



Diarrheal illness can be avoided by taking precautions with regard to food and beverages. All water and ice should be presumed to be unsafe. Salads are often contaminated by protozoal cysts; along with street vendor foods, they are the most dangerous foods encountered by most travelers. Food should be well cooked, and unpasteurized dairy products should be avoided.

Prophylactic antibiotics are not generally recommended. Diphenoxylate (Lomotil) and loperamide (Imodium) may provide symptomatic relief of mild diarrhea. First-line treatment includes fluoroquinolones, taken orally for 3 days. In some countries, such as Thailand and Nepal, fluoroquinolone resistance, especially among *Campylobacter* species, has been on the rise; azithromycin is an alternative in these situations.

Special Problems

Pregnant Women

Although travel is rarely contraindicated during a normal pregnancy, complicated pregnancies require special consideration and may warrant a recommendation that travel be delayed. The risk of obstetric complications is highest during the first and third trimesters.

Most live-virus vaccines are contraindicated during pregnancy. Yellow fever vaccine, for which pregnancy is considered a precaution by the Advisory Committee on Immunization Practices (ACIP), should be avoided if possible. If travel is unavoidable and the risks for yellow fever virus exposure are believed to outweigh the risks of vaccination, a pregnant woman should be vaccinated. Pregnant women should avoid or delay travel to malaria-endemic areas because no prophylactic measures provide complete protection. If travel is unavoidable, pregnant women should take utmost precautions to avoid mosquito bites; for chemoprophylaxis, chloroquine and mefloquine are the drugs of choice for destinations with chloroquine-sensitive and chloroquine-resistant malaria, respectively.

Acquired Immunodeficiency Syndrome

Many countries bar entry to persons with acquired immunodeficiency syndrome (AIDS). Several countries require serologic testing for the human immunodeficiency virus (HIV) from all travelers applying for visa lasting longer than 3 months; official documentation is required well in advance of travel. Patients with HIV infection need special preparation before travel to developing countries because of their increased susceptibility to certain illnesses (e.g., pneumococcal infection, tuberculosis). Issues of HIV infection and other sexually transmitted diseases should be discussed, especially with young, sexually active adults.

The Returning Traveler

The most common medical problems encountered by travelers after their return home are diarrhea, fever, respiratory illnesses, and skin lesions. A detailed history should focus on the traveler's exact itinerary, including dates of travel, exposure history (e.g., food indiscretions, drinking-water sources, freshwater contact, sexual activity, animal contact, insect bites), style of travel (urban versus rural), immunization history, and use of antimalarial chemoprophylaxis.

Diarrhea

Traveler's diarrhea is an acute condition that usually resolves within 2 weeks. If the traveler's diarrhea is not responsive to empiric antibiotic treatment, a work-up should be performed to evaluate for *Giardia lamblia* (see later discussion). Three stool specimens for ova and parasites and a stool culture are indicated (E-Fig. 103-1). If *Giardia* tests are negative, an empirical trial of metronidazole for treatment of a possible infection with *Giardia* or other protozoan (e.g., amebiasis) should be considered. Non-infectious causes such as temporary lactose intolerance, irritable bowel syndrome, and, less commonly, inflammatory bowel disease should also be in the differential diagnosis.

Fever

Malaria should be the first diagnosis considered in a febrile traveler who has returned from a malarious area. *P. falciparum* malaria can be fatal if it is not diagnosed and treated promptly. Detection of the *Plasmodium* species on Giemsa-stained blood smears by light microscopy is the standard tool for diagnosis of malaria. Rapid diagnostic tests for detection of malaria parasite antigens are becoming increasingly important tools in resource-limited endemic settings because of their accuracy and ease of use.

Travelers with chloroquine-sensitive *P. falciparum* malaria should be treated with chloroquine. Reasonable agents for uncomplicated malaria caused by chloroquine-resistant *P. falciparum* include atovaquone-proguanil, artemisinin derivative combinations (if available), and mefloquine- or quinine-based regimens. Quinine- and mefloquine-based regimens are more frequently associated with adverse effects, and mefloquine should not be used to treat *P. falciparum* malaria acquired in the Thai-Myanmar-Cambodia area because of high resistance rates.

Severe malaria is defined as acute malaria with major signs of organ dysfunction or a high level of parasitemia (>5%) or both. It should be treated with intravenous quinidine for 7 days with close monitoring of the QTc interval. In many parts of the world, intravenous artesunate is used, but it may be associated with high rates of relapse.

Other important causes of fever after travel include viral hepatitis (hepatitis A and E), typhoid fever, bacterial enteritis, arboviral infections (e.g., dengue, chikungunya), rickettsial infections, and, in rare instances, leptospirosis, acute HIV infection, and amebic liver abscess.

Skin Diseases

Sunburn, insect bites, skin ulcers, and cutaneous larva migrans are the most common skin conditions affecting travelers after their return home. Persistent skin ulcers should prompt a work-up for cutaneous leishmaniasis, mycobacterial infection, or fungal infection. Careful, complete inspection of the skin is important in detecting the rickettsial eschar in a febrile patient or the central breathing hole in a "boil" caused by myiasis.

PROTOZOAL INFECTIONS

Protozoal infections, though endemic to certain regions, can be encountered all around the world, partly because of the increase in travel and migration (Table 103-1). They cause a tremendous burden of disease in the tropics and subtropics as well as more