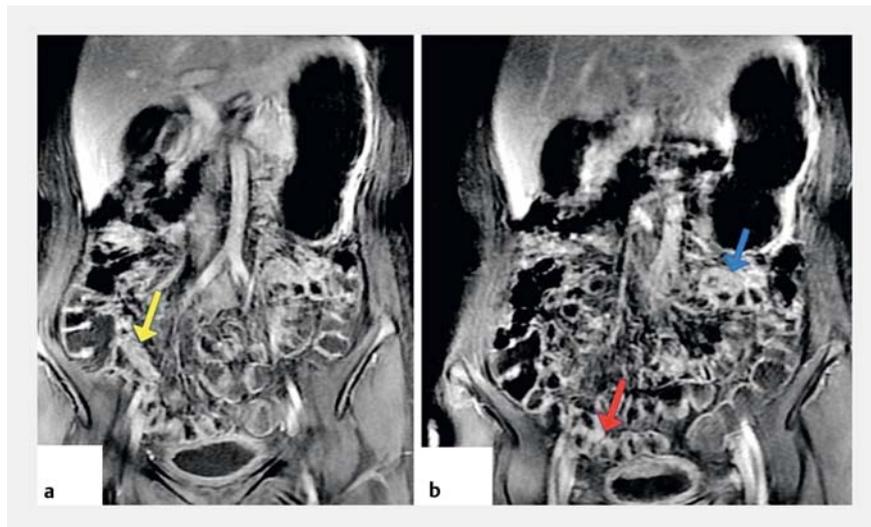


Inflammatory bowel disease in developing tropical countries: abdominal pain caused by *Ascaris lumbricoides* diagnosed with single-balloon enteroscopy



► **Fig. 1** Contrast-enhanced computed tomography showing a diffusely enlarged pancreas.

A 36-year-old woman with no significant medical history presented with abdominal pain. She was admitted to emergency. An upper endoscopy was performed showing erosive gastritis and duodenitis. She was discharged with a proton pump inhibitor (PPI) without improvement. A computed tomograph (CT) and magnetic resonance imaging (MRI) cholangiopancreatography were performed; enlargement of the pancreas suggestive of autoimmune pancreatitis was observed (► **Fig. 1**) but serum IgG4 levels were normal. She was referred to our hospital. Biochemical analysis showed blood eosinophilia. An expert radiologist reviewed the previous imaging studies and confirmed the suspicion of autoimmune pancreatitis, but segmental jejunal wall thickening was observed. Endoscopic ultrasound (EUS) was done, ruling out autoimmune pancreatitis. Because of previous findings in MRI, MRI enterography was indicated and multiple focal small bowel-wall thickening areas were observed (► **Fig. 2**) with a presumptive diagnosis of Crohn's disease. A single-balloon enteroscopy (SBE) was carried out for tissue samples. During SBE, a roundworm was identified (► **Video 1**) and extracted (► **Fig. 3**). It was finally identified as *Ascaris lumbricoides*. Oral albendazole



► **Fig. 2** Magnetic resonance enterography showing (a) wall thickness of the terminal ileum (yellow arrow), (b) wall thickness of the jejunum (blue arrow) and distal ileum (red arrow).



► **Video 1** Roundworm identified and extracted with a snare from the jejunum during single-balloon enteroscopy.

therapy was prescribed. The abdominal pain resolved after treatment. *Ascaris lumbricoides* is an intestinal roundworm and is one of the most common helminthic human infections world-

wide, especially in developing tropical countries. Infection usually occurs via ingestion of contaminated water or food. Adult worms inhabit the lumen of the small intestine, usually the ileum or jeju-



► **Fig. 3** Roundworm extracted from the patient's jejunum, finally identified as *Ascaris lumbricoides*.

num [1]. Although infections are usually asymptomatic, the patient could present without specific signs and symptoms or in some cases with severe complications such as intestinal obstruction, gastrointestinal hemorrhage, perforation, pancreatitis, or cholangitis [2]. Epigastric and recurrent abdominal pain has been reported [2,3]. In the presence of abdominal pain and eosinophilia in the setting of a developing-country resident, a parasitic infection would have been suspected. There are only two prior reports of intestinal ascariasis diagnosed by double-balloon enteroscopy (DBE) [4,5]. In general, in symptomatic patients treatment with antihelminthic drugs is advised [1].

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Competing interests

The authors declare that they have no conflict of interest.

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