Schistosomiasis

Traveler Summary

Key Points

- Schistosomiasis is a parasitic infection acquired through contact with skin-penetrating worms in fresh water (but not salt water). Rivers, lakes, ponds, and streams throughout Africa, southeast Asia, and Brazil all present risk.
- Risk is significant for persons bathing, wading, swimming, boating, or rafting in infested waters, especially in Africa.
- Symptoms of acute infection occurring several weeks after exposure include influenza-like symptoms, with high fever, malaise, and respiratory symptoms (coughing, wheezing, shortness of breath); however, most infections cause no symptoms.
- Consequences and long-term outcomes of high worm burden, chronic infection may include brain infection (from egg deposition later in the disease course), severe liver disease, kidney failure, and bladder cancer years later but are rare in travelers who are typically lightly infected.
- Prevention includes complete avoidance of freshwater exposure in infested areas, even in places local residents say are infection free. If water exposure cannot be avoided, try to prevent skin-penetrating worms from reaching the skin by wearing protective footwear or clothing.
- No vaccine or preventive drugs are available.
- Self-treatment following possible exposure is not advocated; medical evaluation should be sought a minimum of 8 weeks after the last possible exposure.

Introduction

Schistosomiasis is a parasitic infection acquired through contact with freshwater throughout the tropics and subtropics. The major forms in humans are caused by waterborne flatworms or blood flukes called schistosomes. Schistosomiasis is an increasing concern for travelers, particularly those undertaking "off-the-beaten-track" adventure tours around freshwater areas that are endemic for the disease.

Risk Areas

Schistosomes are globally distributed but human schistosomiasis is a disease of the tropics and subtropics. The problem is exacerbated in developing countries without access to safe drinking water and proper sanitation. Most travel-associated schistosome infections have been identified after visiting Africa. Human schistosomes should be presumed to exist in any fresh water in Africa and are a particular problem in the Dogon region of Mali, eastern Africa (especially coastal regions), Lake Malawi, Lake Tanganyika, Lake Victoria, the Nile River valley, the Omo River, the Volta Region of Ghana, western Africa (especially the savanna), and the Zambezi River. Shistosomes also exist in the Middle East, especially along the Euphrates and Tigris rivers; tropical and subtropical areas in Asia; and in the Americas.

Transmission

Schistosomes live in certain freshwater snails, which release large numbers of tiny free-swimming larvae (called cercariae) into the water. These cercariae can penetrate the unbroken skin of a person who comes in contact with infested water and migrate to veins around the liver or bladder where mature worms produce eggs. Adult worms can live up to 15 years and produce large numbers of eggs that exit the body through urine or feces.

Risk Factors

Infection in travelers is usually acquired by bathing, swimming, wading, boating, or rafting in cercariae-infested waters. Even brief water exposure can lead to infection since the cercaria can penetrate intact skin within 30 seconds to 10 minutes. Risk of infection is highest along lake shores, slow-moving streams, and irrigation ditches that contain the snail host, but transmission has occurred in swamps, dams, rivers, and flooded paddy fields as well. Rafting trips generally involve some exposure to fresh water before or after the whitewater experience and in endemic areas are associated with disease in travelers.

Symptoms

Early infection is usually not symptomatic in persons who live in endemic areas or in persons with light infections. A few hours after contact with schistosomes, some persons may experience tingling of the skin with a rash where the cercaria enter the body ("swimmers itch"); however, less than 10% of persons have this initial rash/itching. When a rash does occur, it usually resolves within 24 hours. Weeks later, once the adult worms begin to produce eggs, the person may develop influenza-like symptoms, with high fever, malaise, respiratory symptoms (coughing, wheezing, shortness of breath), diarrhea, and hives. The liver and spleen can also be affected. Most of the harmful effects of the disease in humans are caused by the reaction to the schistosome eggs. Expatriates and travelers without previous exposure may become seriously ill in the early stages of acute infection.

Consequences of Infection

Long-term consequences of high worm burden, chronic infection include severe liver disease, kidney stones or failure, bowel polyps, blood in the urine, and bladder cancer.

Need for Medical Assistance

Persons who experience fever, influenza-like illness with general tiredness, and hives should seek immediate assistance. Blood in the urine or bloody diarrhea are also indicators to seek medical assistance. An acute neurological event, such as limb weakness or paralysis or severe headache, requires immediate medical evaluation. In general, self-treatment following possible exposure is not advocated. A medical evaluation may be prudent upon return from high-risk travel that includes freshwater exposure and should include urine and stool exams for schistosome eggs; however, eggs may not appear in the urine or stool for up to 3 months after exposure. A reliable laboratory test is available, and safe and effective drugs are available for treatment of schistosomiasis.

Prevention

Whenever possible, avoid freshwater exposure in endemic areas, including wading, swimming, splashing, or drinking directly from the water source. Even deep lake water far offshore cannot be regarded as safe. If water exposure cannot be avoided, try to prevent cercariae from reaching the skin by wearing protective footwear or clothing. Rubber boots and wetsuits are protective, although uncovered skin exposure is likely. Cercariae die quickly when removed from water and cannot survive drying; therefore, quick drying of exposed skin and clothing provides some protection. Chlorinated water (such as a properly maintained swimming pool) or water stored in a snail-free container for 48 hours is considered safe.
