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Diffuse Intestinal Pneumatosis Revealed by a Pseudo-Peritonitis Presentation in a Young Adult: A Case Report

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Abstract | **Case Report**

Background: Iliopsoas abscess is a rare but severe complication of Crohn's disease, typically arising from transmural inflammation and fistulization. Extension to the lower limb with associated necrotizing fasciitis is exceptional and life-threatening, with only a limited number of cases reported in the literature. ***Case Presentation:*** A 34-year-old male with untreated Crohn's disease presented with a right iliac fossa enterocutaneous fistula, subocclusive symptoms, fever, and progressive right lower limb impairment. CT scan showed an iliopsoas abscess associated with necrotizing fasciitis of the thigh. Emergency surgery found fistulized ileal loops communicating with a retroperitoneal abscess extending to the lower limb. Management included drainage, ileocolic resection, and stoma creation, along with extensive necrosectomy. Postoperatively, the patient was admitted to the intensive care unit, and placed on norepinephrine support. He was subsequently transferred to the plastic surgery unit for complementary necrosectomy and was discharged with a functional stoma. ***Discussion:*** Iliopsoas abscess in Crohn's disease is usually secondary to fistulizing ileocecal disease. Spread through the retroperitoneal space and along fascial planes may lead to thigh involvement and, in severe cases, necrotizing fasciitis. Early recognition based on imaging, prompt surgical drainage, broad-spectrum antibiotics, and aggressive debridement are essential to reduce morbidity and mortality. ***Conclusion:*** This case highlights a rare and severe presentation of Crohn's disease complicated by enterocutaneous fistula, iliopsoas abscess, and extensive necrotizing fasciitis of the lower limb. A multidisciplinary and aggressive surgical approach is crucial for patient survival.

Keywords: Crohn’s diseases, Enterocutaneous fistula, iliopsoas abcess, Necrotizing fasciitis.

INTRODUCTION

Intestinal pneumatosis (IP) is defined as the presence of gas within the wall of the gastrointestinal tract. First described by Du Vernoi in 1730, it remains a rare and heterogeneous condition that may affect any segment of the digestive tract, most commonly the small intestine and colon.

IP is not a disease entity per se but rather a radiological or surgical sign associated with a wide spectrum of underlying conditions, including gastrointestinal, pulmonary, infectious, and iatrogenic causes. The pathophysiological mechanisms remain incompletely understood, with mechanical, bacterial, and pulmonary theories proposed.

Clinical presentation is nonspecific, ranging from asymptomatic incidental findings to life-threatening acute abdomen. In some cases, imaging findings may strongly suggest bowel perforation, leading to emergency surgical exploration. The aim of this report is to describe a case of diffuse intestinal pneumatosis mimicking perforation-related peritonitis and to discuss its diagnostic and therapeutic implications in light of the literature.

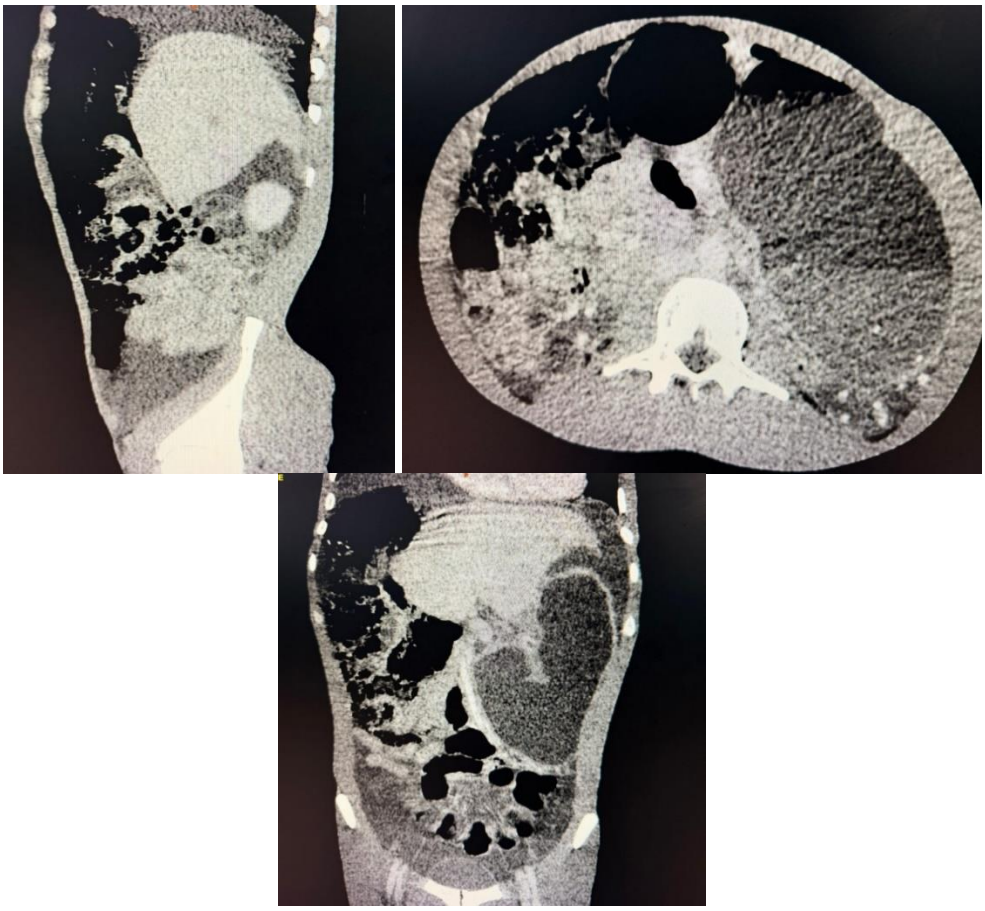
CASE REPORT

A 26-year-old man with no relevant surgical history had been followed for two years for chronic gastritis related to *Helicobacter pylori* infection. He was admitted to the emergency department for diffuse abdominal pain evolving over three days, without vomiting or reported bowel obstruction symptoms.

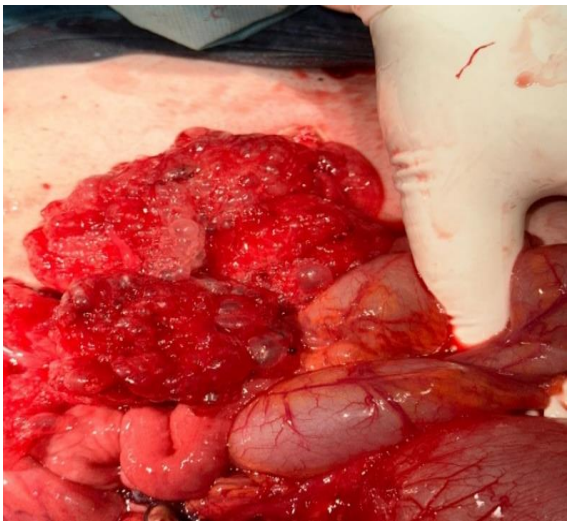
On physical examination, the patient was hemodynamically stable and afebrile. Abdominal examination revealed diffuse tenderness without guarding or generalized rigidity. Laboratory tests

showed a white blood cell count of 7,410/mm³, with no significant inflammatory syndrome.

Abdominal computed tomography (CT) scan suggested peritonitis secondary to hollow viscus perforation with a large amount of intraperitoneal fluid.



Given the suspicion of surgical acute abdomen, an emergency exploratory laparotomy was performed via a midline incision. Intraoperative findings revealed diffuse intestinal pneumatosis involving the entire small bowel, characterized by multiple intramural gas collections. No bowel perforation, no peritoneal effusion, and no intra-abdominal abscess were identified. There were no signs of intestinal ischemia.



No bowel resection or surgical procedure was performed. The abdomen was closed after complete exploration. Postoperative recovery was uneventful. The patient was referred to the gastroenterology department for further etiological investigation and management.

Discussion

Intestinal pneumatosis is a rare condition with an unknown true incidence. With the widespread use of CT imaging, it is being diagnosed more frequently, often incidentally.

IP can be primary (idiopathic) in approximately 15% of cases or secondary to various underlying diseases in most patients. Proposed mechanisms include increased intraluminal pressure leading to mucosal disruption, bacterial gas production with mural invasion, and pulmonary gas dissection through mediastinal tracking.

Clinical manifestations are highly variable and nonspecific. Patients may present with abdominal pain, distension, diarrhea, or may remain asymptomatic. In the present case, the clinical and radiological findings strongly suggested hollow viscus perforation, justifying emergency surgery.

CT scan is the imaging modality of choice. It typically shows linear or cystic gas collections within the bowel wall. However, interpretation may be challenging, particularly when associated findings such as pneumoperitoneum or ascites are suspected.

Several prognostic factors have been associated with severe or life-threatening IP, including metabolic acidosis, elevated lactate levels, leukocytosis, peritonitis, and lack of bowel wall enhancement on CT. In our case, despite alarming radiological findings, the absence of significant biological and clinical deterioration could have suggested a benign form.

Management depends on the underlying cause and severity. Benign or asymptomatic forms are usually managed conservatively with observation, oxygen therapy, antibiotics, and treatment of the underlying condition. Surgery is reserved for complications such as bowel necrosis, perforation, or true peritonitis.

This case illustrates the diagnostic difficulty of IP and the risk of unnecessary laparotomy when radiological findings mimic surgical peritonitis. Careful correlation of clinical, biological, and imaging data is essential to avoid overtreatment.

Conclusion

Intestinal pneumatosis is a rare and heterogeneous entity with a wide clinical spectrum. It may mimic surgical emergencies such as bowel perforation and generalized peritonitis. Accurate diagnosis relies on careful correlation between clinical presentation, laboratory findings, and imaging studies. Recognition of benign forms is essential to prevent unnecessary surgical intervention. Management should be individualized according to the underlying cause and patient condition.

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