrotic pancreatitis, colonic necrosis, colonic complications

Introduction

Acute pancreatitis is a common cause of abdominal pain, associated with a wide spectrum of complications, which have been studied since the sixties. (1,2) The anatomical relation between the colon and the pancreas are important factors in the genesis and localization of these complications. (3) Colonic disease secondary to acute pancreatitis is uncommon, reported only in 1% of the patients (4) however, if present, there is an important rise in mortality (5). Most affected regions are transverse colon and hepatic and splenic flexures, with variable extension, from mild superficial lesion to a transmural colonic necrosis (1). Clinical manifestations are often late and are associated with advanced disease. We present a case of a 29-year-old male with late diagnosis of acute severe pancreatitis with an unusual presentation, who after a torpid evolution and multiple interventions, had a good prognosis and outcome.

Case report

A 29-year-old male, with background of sulfa allergy and occasional smoking. He was referred to the emergency department having a story of colic pain in epigastrium, with an intensity 6/10 and emesis three

days before hospitalization; later migration of the pain to the right iliac fossa 24 hours before admission. There was no anorexia nor urinary symptoms. The patient self-medicated with ciprofloxacin, butyl hyoscine and ibuprofen.

At the emergency room, the patient had normal vital signs; neurological integrity, cardiopulmonary without abnormalities, abdomen with generalized distention, decreased peristalsis, positive appendicular maneuvers.

Laboratory test reported leukocytosis ($19.5 \times 10^3/\mu\text{l}$) and neutrophilia (84.3%); hemoglobin 15.8 g/dl, hematocrit 47.1, platelets 141,000, glucose 334 mg/dl, reactive C protein 38 mg/dl. Liver function test and pancreatic enzymes were normal. Due to inflammatory response, an abdominal computer tomography with contrast was performed. It showed signs of acute appendicitis with a plastron in right inferior quadrant and inflammatory process that compromised second portion of duodenum and free fluid on pelvic region. Pancreas was reported normal (Figure 1).

Patient is admitted with diagnosis of complicated acute appendicitis. Intravenous fluid resuscitation, analgesia, antibiotics and fasting were immediately applied and patient went to surgery room for laparoscopic appendectomy. During diagnostic

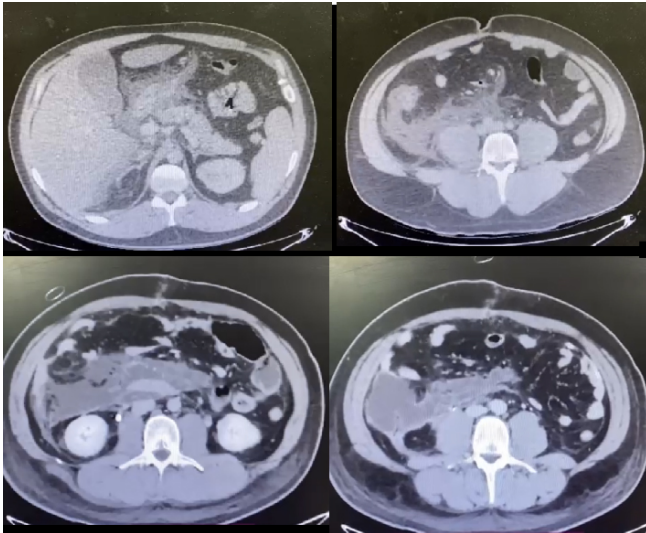


Figure 1. Abdominal tomography on admission. An appendicular inflammatory process was reported with the presence of a plastron and inflammatory changes that compromise up to the second and third portion of the duodenum, as well as free fluid in the pelvic cavity.

laparoscopy inflammatory process of the cecal appendix was observed but also necrotic patches on ascending colon and microperforation of the cecum with purulent fluid were viewed. For this reason, we continued with open surgery. Medium line laparotomy was performed, reporting necrotic patches covering all ascending colon (**Figure 2**). These patches were also observed at pancreas and duodenum. Intraoperative panendoscopy was performed, with no signs of duodenal perforation. We proceeded to a right hemicolectomy with end ileostomy. On immediate postoperative care, the patient presented hemodynamic compromise, requiring hospitalization on intensive care unit for 3 days with good evolution so he was discharged to the general surgery unit. However, 2 days after, he continued with elevation of inflammatory markers despite antimicrobial therapy, so a new abdominal computed tomography was performed, reporting 800 ml collection on right parietocolic gutter. Reoperation was made with laparotomy, reporting 400 ml of purulent fluid, secondary to infected pancreatic necrosis, we decided to use a temporary closure device of the abdominal wall [Abthera™].

The patient had a torpid evolution, with fall in the hemoglobin levels (6.8 mg/dl), requiring a new CT image, reporting a hematoma of 782 ml. He was taken again to the operation room for a third laparotomy, finding 2000 ml of coagulated hematoma and infected pancreatic necrosis, the patient was hemodynamically unstable, so we decided to manage with abdominal packing and use of negative pressure therapy (Vacuum pack). The patient was readmitted to the ICU. After three days, unpacking of abdominal cavity and closure



Figure 2. Surgical specimen: Right hemicolectomy product. Acute periappendicitis was observed with macroscopical changes in colonic wall suggestive of necrosis.

of abdominal skin was performed (due to aponeurotic retraction, abdominal wall closure was not possible) without active bleeding during this intervention. Patient was later discharged to the general surgery unit. During the next week, the patient had good clinical evolution, so hospital discharge was done. Nowadays, the patient remains in outpatient follow up. He is now in protocol for intestinal transit restitution.

Discussion

Necrotizing pancreatitis develops in 10–20% of patients with acute pancreatitis and the mortality is unfavorable, reaching 20% (6). There are reports of colonic complications in 1% of the patients with acute pancreatitis, including: bleeding, fistulae, necrosis, and perforation (3,5,7,8). Percentage rises in patients with severe acute pancreatitis, with 15% of the cases presenting colon affection, associated with a mortality higher than 50% (9).

The diagnosis of the colonic involvement in a patient with acute pancreatitis represents a clinical challenge. It can be suspected for bad progression or image studies demonstrating colonic disease, but the definitive diagnosis is made intraoperative (10). Aldridge et al. reported their experience with colonic complications in patient with severe acute pancreatitis, proposing the possible mechanisms involved for the damage in the colon. They suggested that direct exposition of the pancreatic enzymes results in inflammation and tissue necrosis. The inflammation and necrosis can be explained in other way for the thrombosis of the mesenteric vessels and submucosal vessels. (11).

However, the management of this complications needs a very high index of suspicion, due to the low specificity of the clinical presentation (12). As an example, Miranda-Aquino T. et al. reported a similar case of a 39-year-old female patient

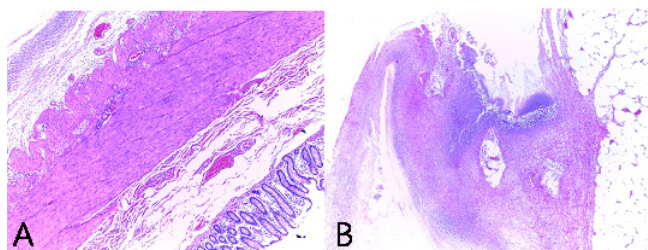


Figure 3. Microscopic images of the colon. A. Section of the ascending colon wall showing peritonitis, congestion, submucosal edema, and congestive vessels. B. Pericolonic adipose tissue with necrosis and inflammation.

with obesity, requiring of ICU and surgical management at 14th day of hospitalization, however, unlike our case, this patient was admitted with the diagnosis of acute pancreatitis (10).

Because almost all the data available are single case reports, there is no evidence based guidelines (9). For that reason, severity and site of the affected colon must determine the best therapeutic option. Surgery with resection of the affected colon continues as the treatment of choice in case of no viable tissue (12), with high morbidity and mortality as consequence, which can be decreased if an early management is made.

Conclusion

We reported an exceptional case of ascending colon necrosis in a patient with infected pancreatic necrosis with an unusual presentation (normal values of serum pancreatic enzymes, clinical presentation and computed tomography images that suggested complicated acute appendicitis). This emphasizes the importance of a high index of suspicion for the enteral complications in a patient with severe acute pancreatitis. Because of its low specificity and often late presentation, a high risk of morbidity and mortality associated exists.

Conflicts of interests

There was no conflict of interest during the study, and it was not funded by any organization.

Acknowledgements

We thank pathology department for the support for this publication.

References

1. Siddiqui MA, Jain A, Rizvi SAA, Ahmad K, Ullah E, Ahmad I. Necrotizing colitis complicating necrotized pancreatitis: look out for intestinal pneumatosis. *JBR-BTR*. 2013;96(1):19–21.
2. Lukash WM. Complications of acute pancreatitis. Unusual sequelae in 100 cases. *Arch Surg*. 1967;94(6):848–52.
3. Mc CS, Lm UB. Perforación colónica, una rara complicación de pancreatitis aguda necrotizante. *An Med Interna*. 2006;23(235).
4. Van Minnen LP, Besselink MGH, Bosscha K, Van Leeuwen MS, Schipper MEI, Gooszen HG. Colonic involvement in acute pancreatitis. A retrospective study of 16 patients. *Dig Surg*. 2004;21(1):33–8; discussion 39–40.
5. Umeno Y, Otsuka J, Sasatomi E, Irie K. Development of colonic necrosis following severe acute pancreatitis. *Intern Med*. 2000;39(4):305–8.
6. Ito K, Igarashi Y, Mimura T, Kishimoto Y, Kamata I, Kobayashi S, et al. Severe acute pancreatitis with complicating colonic fistula successfully closed using the over-the-scope clip system. *Case Rep Gastroenterol*. 2013;7(2):314–21.
7. Shiratori K. Intestinal necrosis associated with severe acute pancreatitis. *Intern Med*. 2000;39(4):275–6.
8. Gardner A, Gardner G, Feller E. Severe colonic complications of pancreatic disease. *J Clin Gastroenterol*. 2003;37(3):258–62.
9. Mohamed SR, Siriwardena AK. Understanding the colonic complications of pancreatitis. *Pancreatol*. 2008;8(2):153–8.
10. Miranda-Aquino T, Pérez-Topete SE, Guajardo-Esparza JM, González-González JA. Necrosis del colon secundaria a pancreatitis aguda. Reporte de un caso y revisión literaria. *Rev Gastroenterol Mex*. 2016;81(4):230–1.
11. Aldridge MC, Francis ND, Glazer G, Dudley HA. Colonic complications of severe acute pancreatitis. *Br J Surg*. 1989;76(4):362–7.
12. Dhadlie S, Ratnayake S. A rare case report of ascending colon perforation secondary to acute pancreatitis. *Int J Surg Case Rep*. 2019;55:62–5.

Erika Barlandas

Department of General and Endoscopic surgery
General Hospital “Dr. Manuel Gea González”
Mexico, City, Mexico
barlandas@gmail.com