

Endoscopic ultrasound to diagnose pneumatosis cystoides intestinalis (with video)

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An asymptomatic 59-year-old woman with an unremarkable medical history underwent colonoscopy for nonspecific abdominal pain. In the descending colon, the examination discovered serpiginous and dome-shaped bumps with elastic consistency, covered with normal-looking mucosa [Figure 1].

The results of routine laboratory analysis showed no abnormalities. The endoscopist hypothesized colonic varices. An abdominal computed tomography was performed, but no abnormalities were noted.

To clarify the diagnosis, the patient was referred for endoscopic ultrasound (EUS) performed with a miniaturized probe (UM-DP20-25R, Olympus, Tokyo, Japan) that was advanced through the working channel of a colonoscope, after instillation of water in the colonic lumen. This showed the presence of air pockets in the third (submucosal) wall layer, with intense shadowing, findings compatible with air-filled structures, establishing the diagnosis of pneumatosis cystoides intestinalis (PCI) [Figure 2 and Video 1].

The review of the CT performed before EUS disclosed that PCI was present to the same degree as detected

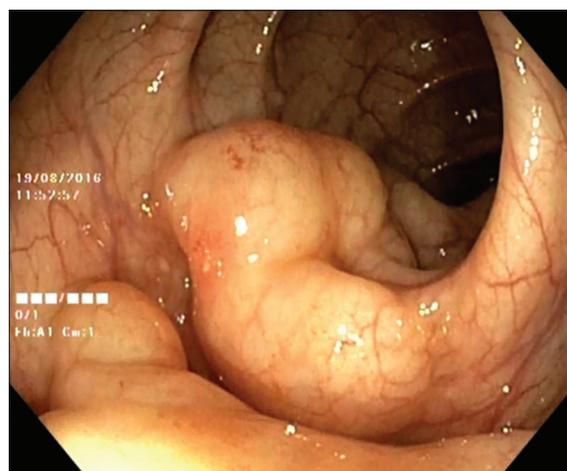


Figure 1. Colonoscopy: Multiple bumps in the descending colon with normal overlying colonic mucosa

with EUS, but had been overlooked at the time of initial interpretation.

PCI is characterized by multiple gaseous cysts in the intestinal wall, ranging in diameter from a few millimeters to several centimeters.^[1] The etiology of PCI is still poorly understood. It is believed that most cases of PCI result from a mucosal breach that allows the leakage of

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Figure 2. Endoscopic ultrasound with a miniaturized 20 MHz-probe: hyperechoic air pockets in the third (submucosal) layer of the colonic wall, with distal acoustic shadowing, consistent with pneumatosis cystoides intestinalis

gas or the passage of gas-producing bacteria into the intestinal mucosa. Although a primary form of PCI may be present, this condition often occurs in patients with gastrointestinal or systemic diseases, such as acute and chronic inflammatory gastrointestinal disease, collagen disease, and chronic obstructive lung disease.^[2]

Although CT is deemed to be a sensitive test for PCI, EUS has clear-cut advantages over CT: it can be performed in the same session of colonoscopy if a miniaturized probe is used all the segments of the colon can be easily explored and it does not require radiation exposure. Despite only few case reports^[3-11] can be found about the use of EUS in the diagnosis of PCI, for the aforementioned reasons, this technique should be regarded as the first choice in the diagnosis of this rare condition.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the

patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initial will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Koss LG. Abdominal gas cysts (pneumatosis cystoides intestinorum hominis); an analysis with a report of a case and a critical review of the literature. *AMA Arch Pathol* 1952;53:523-49.
2. Andorsky RI. Pneumatosis cystoides intestinalis after organ transplantation. *Am J Gastroenterol* 1990;85:189-94.
3. Noshio K, Hatakeyama K, Hamamoto Y, *et al.* A case of pneumatosis cystoides intestinalis with dermatomyositis in which EUS was useful for the diagnosis. *Int J Colorectal Dis* 2005;20:473-4.
4. Bansal R, Bude R, Nostrant TT, *et al.* Diagnosis of colonic pneumatosis cystoides intestinalis by endosonography. *Gastrointest Endosc* 1995;42:90-3.
5. Castro-Poças F, Araújo T, Pedroto I. Endoscopic ultrasound of pneumatosis cystoides intestinalis. *Endoscopy* 2015;47 Suppl 1 UCTN: E274.
6. Bamakhrama K, Abdulhady L, Vilmann P. Endoscopic ultrasound diagnosis of pneumatosis cystoides coli initially misdiagnosed as colonic polyps. *Endoscopy* 2014;46 Suppl 1 UCTN: E195-6.
7. Yague AS, Sison C, Binmoeller KF, *et al.* Pneumatosis intestinalis in the differential diagnosis of arteriovenous malformations. *Gastrointest Endosc* 2007;65:160-1.
8. Chang YT, Chang MC, Wei SC, *et al.* Pneumatosis cystoides coli. *Gastrointest Endosc* 2006;64:820.
9. Shaukat A, Obideen K, Klapproth JM. Pneumatosis intestinalis: A rare cause of diarrhea and hematochezia. *Clin Gastroenterol Hepatol* 2006;4:xxv.
10. Takada C, Kaneko H, Tomomasa T, *et al.* Endosonographic diagnosis of pneumatosis cystoides intestinalis in infancy. *Tech Coloproctol* 2002;6:121-3.
11. Shimada M, Ina K, Takahashi H, *et al.* Pneumatosis cystoides intestinalis treated with hyperbaric oxygen therapy: Usefulness of an endoscopic ultrasonic catheter probe for diagnosis. *Intern Med* 2001;40:896-900.