

Pneumatosis intestinalis in HIV patient with gastric outlet obstruction

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Summary: We report the case of a 39-year-old HIV positive female with gastric outlet obstruction. At laparotomy, she had extensive pneumatosis intestinalis (PI) of the ileum. This incidental finding of extensive PI in an HIV positive patient who was being managed non-operatively supports that the mere presence of PI is not an absolute indication for bowel resection in the absence of necrosis, perforation, or obstruction.

Key words: Pneumatosis intestinalis, HIV infection, gastric outlet obstruction

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Case report

A 39-year-old female with HIV infection on antiretroviral therapy (Tdf300+Ftc200+Efv600) for the last 6 years, presented with a three-month history of abdominal discomfort, vomiting, weight loss, and constipation.

On examination she was alert, chronically ill and wasted, and her vital signs were normal. Abdominal exam revealed a soft, non-distended abdomen with no scars and no palpable masses. The only positive finding was an impressive succussion splash.

Investigations revealed an anemia with a hemoglobin of 11 g/dL, a normal WBC of 8,790/ μ L, elevated platelets of 463,000/ mm^3 , normal electrolytes except for a potassium of 3.2 mEq/L, and an albumin of 34.3 g/L. Viral load for HIV was < 400 cop/mL and CD4 count of 954. Abdominal ultrasound and chest x-ray were unremarkable. CT scan of the abdomen showed gastric outlet obstruction with a massively dilated stomach, but no evidence of PI. The differential diagnoses included peptic ulcer, lymphoma and tuberculosis in the HIV positive patient.

Laparotomy revealed a dilated stomach extending into the pelvis with scarring at the pylorus, but no signs suggestive of malignancy. The jejunum was normal, but numerous cysts were present in the ileum with some extending into the mesentery. Several cysts detached easily from the bowel, and were sent for histology (Figure 1a). There was no small bowel distension, and intestinal obstruction was ruled out by putting about 250 ml saline through the enterotomy used to create a

retro-colic gastro-jejunostomy. The scarred pylorus was not resected. No small bowel resection was required. The cecum, appendix, colon and rectum were normal.

Histologic analysis carried out on the above mentioned specimens revealed benign multiloculated cysts. (Figure 1b)

The patient made an uneventful recovery and was discharged home on omeprazole as no acid reduction surgery had been done. Two months later her weight had increased by 6 kg, and CT scan of the abdomen showed no evidence of PI; she remains well 20 months later.

Discussion

Pneumatosis intestinalis (PI) is a rare entity with subserosal or submucosal collections of gas in the intestinal wall.¹⁻⁷ PI was first described by Du Vernoi as the presence of gas within the intestinal wall.¹⁻⁴ The incidence and pathogenesis of PI remain uncertain.^{1-3,5-7} PI can occur at any age, but is more frequent in older patients.^{1,2} A prevalence of 0.03% has been reported in the general population.² Although PI may be seen on abdominal radiographs, the CT scan is more sensitive.^{3,4,6} Although the significance of PI in patients with HIV/AIDS is unknown, various infectious processes, including CMV, MAI, and Cryptosporidium infections, may be causative factors.^{3,5}

PI may be primary (idiopathic) or secondary.^{1-4,6,7} In primary PI, the intramural gas is cystic (bubble-like) and benign in nature.^{2,4-7} In secondary PI, the gas accumulates in a linear distribution (band-like), and is usually pathological.²⁻⁷

Secondary PI in adults has been described in association with a variety of disorders. These range from benign conditions of pulmonary origin (e.g. asthma, bronchitis, emphysema), to states of immunodeficiency (e.g. HIV/AIDS), to intestinal causes (e.g. pyloric stenosis, enteritis, peptic ulcer disease, bowel obstruction, inflammatory bowel disease). PI may also be associated with life-threatening conditions (e.g. mesenteric ischemia, toxic megacolon). It has also been described after endoscopic procedures.¹⁻⁷

PI is a sign of an underlying disorder rather than a disease itself.^{3,4,7} It is more prevalent in males (2.4-3.5:1), and is seen more commonly in the large intestine (36%-65.3%) than in the small intestine (15.4%-42%), though it can involve both (2.9%-22%).^{1,3} PI is most prevalent in the submucosa (69.9%), but can be found in the subserosa.^{1,3} It may be found in both the subserosal and submucosal layers in 4.6 % of cases.¹

PI may vary in clinical presentation, from asymptomatic forms to abdominal catastrophes with bowel ischemia, perforation and peritonitis.^{3,6,7} Fewer than 16.3% present with complicated PI with signs of intestinal obstruction or perforation.¹ Although most authors consider PI in patients with AIDS as a sign of bowel ischemia and impending perforation, it may also present as an indolent abnormality that does not necessarily constitute a surgical emergency.⁵ Correlation with history, physical examination, and special investigations is crucial in order to decipher whether the cause is benign or life-threatening, and to dictate the ensuing course of action.^{2,3,5,6}

The appropriate management can be challenging, as the decision between operative and non-operative management can be difficult.² This decision should be based on review of the history, physical examination, diagnostic imaging, and laboratory findings.^{2,3,5,7} Non-operative management with repeated assessment and antibiotics can be considered in mild cases.^{3,4} However, the situation may require surgical intervention.^{3,6} An overall mortality of 22% has been reported.⁴

Surgical intervention is most often required in patients over 60 years of age, especially if they have associated hypotension, peritonitis, elevated serum lactate, low serum bicarbonate, elevated white blood cells, or acute rise of creatinine. The presence of ascites, portal venous gas and bowel dilatation also increase the risk of requiring surgical intervention.² In suspected cases of complicated PI, diagnostic laparoscopy may play a role to rule out intestinal perforation and/or ischemia.⁷

Conclusion

The management of HIV infected patients with PI remains challenging. Their course may be similar to that of immune-competent patients. While the CD4 count and the viral load may impact the presentation and the outcome, the management should be guided by the clinical findings.

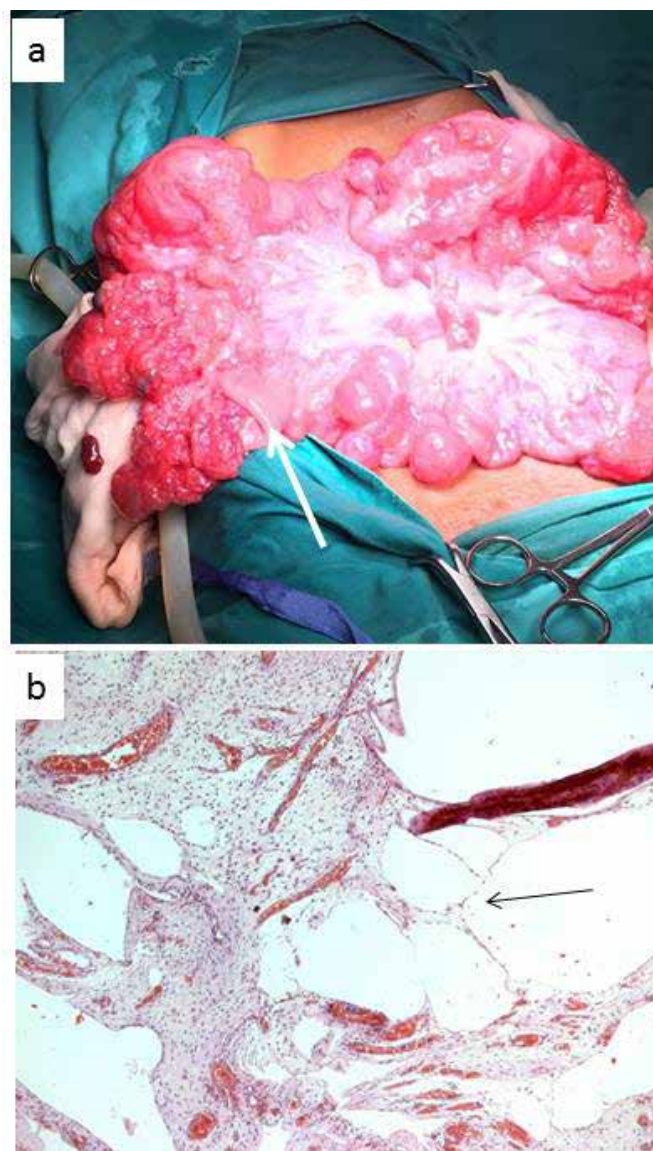


Figure:

- PI involving entire other than small segment indicated by white arrow
- The histologic appearance of the PI: multiloculated cysts (black arrows)

Competing interests

The authors declare no competing interest.

Authors' contributions

AGB conceived the idea, performed the operation, searched literature and prepared the manuscript. AG and MH revised the manuscript. SS & MAK worked on CT and histology report respectively. All authors read and approved the manuscript for submission.

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