

Schistosomiasis



Schistosoma Adult Haematobium or Adult Mansoni

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AKA

- bilharzia
- Katayama fever
- schistosomiasis
- snail fever

Schistosomiasis (bilharzia) is an infection caused by a parasitic flatworm that lives in fresh water of the subtropics and tropics; the worms do not live in salt water or chlorinated swimming pools. It most commonly is seen in Africa, but it also occurs in parts of South America, the Caribbean, the Middle East, and Asia. These tiny worms (cercaria) will penetrate the skin during swimming or bathing in contaminated water or even paddling on a river. Once in the body, the worms grow and can migrate to the liver, bladder, kidneys, and bowel. The worms eventually lay eggs that leave the body via the urine or feces. If the eggs pass out of the body into water, they release larvae that grow

inside freshwater snails. After a few weeks, the larvae can infect another human, completing the life cycle. More than 200-million people are infected worldwide.



Signs and Symptoms

Symptoms of schistosomiasis are related to the immune response to the worms and eggs. Initially, a pruritic papular rash appears that is accompanied by abdominal pain, diarrhea, bloody stool, and gross hematuria. Usually, fever, chills, diaphoresis, cough, headache, and myalgias occur 2-4 days after exposure. In hepatic *Schistosoma mansoni* infection, lymphadenopathy and eosinophilia may be found. In chronic infection, liver and lung damage, renal failure, infertility, and bladder cancer (squamous cell carcinoma) may occur. In children, anemia, malnutrition, and learning deficits may be found. Rarely, seizures and paralysis have been reported.

Diagnostic Evaluation and Differential Diagnosis

In schistosomiasis, eggs may be seen in the stool, especially after the acute infection. *S haematobium* eggs may be detected in the urine (try multiple samples collected between 12 PM-3 PM). Check treated patients for ova and parasites for up to 1 year to ensure cure. Confirmation may be accomplished with enzyme-linked immunosorbent assay and immunoblot testing. Eosinophilia is found in 20%-60% of persons with acute infections. In cases of *S haematobium*, hematuria may be found. Immunoglobulin-E levels may be elevated.

Staging and Further Stratifications

Intestinal schistosomiasis: Infection with *S mansoni* tends to be found in southern and sub-Saharan Africa, the Nile River Valley in Egypt and Sudan, South America (Brazil, Suriname, and Venezuela), and the Caribbean (low risk; Antigua, Dominican Republic, Guadeloupe, Martinique, Montserrat, Saint Lucia). Infection with *S japonicum* is seen in Indonesia, Japan, the Philippines, and parts of China and Southeast Asia. Infection with *S mekongi* is seen in Cambodia and Laos. More severe symptoms (including lower abdominal pain, diarrhea and constipation) also are associated with hepatocellular and colorectal carcinoma.

Urinary schistosomiasis: Infections caused by *S haematobium* are seen throughout Africa and the Middle East. Eggs find their way to the bladder and distal ureters, causing hematuria, obstructive uropathy, renal failure, chronic urinary tract infections, bladder carcinoma, and genital pathology.

Treatment Options and Prevention

To treat schistosomiasis, praziquantel may be given to clear the body of worm infestation. Unfortunately, many people become reinfected. Praziquantel paralyzes and kills adult worms most likely by affecting their calcium channels and causing unrestrained calcium ion influx.

As of 2019 there were three candidate schistosomiasis vaccines in human clinical trials. According to several vaccine working groups an effective vaccine would need to decrease adult worm burden by 75% in those immunized.

According to the World Health Organization January 2022

- **People are infected during routine agricultural, domestic, occupational, and recreational activities, which expose them to infested water.**
- **Lack of hygiene and certain play habits of school-aged children such as swimming or fishing in infested water make them especially vulnerable to infection.**
- **Schistosomiasis control focuses on reducing disease through periodic, large-scale population treatment with praziquantel; a more comprehensive approach including potable water, adequate sanitation, and snail control would also reduce transmission.**

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