Intestinal strongyloidiasis — a rare opportunistic infection

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We describe the features of intestinal strongyloidiasis in six patients; five of them were immunosuppressed (four on corticosteroids, one with chronic renal failure). Vomiting and diarrhea were the predominant symptoms. Duodenal mucosa on endoscopy varied from normal to severe ulceration. Albendazole 400 mg/day for two weeks was effective. This condition should be considered in immunosuppressed individuals with gastrointestinal symptoms, especially since these symptoms may be mistakenly attributed to the underlying disease. [Indian J Gastroenterol 1997; 16: 105-106]

Key words: Hyperinfection, Strongyloides stercoralis

Strongyloides stercoralis is a nematode which resides in the small intestine and is capable of an autoinfectious cycle that allows its persistence in the host for indefinite periods, often with few or no manifestations. Infections with S. stercoralis have occurred with increasing frequency during the last decade largely as a result of widespread use of immunosuppressive agents.

We present our experience with six cases diagnosed during a 5-year period (1991-96). Features of the infection in immunosuppressed patients are emphasized to increase awareness, as the disease is curable if diagnosed early and could be fatal if untreated.

Case Reports

Case 1: A 30-year-old man was admitted with a 3-month history of large-volume painless diarrhea, weight loss and swelling of the feet. Physical examination revealed mild pallor, pedal edema and marked muscular wasting. Abdominal examination was normal. Investigations: hemoglobin normal (except hemoglobin 9.7 g/dL); urinary myoglobin excretion 0.2 g/5 g/5 h and fecal fat excretion 10 g/24 h. Stool smear examination was unremarkable. Barium meal follow-through series showed malabsorption pattern. At endoscopy, the duodenal mucosa was normal and biopsy showed partial villous atrophy and multiple strongyloides worms.

She was treated with albendazole (400 mg/day) for 3 days and complete remission was achieved.

Case 2: A 26-year-old man was admitted with a history of upper abdominal pain, persistent vomiting and occasional melena of 20 days’ duration. The patient had received prednisolone (40 mg/day) for a lepra reaction for one month. Physical examination was normal. Investigations: hemoglobin 10.5 g/dL, WBC 22,000/uL (87% polymorphs, 8% lymphocytes, 5% eosinophils). Endoscopy showed grossly necrotic and ulcerated mucosa in the first and second parts of the duodenum, suggesting a malignant growth; biopsy was taken. The patient died after massive hematemesis on the third hospital day. Biopsy was later reported as showing severe ulceration and multiple strongyloides worms in the mucosa.

Case 3: A 43-year-old man presented with a 2-month history of painless, large-volume diarrhea, occasional painless vomiting, and weight loss. He was an asthmatic taking salbutamol and prednisolone intermittently for many months. Physical examination revealed mild pallor but was normal otherwise. Investigations: hemoglobin 9 g/dL, WBC 9,000/uL (61% polymorphs, 29% lymphocytes, 1% monocytes, 9% eosinophils). Stool smear examination was unremarkable. Urinary myoglobin excretion was 0.2 g/5 g/5 h and fecal fat excretion was 12 g/24 h. Barium meal follow-through examination showed malabsorption pattern in the small intestine. Endoscopy showed normal duodenal mucosa; biopsy showed subtotal villous atrophy and multiple strongyloides worms.

The patient was treated with albendazole (400 mg/day) for 3 days initially, and then for two weeks since symptoms persisted. He achieved complete clinical remission within a month and repeat duodenal biopsy was normal.

Case 4: A 40-year-old man with chronic renal failure on maintenance hemodialysis was referred for evaluation of persistent painless vomiting and diarrhea of 2 weeks’ duration. Physical examination showed mild pallor and pedal edema. Abdominal examination was normal. Investigations: hemoglobin normal (except hemoglobin 8.3 g/dL), serum creatinine was 6.9 mg/dL, and electrolytes were normal. Stool smear examination and culture for aerobic organisms were normal. Endoscopy revealed friable, edematous duodenal mucosal folds and ulcers in the second part of the duodenum; biopsy revealed multiple strongyloides worms.

The patient was treated with albendazole (400 mg/day) for two weeks; his gastrointestinal symptoms subsided, but he died of septicaemia.

Case 5: A 40-year-old man was operated on for cauda equina lesion and received corticosteroids in the immediate postoperative period. He developed painless vomiting from the tenth postoperative day. Physical examination was normal. Investigations: hemoglobin 12.7 g/dL, WBC 15,000/uL (84% polymorphs, 14% lymphocytes, 1% monocytes). Endoscopy revealed granular mucosa of the second and third parts of the duodenum; biopsy revealed multiple strongyloides worms in the mucosa.

The patient was treated with albendazole (400 mg/day) for 2 weeks; he showed complete remission of symptoms within a week, and there was no recurrence on follow up.

Case 6: A 35-year-old man was referred for evaluation of persistent painless vomiting of 2 weeks’ duration. The patient had received parenteral denosumabone for one month for monangiocutaneous arthritis of the right wrist. Investigations: hemoglobin normal. Stool smear examination was unremarkable; Endoscopy showed multiple superficial ulcers in the second part of the duodenum; biopsy revealed extensive ulceration with multiple strongyloides worms in...
Fig: Duodenal mucosa showing cut sections of strongyloides within glands (arrows) (H & E, 200 X)

the mucosa (Fig). He was treated with albendazole (400 mg/day) for 2 weeks. Complete remission of symptoms was noted and repeat duodenal biopsy was normal.

Discussion

Hyperinfection with *S. stercoralis* is gaining importance because of its invasive properties especially in immunosuppressed individuals; most patients with hyperinfection-syndrome are immunosuppressed. In our report, four patients had received corticosteroids for various disorders and one patient with chronic renal failure was on maintenance hemodialysis. These are known predisposing factors for strongyloidiatis.

Malabsorption due to strongyloides hyperinfection has been reported earlier; bacterial overgrowth has been incriminated. Vomiting and hematemesis are other known manifestations. Endoscopic findings in our patients varied from normal mucosa to extensive ulceration. Hence, in immunosuppressed patients with gastrointestinal symptoms, duodenal biopsy and examination for strongyloides worms is suggested.

Patients with chronic strongyloidiatis respond well to a short course of albendazole (400 mg/day, for three days); those with hyperinfection syndrome have been reported to require a longer duration of treatment with thiabendazole. We gave most of our patients albendazole for 2 weeks.

Cases of strongyloidiatis have been reported from India before. With increasing use of corticosteroids and other immunsuppressive agents in various disorders, and with the rising number of patients with AIDS, more cases are likely to be encountered. Hence, physicians treating immunosuppressed patients must be aware of the various manifestations of this infection, in order to recognize it early and treat it promptly.

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