

Case Report

Hookworm Infection Mimicking Crohn's Disease: Diagnosed with Wireless Capsule Endoscopy

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Keywords

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- Mebendazole

Abstract

Hookworm infestation of small bowel on Wireless Capsule Endoscopy (WCE) was reported in the adult population but not in children. It is an uncommon cause of iron deficiency anemia and abdominal pain in Midwestern United States. The purpose of this case report is to alert other physicians that small bowel hookworm infections could be incidentally found on WCE in non-endemic regions of the US.

A 15 year-old Caucasian female was seen in the clinic with 3-month history of abdominal pain and fatigue. She had no recent travel history or sick contacts. Laboratory findings revealed iron deficiency anemia. Imaging tests, upper endoscopy and ileo-colonoscopy were normal. The patient underwent WCE for suspected small bowel Crohn's Disease, and several hookworms were visualized in the small bowel. She was treated with mebendazole. The follow up laboratory test revealed normal albumin-CBC and ESR after the treatment.

ABBREVIATIONS

WCE: Wireless Capsule Endoscopy; CBC: Complete Blood Count; ESR: Erythrocyte Sedimentation Rate; AVMs: Arteriovenous Malformations; US: United States

INTRODUCTION

Wireless Capsule Endoscopy (WCE) has become a powerful tool to identify small bowel pathologies such as Crohn's Disease, Arteriovenous malformations (AVMs), polyps and tumors when other diagnostic measures have been unyielding.

Hookworm infestation of small bowel on WCE was reported in the adult population but not in children. The purpose of this case report is to alert other physicians that small bowel hookworm infections could be incidentally found on WCE even in non-endemic areas and should be considered in children presenting with iron deficiency anemia.

CASE PRESENTATION

A 15 year-old Caucasian female was seen in clinic with 3-month history of abdominal pain and fatigue. She was born in the US and had no recent travel history or sick contacts. She denied fever, diarrhea or sick contacts. Vital signs and physical examination were normal. Laboratory findings revealed iron deficiency

anemia (Hb 9.6 mg/dl, MCV 67 fl, Ferritin 7 ng/ml, and Iron 19ug/dl), elevated ESR 29 mm/h (0-13) and hypoalbuminemia 3.3 g/dl. The stool examination was negative for ova and parasite. No abnormalities were detected on abdominal and pelvic CT, abdominal US, upper endoscopy and ileo-colonoscopy. Patient eventually underwent WCE for suspected small bowel disorders such as Crohn's Disease, AVMs and tumors. Multiple whitish-S shaped hookworms were visualized in the proximal small bowel as seen in the Figure 1-2. Patient was treated with mebendazole for three days, and treatment was repeated in two weeks. Her symptoms and anemia were resolved 6 weeks after the treatment. Her blood count continued to be normal at 3-month post treatment follow up visit.

DISCUSSION

Hookworms can be found in approximately 25% of the world's population [1]. The most common species are *Ancylostoma duodenale* and *Necator americanus* [2]. They are swallowed and mature into adult worms in the small bowel, particularly the jejunum. Both species are widely distributed in Asia and Africa. It is commonly found in warm and moist places. Hookworm infection is rarely seen in non-endemic areas in the United States. There is few case reports of hookworm infections diagnosed with WCE in adults, and most of these cases are from Asia. It



Figure 1 Hookworm attaching the small bowel mucosa on WCE.



Figure 2 Hookworm in small bowel on WCE.

can present with symptoms similar to Crohn's Disease such as iron deficiency anemia, abdominal pain and fatigue. Gupta et al diagnosed hookworm infection on WCE in patients with obscure gastrointestinal bleeding [3]. Kalli et al reported a 22-year-old male with severe iron deficiency anemia and hookworms on WCE [4]. There is a report of 55 cases of small bowel hookworm infections found on WCE, where most of the hookworms were in proximal small intestine. 12 patients suffered massive and severe infection [5].

Suspected parasitic infection is not an indication to perform WCE. In our case it was an incidental finding. Hookworm infections are diagnosed by detection of the eggs in the feces however in this case it failed to identify the parasite. This was also reported in other case reports [6] and might be related to delay in egg laying. Repeating stool test may be necessary.

In conclusion, hookworm infections could be seen in children in non-endemic regions of the US, it should be considered as the etiology of iron deficiency anemia.

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