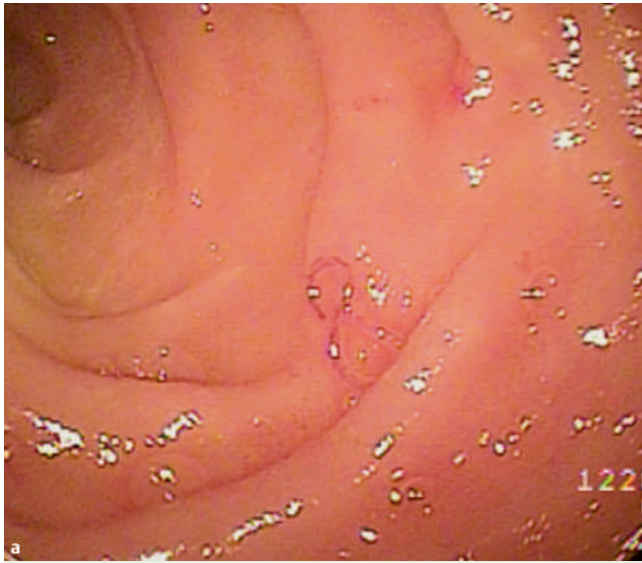
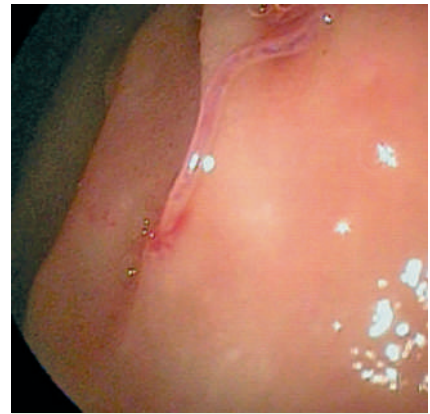
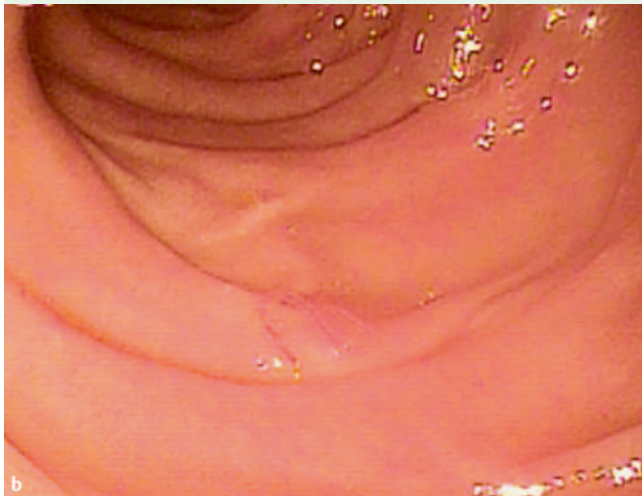


## Hookworm infestation of the small intestine: an unusual cause of obscure gastrointestinal bleeding



**Figure 1 a** Endoscopic view showing one reddish worm grazing in the third portion of duodenum with adjacent multiple erosions. **b** Endoscopic view showing another worm grazing in the proximal jejunum.



**Figure 2** Closer endoscopic view showing one worm feeding on the intestinal mucosa with a hemorrhagic spot at point of attachment to the mucosa.

Hookworm is one the most common infections of humans, occurring in up to 740 million people [1]. The highest prevalence of hookworm occurs in sub-Saharan Africa, followed by Southeast Asia and the Indian subcontinent [2]. Hookworm infection in humans is caused by soil-transmitted helminths, mostly *Ancylostoma duodenale* and *Necator americanus*. Patients with a light hookworm infection are usually asymptomatic, but a moderate or heavy hookworm burden can result in nausea, fatigue, palpitations, and recurrent abdominal pain [3]. The most common laboratory findings are eosinophilia and iron deficiency anemia resulting from chronic occult blood loss [1,3]. However, patients with hookworm infec-

tion may present with acute massive gastrointestinal bleeding [4]. Furthermore, the degree of anemia depends on hookworm burdens and the species, because *A. duodenale* causes more blood loss than *N. americanus* [1,3].

We report here a case of hookworm infestation of the duodenum and proximal jejunum presenting with intermittent melena and iron deficiency anemia.

A 60-year-old male farmer presented at our institution with intermittent melena and anemia for 1 month. His past medical history was notable for hypertension and benign prostate hyperplasia. Physical examination revealed anemia and a slightly tender abdomen. Laboratory data included a hematocrit of 24.2% (normal: 42–

52%), a mean corpuscular volume of 72/fL (normal: 80–94/fL), and a white blood cell count of 14500/mm<sup>3</sup> (normal: 4800–10800/mm<sup>3</sup>) with 9% eosinophil (normal: 0–4%). Serum iron was 19 µg/dL (normal: 33–167 µg/dL), ferritin was 17.6 ng/mL (normal: 21.8–274.6 ng/dL), and total iron binding capacity was 356 µg/dL (normal: 259–402 µg/dL). Stool examination was negative for ova or parasites. Fecal occult blood test result was positive. Routine upper gastrointestinal endoscopy and colonoscopy failed to detect any bleeding site. The patient underwent push enteroscopy, demonstrating several reddish worms grazing in the third portion of duodenum and the proximal jejunum (● **Figure 1 a, b**). Closer endoscopic view showed one worm feeding on the intestinal mucosa with a hemorrhagic spot at point of attachment to the mucosa (● **Figure 2**). Three worms were removed with biopsy forceps and were identified on microscopic examination as hookworm, *N. americanus*. Mebendazole, 100 mg twice daily, was administered for 3 days. No more melena occurred. Serial stool occult blood examinations remained negative over the ensuing 3 months of follow-up.

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