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Pneumatosis intestinalis: a rare cause of lower gastrointestinal bleeding

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Abstract. Pneumatosis intestinalis is an uncommon condition characterized by the presence of gas in the bowel wall. We present the case of a 49-year-old man admitted to our Clinic for his 4 day long haematochezia. Colonoscopy revealed pneumatosis coli as a cause of the lower gastrointestinal bleeding. A wide range of diagnostic methods didn't show any underlying disease related to the bleeding, other than the presence of gas. Patient is reported in order to draw attention to the primary pneumatosis coli presented as a rare cause of haematochezia.

Key words:
Pneumatosis intestinalis; Pneumatosis coli; Gaseous cysts; Bleeding; Colon

Introduction

Pneumatosis coli, which is a subtype of pneumatosis intestinalis, is a term used to describe the presence of multiple gaseous cysts containing nitrogen, hydrogen and carbon dioxide in the colon[1]. The gas accumulation can occur in every layer of the colon[2]. Besides being a very rare condition, it must be kept in mind that 85% of pneumatosis intestinalis (PI) is not primary. Therefore, it is quite essential to consider an underlying disease in patients with pneumatosis intestinalis[3]. Clinical presentations are not specific and show difference according to the underlying disease. CT is the most important diagnostic tool with high sensitivity[4].

Case Report

A 49 year old man was admitted to our Clinic because of his 4 day long haematochezia. Medical history and routine physical examination did not reveal any significant disease and signs. Ileocolonoscopy showed multiple polypoid erythematous lesions which resembled of pneumatosis coli. (Figure 1) Kaposi sarcoma and intestinal tuberculosis were also considered as differential diagnosis. Additionally, a hemorrhoid was noticed at 7 o'clock.

Histological examination of the extracted tissue sample didn't show any features of Kaposi's sarcoma. In the submucosal layer, a giant cell foreign body reaction was found which strengthened the suspicion of pneumatosis coli. No signs of malignancy were seen.

During further investigations, abdominal CT scan showed small air pockets and discreet pericolic drawing in left flexure. (Figure 2 A-B) Subsequently, esophagogastroduodenoscopy was performed in order to scope different pathologies for this findings and to complete the diagnostic procedure. A first grade reflux esophagitis was observed. Although there was a mild antral gastritis and a prominent angular wave, mucosa was intact without other pathologies. There was no evidence of Barrett's esophagus. Abdominal ultrasonography didn't demonstrate any abnormal findings and the results of the blood tests were within the standard values. Microbiological screening tests for *Mycobacterium tuberculosis* and atypical mycobacteria was negative.

The diagnosis of a primary pneumatosis intestinalis with multiple gaseous cysts is without any other underlying causes. The patient was treated with mesalazine but not with antibiotics.

Two months later, colonoscopy showed no improvement of the lesions. A regression of air pockets in the stomach could be noted in the CT scan.

Discussion

Pneumatosis intestinalis is rare condition with an overall appearance of 0.03% based on autopsy reports[2]. It is well accepted as a finding rather than a disease. As the etiology of pneumatosis intestinalis is presumably multifactorial, there are theories to answer this question. First, that is the mechanical theory hypothesizes the condition is a result of dissection of air into bowel wall from either intestinal lumen or lungs through mediastinum and the second theory proposes gas forming bacteria as a cause of pneumatosis intestinalis[5].

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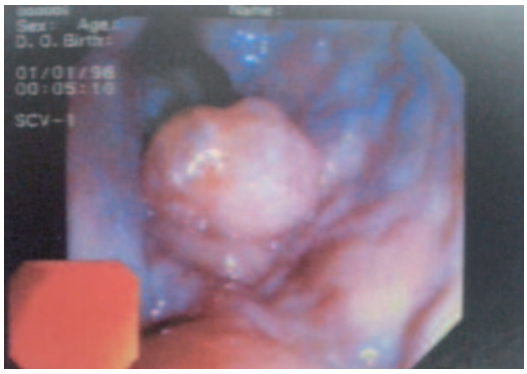

Figure 1. Ileocolonoscopy showing polypoid erythematous lesions.

The primary type accounts for only 15% of all these cases, the secondary type (85%) can be seen along with serious diseases or mild causes[2]. PI may be caused by intestinal ischemia, inflammatory bowel diseases, intestinal neoplasms, iatrogenic complications, obstructive pulmonary diseases, chemotherapeutic agents or organ transplantation[3].

The clinical presentations are mainly consequences of the underlying disease. Patients may complain of pain, abdominal distention or bloody stools, none of which is disease specific[6]. Physical examination is rarely helpful in diagnosis but may reveal abdominal masses. In only 3% of cases complications occur, such as hemorrhages or intestinal obstructions[7].

Colonoscopy is requested in order to exclude lesions. Typical endoscopic appearances are seen as multiple white small cysts or reddened larger cysts. Typical imaging patterns may exist as linear, curvilinear, small bubbles or larger cysts[6]. Although abdominal radiography and CT are common choices in radiological imaging of pneumatosis intestinalis; CT is much more sensitive in early stage PI demonstration[8]. Additionally, CT allows detecting underlying potentially life threatening conditions.

Conclusions

After detection of PI, patients medical history and scoping with other diagnostic methods are crucial in differentiation of urgent malignant causes and benign causes.

References

1) Read NW, Al-Janabi MN, Cann PA. Is raised breath hydrogen related to the pathogenesis of pneumatosis coli? Gut 1984; 25: 839-845.
2) Heng Y, Schuffler MD, Haggitt RC, Rohrmann CA. Pneumatosis intestinalis: a review. Am J Gastroenterol 1995; 90: 1747-1758.
3) Ho LM, Paulson EK, Thompson WM. Pneumatosis intestinalis in the adult: benign to life-threatening causes. AJR Am J Roentgenol 2007;188: 1604-1613.
4) Lund EC, Han SY, Holley HC, Berland LL. Intestinal ischemia: comparison of plain radiographic and computed tomographic findings. Radiographics. 1988; 8: 1083-1108.
5) Galandiuk S, Fazio VW. Pneumatosis cystoides intestinalis. A review of the literature. Dis Colon Rectum 1986; 29: 358-363.
6) St Peter SD, Abbas MA, Kelly KA. The spectrum of pneumatosis intestinalis. Arch Surg 2003; 138: 68-75.
7) Zorcolo L, Capra F, D'Alia G, Scintu F, Casula G. Pneumatosis cystoides of the right colon: a possible source of misdiagnosis. Report of a case. Chir Ital 2005; 57: 121-126.
8) Wang JH, Furlan A, Kaya D, Goshima S, Tublin M, Bae KT. Pneumatosis intestinalis versus pseudopneumatosis: review of CT findings and differentiation. Insights Imaging 2011; 2: 85-92.

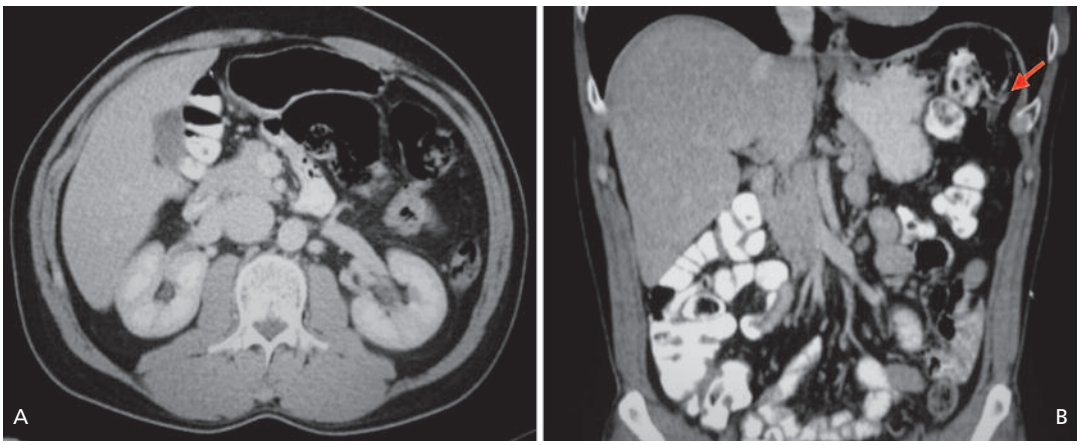

Figure 2. A-B, Axial and coronal views of abdominal CT scan show small air packets in the colon.