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Severe gastroduodenitis due to Strongyloides stercoralis infection: An unusual cause of intestinal obstruction

Strongyloides stercoralis (S. stercoralis or Ss) is an intestinal nematode that is highly prevalent in tropical regions of Africa, Asia, and South America. Approximately 50-100 million individuals are infected worldwide, particularly in Brazil and Thailand, with a prevalence of 13% and 23.7%, respectively. The majority of infected persons are asymptomatic, but some, especially immunocompromised individuals, have severe manifestations.

A 16-year-old male from Tabatinga, in the Brazilian state of Amazonas, sought medical attention at a hospital in Leticia, due to the 3-week progression of fever, epigastric abdominal pain radiating to the right iliac fossa, excessive vomiting, bloody diarrhea, and weight loss (20 kg). Laboratory work-up results were leukocytosis (20,600 mm³), neutrophilia (17,922/μl), and thrombocytosis (610,000/μl); human immunodeficiency virus was negative; and Ss was detected in stool, for which the patient received ambulatory treatment with a subtherapeutic dose of albendazole.

His fever persisted and the patient had bilious vomiting and increased abdominal pain at one week of treatment. He went to the emergency room, where signs of peritoneal irritation were documented. An exploratory laparotomy was performed, revealing an indurated retrocecal appendix that was then resected.

Nevertheless, the patient continued to present with fever, excessive vomiting, and a lack of bowel movements for one week. He was referred to the Hospital Internacional de Colombia (HIC) on day 10 of his hospitalization.

The patient was in poor general condition and hemodynamically unstable. He also presented with high biloenteric output through the nasogastric tube and had signs of peritoneal irritation. Anthropometry revealed weight of 39 kg (P0, −3.10 SD), height of 150 cm (P0, −2.9 SD), and BMI of 17.3 kg/m² (P6, −1.5 SD). The patient required vasoactive support (norepinephrine). Severe anemia was reported (Hb: 7 g/dl) and he underwent red blood cell transfusion. Contrast abdominal tomography identified generalized distension of the small bowel segments and thickening of the duodenal wall. Panendoscopy revealed severe erosive gastroduodenitis, pseudomembranes, and multiple inflammatory pseudopolyps in the duodenal bulb (Fig. 1). The histologic study reported severe gastroduodenitis due to Ss (Fig. 2). Management with ivermectin 200 μg/kg/day, oral albendazole 800 mg/day, and endove...
nous piperacillin/tazobactam 80 mg/kg/dose every 6 hours, all for 14 days, was indicated. Larvae were expelled during
13 treatment days. Stool exam was positive for Ss. Tests for
hepatitis B, hepatitis C, cytomegalovirus, and Epstein-
Barr virus were negative. Human-T lymphotropic virus type 1 (HTLV-1) had a signal-to-cutoff (S/CO) value of 173.210 (nor-
mal: < 5/CO value of 1). No ocular involvement was found in
the ophthalmologic evaluation. An echocardiogram showed
mild dysfunction of the left ventricle and dyskinesia of the
basal septum. Blood culture at admission and the control
culture at 2 weeks were negative.

The patient presented with improved signs of ileus on
day 10 and complete tolerance of oral diet on day 14. Stool
exams were negative after 2 weeks of treatment, with nutri-
tional recovery (reaching 44 kg). He was discharged from the
hospital after 2 months.

Ss has a complex life cycle, with the capacity to exist and
replicate in the host for decades because the larvae mature
in the gastrointestinal tract and invade the perianal skin,
completing the autoinfection cycle

Ss has 4 clinical presentations: a) acute strongyloidiasis:
presentation includes rash at the site of penetration of
the larvae, cough, wheezing, low-grade fever, epiga-
stric tenderness, diarrhea, nausea or vomiting; b) chronic
strongyloidiasis: it is usually asymptomatic but can cause
abdominal pain, nausea, vomiting, diarrhea, malabsorption
syndrome, paralytic ileus, rash or larva currens (serpini-
orous, erythematous papules that rapidly progress) in the
perianal area and thighs; c) hyperinfection: it occurs when
there is a high parasite load and is predominantly seen in
endemic zones. It is limited to the gastrointestinal tract and
lungs (accelerated autoinfection cycle). Its main presenta-
tion is diarrhea that is generally high output and occasionally
dysenteric, associated with abdominal pain and vomiting.
Paralytic ileus, malabsorption, hypoalbuminemia, edema,
weight loss and/or massive alveolar hemorrhage are seen in
advanced phases

and d) disseminated disease: evidence of larval migration to sites outside of the parasitic
replication cycle, finding larvae in the central nervous system,
liver, kidney, and other organs

The main risk factor for hyperinfection or dissemination
is cellular immunosuppression that is generally secondary
(e.g., steroid use). Our patient presented with symptoms
of intestinal obstruction secondary to severe gastroduo-
denitis due to a hyperinfection syndrome. He had not
received steroids, but nevertheless presented with several
risk factors, such as place of residence, malnutrition, and
HTLV-1 infection (said virus decreases Th2 lymphocytes,
eosinophils, mastocytes, and several interleukin mediators
of the immune response to parasites)

Treatment should be aggressive, because without it, the
mortality rate approaches 100%. Ivermectin, at a dose of
200 mcg/kg/day, is the medication of choice. The defini-
tive length of treatment duration has yet to be defined,
but prolonged regimens of one to 2 weeks are indicated
for immunocompromised patients, to prevent relapses. Thiabendazole or albendazole is utilized as second-line
treatment. The combination of ivermectin and thiaben-
dazole, until the absence of parasites in stool exams is
achieved or there is improvement of ileus, has been
suggested. The addition of antibiotics to act against Gram-
negative or anaerobic microbes that cause sepsis due to
bacterial translocation is also recommended. Due to the
severity of our patient’s clinical picture, we combined
ivermectin, albendazole, and piperacillin/tazobactam. Thi-
abendazole was not considered for use due to its poor safety
profile. Treatment was extended up to 14 days, because
even though the patient showed signs of intestinal transit
at day 10, the exit of larvae persisted up to treatment day

In conclusion, the early diagnosis of Ss hyperinfection
requires a high level of clinical suspicion and the disease
should be included in the differential diagnosis of patients
with intestinal obstruction that live in endemic areas and/or
are immunocompromised.

Ethical considerations

A written statement of informed consent was requested
from the patient’s mother to publish patient data and
images. We declare that this article contains no personal
information that could identify the patient.

Data confidentiality. The authors declare that they have
followed the protocols of their work center on the publica-
tion of patient data.

Right to privacy and informed consent. The authors
declare that no patient data appear in this article.

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Authorship

All the authors contributed to the conception and design of
the work, data acquisition, the critical review of the intel-
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Conflict of interest

The authors declare that there is no conflict of interest.

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