



## Epidemiology and Diagnosis of Fascioliasis

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### DESCRIPTION

Fascioliasis is an infectious disease caused by Fasciola parasites, which are flat worms referred to as liver flukes. The adult (mature) flukes are found in the bile ducts and liver of infected people and animals, such as sheep and cattle. In general, fascioliasis is more common in livestock and other animals than in people.

Two Fasciola species (types) infect people. The main species is *Fasciola hepatica*, which is commonly known as “the common liver fluke” and “the sheep liver fluke.” A related species, *Fasciola gigantica*, also can infect people. *Fasciola hepatica* is found in all the continents except Antarctica. *Fasciola gigantica* has been found in some tropical areas. Except for parts of Western Europe, human fascioliasis has mainly been documented in developing countries. Humans are infected by eating water grown plants, primarily wild-grown watercress in Europe or morning glory in Asia. Infection may also occur by drinking contaminated water with floating young fasciola or when using utensils washed with contaminated water. Cultivated plants do not spread the disease in the same capacity. Human infection is rare, even if the infection rate is high among animals. Especially high rates of human infection have been found in Bolivia, Peru and Egypt, and this may be due to consumption of certain foods.

No vaccine is available to protect people against Fasciola infection. Preventative measures are primarily treating and immunization of the livestock, which are required to host the live cycle of the worms. Veterinary vaccines are in development, and their use is being considered by a number of countries on account of the risk to human health and economic losses resulting from livestock infection. While other animals can be infected, they are usually not very important for human disease transmission. On the other hand, some authors have observed that donkeys and pigs contribute to disease transmission in Bolivia. Among wild animals, it has been demonstrated that the peridomestic rat (*Rattus rattus*) may play an important role in the spread as well as in the transmission of the parasite in Corsica. In France, nutria (*Myocastor coypus*) was also confirmed as a wild reservoir host of *F. hepatica*. Humans are infected by ingestion of aquatic plants that contain the infectious cercariae.

Fascioliasis occurs in many areas of the world and usually is caused by *F. hepatica*, which is a common liver fluke of sheep and cattle. In general, fascioliasis is more common and widespread in animals than in people. Even so, the number of infected people in the world is thought to exceed two million. *Fasciola hepatica* is found in focal areas of more than 70 countries, in all continents except Antarctica. It is found in parts of Latin America, the Caribbean, Europe, the Middle East, Africa, Asia, and Oceania. *Fasciola gigantica* is found in fewer geographic regions. Human cases have been reported in the tropics, in parts of Africa and Asia, and also in Hawaii. In some areas where fascioliasis is found, human cases are uncommon (sporadic). In other areas, human fascioliasis is very common (hyper endemic). For example, the areas with the highest known rates of human infection are in the Andean highlands of Bolivia and Peru.

### DIAGNOSIS OF FASCIOLIASIS

Microscopic examination of stool or duodenal is biliary material for eggs and antibody assays. Fascioliasis should be considered in patients with abdominal pain and/or hepatomegaly, and a dietary history of watercress ingestion or consumption of raw vegetables exposed to contaminated water. If stool examination and antibody testing are negative or equivocal fascioliasis is still suspected and then endoscopy with duodenal and biliary aspiration should be done. Eggs and sometimes adult worms may be detected in specimens obtained during endoscopy.

### CONCLUSION

Human *F. hepatica* infection is determined by the presence of the intermediate snail hosts, domestic herbivorous animals, climatic conditions and the dietary habits of man. Sheep, goats and cattle are considered the predominant animal reservoirs. When fascioliasis is suspected, patients should have stool examination for eggs and serum antibody assay. Supportive findings on blood and imaging tests done for evaluation of abdominal complaints include anemia, eosinophilia, abnormal liver tests, elevated erythrocyte sedimentation rate, and hypergammaglobulinemia, and hypodense lesions in the liver on CT scan during the acute stage of fascioliasis.

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