Cryptosporidium hominis and Isospora belli Diarrhea in Travelers Returning From West Africa

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Travel-related diarrhea is common among tourists to developing countries. We report two cases of diarrhea due to Cryptosporidium hominis and Isospora belli, respectively, in a child and an adult returning from Africa, without other associated microorganisms. We emphasize the need to detect underdiagnosed coccidiosis in diarrheic travelers with specific methods.

Most episodes of travelers’ diarrhea have a self-limited course and the pathogens do not cause any major damage to the intestine. Bacterial enteropathogens, particularly enterotoxigenic Escherichia coli, account for most acute diarrheal episodes in travelers, but the etiology of persistent travelers’ diarrhea lasting more than 3 weeks often remains unknown. Spore-forming protozoa, such as Cryptosporidium, Cyclospora, Isospora, and fungi as Microsporidia are now well-documented causes of persistent diarrhea in returning travelers. We report a case of chronic Cryptosporidium hominis diarrhea and a case of acute Isospora belli diarrhea in immunocompetent travelers both returning from West Africa.

Case 1

A 1-year-old child born in France to a Guinean immigrant couple living in Amiens (Picardy, France) traveled with these parents returning to their village in Guinea on holiday from May 11 to June 11, 2008. During the stay, the child developed watery diarrhea associated with vomiting that lasted almost 1 month. Laboratory tests could not be performed in Africa and the child was treated by traditional medicine. He experienced a febrile episode 1 week before returning to France, where he was urgently admitted to hospital. On admission, he presented severe signs of dehydration with weight loss, wrinkled skin, and deep-set eyes, but no disorders of consciousness. Malaria test was negative. A rapid diagnostic test for enterovirus/adenovirus in the stool was negative using an immunochromatographic detection (Diarlex Orion Diagnostica). Stool culture did not grow any enterobacteria including enterotoxigenic E. coli. Routine stool examination for enteric parasites including direct saline wet mount examination and two concentration techniques, Bailenger’s method and merthiolate iodine formaldehyde (MIF) with both a fixative and a stain was negative. However, Cryptosporidium antigen was detected in stool by immunochromatographic method (R-biopharm Diagnostic). Modified Ziehl Nielsen staining of a stool smear showed several Cryptosporidium oocysts. Polymerase chain reaction–restriction fragment length polymorphism (PCR/RFLP) identified the species as C hominis. Clinical improvement was rapidly obtained in response to symptomatic treatment (parenteral rehydration + Lacteol).

Case 2

A 55-year-old expatriate French bank manager working in Mauritania for 3 years was due to return to

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France. He held a dinner party before leaving the country and served a meal composed of avocado with shrimp, beef, eggs, potatoes, cheese, and dates. On the following day, he developed intestinal discomfort and a low-grade fever and consulted a Mauritanian physician who prescribed a 7-day empirical course of high-dose trimethoprim (TMP) and sulfamethoxazole (SMX); 160 mg TPM, 800 mg SMX. His wife also complained of abdominal pain and diarrhea. He returned to France 5 days after this meal with no improvement. After 4 days, TMP/SMX was replaced by ciprofloxacin and symptomatic treatment. Symptoms improved after 3 days and diarrhea resolved. Two days later, he experienced a relapse with deteriorating abdominal pain, diarrhea, and fever. He had three unformed stools daily with sweating and shivering. No laboratory tests had been performed up until then. In view of the absence of improvement, his physician referred him to our University Hospital of Amiens. Blood biochemistry and liver function tests were normal, and human immunodeficiency virus (HIV) serological control was negative. Multiple stool cultures for bacterial pathogens, including Salmonella, Shigella, Campylobacter, enterotoxigenic and other pathogenic Escherichia coli and vibrio organisms were negative. Routine parasitological evaluation showed immature _I. belli_ oocysts and a large number of Charcot Leyden’s crystal on a fresh unstained stool specimen. The medical staff had not considered _I. belli_, as the patient had already taken TMP/SMX for 4 days before admission. Symptoms improved after 3 days of hospitalization with antispasmodic treatment using phloroglucinol and the patient was discharged from hospital.

_Cryptosporidium_ has become a well-known cause of opportunistic infections among acquired immunodeficiency syndrome (AIDS) patients and can be responsible for outbreaks of gastrointestinal disease. However, little is known about the role played by _Cryptosporidium_ in travel-related diarrhea, particularly in children; this is probably underestimated due to underdiagnosis. As tropical travel is a recognized risk factor for _Cryptosporidium_, systematic screening for spore-forming protozoa in all patients with persistent watery stools is essential. Examination of fresh stool samples by modified acid-fast staining would therefore be useful in all such patients. The adult patient with _Isospora belli_ infection was reported to cause acute diarrhea in a traveler returning from India. Clinically, _I. belli_ infection is characterized by diarrhea, colicky abdominal pain, and weight loss, often associated with fever and can mimic _cryptosporidiosis_ or _giardiasis_. Although most infections are self-limiting, chronic _I. belli_ can result from ongoing cycles of schizogony and gametogony of _I. belli_ in the epithelium of small intestine. Little is known about the incidence of _I. belli_ infection and its potential risk to travelers. _Isospora belli_ appears to respond to prolonged high-dose TMP and SMX therapy. Shorter courses of therapy may provide improvement, but symptoms of infection may recur even in normal hosts, as in this case. The 7-day empirical course of high-dose TMP/SMX prescribed in Mauritania was stopped after 4 days. Unfortunately, this patient was lost to follow-up and a follow-up stool examination was not performed.

Those two cases highlight the need to consider spore-forming protozoa as potential causes of travelers’ diarrhea.

**Declaration of Interests**

The authors state they have no conflicts of interest to declare.

**References**