Obscure overt gastrointestinal bleeding due to *Necator americanus* diagnosed by double-balloon enteroscopy

Competing interests: None

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A 63-year-old woman from a rural area of Guatemala was referred to our center because of intermittent melena, weight loss of 5 kg, dyspnea, and malaise of 3 months' duration. In addition, she was experiencing generalized, poorly localized, cramping abdominal pain that was partially relieved with the use of antispasmodics. Her past medical history was significant for hypertension and diabetes mellitus type 2 of 10 years' duration.

On physical examination, her vital signs were stable. She appeared pale, and acanthosis nigricans was observed on her short neck. The cardiovascular examination was significant for a multifocal, holosystolic grade 4 heart murmur. The rectal examination was positive for melena. Laboratory examination revealed the following: hemoglobin, 4.6 g/dL; hematocrit, 16.3%; mean corpuscular volume, 64.9 μm^3 ; white cell count, 11 150/mm³ with 9% eosinophils. The remaining laboratory results were within reference ranges. On examination, the stool was

guaiac positive but without evidence of parasites.

The results of upper gastrointestinal endoscopy and colonoscopy were unremarkable. Oral (antegrade) double-balloon enteroscopy revealed a large number of worms in the jejunum and ileum (Fig. 1). The worms penetrated the mucosa, sucked blood, and moved fast, provoking active mucosal hemorrhage. Uncinariasis due to *Necator americanus* was diagnosed. A jejunal biopsy revealed an inflammatory infiltrate with eosinophilic predominance. The patient was given a transfusion of packed red blood cells. The parasitosis was successfully eradicated with albendazole (Albenza; GlaxoSmith-Kline, Philadelphia, Pennsylvania, USA).

This report is unique as for the first time we used double-balloon enteroscopy to document massive parasitosis due to *Necator americanus*. Uncinariasis should be considered important in the differential diagnosis of obscure overt gastrointestinal bleeding.

Fig. 1 *Necator americanus*. **a** Multiple small, round worms adhere to the small-bowel mucosa. **b** Some worms are filled with blood. **c** The worm infestation is massive.