Clinical considerations about cyclosporiasis

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Cyclosporiasis is a disease that affects the small intestine, and it is caused by the parasite *Cyclospora cayetanensis*. It is acquired by ingesting water or food contaminated with the parasite's oocysts; it is not transmitted from person to person, but rather through a fecal-oral route. Although *Cyclospora cayetanensis* completes its life cycle in humans, the oocysts expelled in the feces of infected people need to mature and become sporulated outside the host. This takes one to two weeks in an adequate environment with temperatures of between 23 and 27°C, in tropical or subtropical areas.

From the epidemiological perspective, cyclosporiasis occurs as outbreaks in summer and autumn. Remarkably, the sporules are not removed with commonly used disinfectants in the food industry and water treatment. The parasite is sensitive to trimethoprim/sulfamethoxazole 160/800 mg and does not respond to usual anti-parasitic drugs. In endemic areas, the infection can be asymptomatic.¹

Cyclospora cayetanensis ingestion by immunocompetent patients in non endemic areas will always be symptomatic, it is characterized by anorexia, nausea, flatulence, fatigue, abdominal cramps, prolonged periods of intermittent aqueous diarrhea that fluctuates between five and 15 bowel movements per day and results in weight loss. The incubation period is one week on average (two to 14 days). If the patient does not receive treatment, the disease evolves with remissions and relapses. Complications such as intestinal malabsorption, cholecystitis and reactive arthritis have been reported. To establish the diagnosis of

Cyclosporiasis, visualization of the oocyst should be specifically requested with a Ziehl-Neelsen modified cold staining, using molecular techniques or requesting a gastrointestinal pathogen panel by polymerase chain reaction (PCR). Several samples may be required, since *Cyclospora* oocysts can be expelled intermittently in small amounts in the stools, even when there is profuse diarrhea.

Although few cases have been reported in Mexico,² there has been an increase in tourists.²⁻⁴ The purpose of this communication is to alert the medical community, in particular first contact physicians, of an epidemiological alert in the United States for said increase, as well as to describe five previously-healthy patients with prolonged intermittent diarrhea and weight loss, referred to the authors. All five had been previously assessed with coproparasitoscopic serial tests, coprological studies, stool cultures and two of them with a colonoscopy (Table 1).

Of the five patients, in three (patients 3, 4 and 5) the Film Array® panel for gastrointestinal pathogens. Only in two (cases 4 and 5) cyclosporiasis was confirmed by PCR, both with symptom resolution after receiving trimethoprim/sulfamethoxazole. In the other three cases, given that the clinical context was similar to that of the two confirmed cases, and although one had a negative gastrointestinal panel PCR report (probably due to the fact that the parasite is intermittently expelled by the feces), we decided to treat with trimethoprim/sulfamethoxazole for 10 days, obtaining a good response. During the eight month follow-up, all patients regained weight, without any gastrointestinal symptom.

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Table 1. Description of clinical cases with cyclosporiasis

Cases	Gender/Age	Evolution	Background	Clinical presentation	Laboratory	Follow-up
1	26-year-old Swedish woman	5 months	Previous stay in Nepal and Thailand, where symptoms began	Intermittent watery diarrhea, average of 6 bowel movements per day, 8 -g weight loss, colic-type, mild to moderate abdominal pain in the mesogastrium, anorexia, fever, nausea, flatulence	Evaluated in Sweden with coproparasitoscopic serial tests and colonoscopy. She received metronidazole	Symptom resolution after 10 days of treatment with trimethoprim/sulfamethoxazole. She regained 3 kg at two months
2	76-year-old woman	5 months	Ingestion of seafood cocktails in Acapulco Guerrero, Mexico	Intermittent diarrhea, up to 8 stools per day, anorexia, flatulence, fecal incontinence, low-intensity, intermittent generalized abdominal pain, loss of 8 kg of weight	Coproparasitoscopic Serial tests, previous treatment with rifaximin and metronidazole	Symptom resolution after 10 days with trimethoprim/sulfamethoxazole. Recovered 2 kg at one month
3	43-year-old man	3 months	Ingestion of shrimp in Mexico City	Diarrhea, 6 to 8 bowel movements per day, anorexia, 4-kg weight loss, low intensity, intermittent postprandial abdominal pain	Coproparasitoscopic serial tests, colonoscopy, gastrointestinal pathogen panel by PCR. <i>Cyclospora cayetanensis</i> was not identified	Symptom resolution after 10 days of trimethoprim/sulfamethoxazole treatment. He recovered his usual weight
4	36 year-old man	3 months	Previous travel to the Caribbean sea in Mexico	Intermittent diarrhea, 6 bowel movements per day on average, intermittent pain in the hypogastrium, 4-kg weight loss	Coproparasitoscopic serial tests, gastrointestinal panel by PCR. The pathogen was identified. Treated with albendazole and rifaximin	Asymptomatic after trimethoprim/sulfamethoxazole treatment. He recovered his usual weight
5	69-year-old man	6 months	Ingestion of seafood cocktails in Zihuatanejo, Guerrero, Mexico	Intermittent diarrhea, 5 to 6 bowel movements per day, weight loss of 4 kg, flatulence, nonspecific abdominal discomfort	Coproparasitoscopic serial tests, colonoscopy with biopsies, gastrointestinal panel by PCR. <i>Cyclospora cayetanensis</i> was identified	Asymptomatic after trimethoprim/sulfamethoxazole treatment. He recovered his usual weight

A history of recent travel and a clinical context similar to that described in a patient complaining of diarrhea with remissions and relapses for weeks or months, supports the diagnosis and justify treatment with trimethoprim/sulfamethoxazole. Differential diagnosis should always include irritable Bowel and intestinal malabsorption syndromes, inflammatory bowel disease and colon cancer (villous adenoma), among others.

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