



Echinococcus multilocularis






Echinococcus multilocularis is a

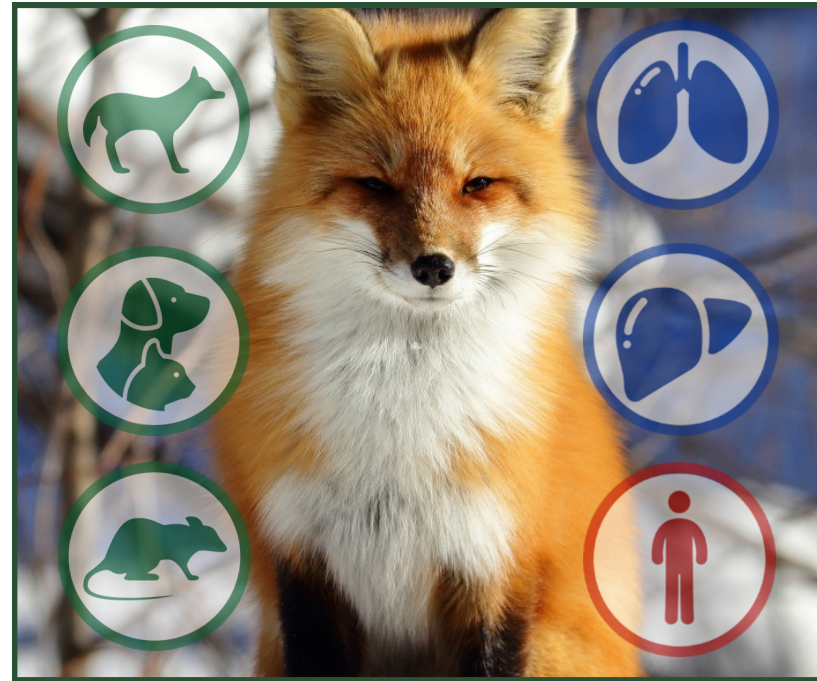
tapeworm that affects red and gray foxes, coyotes, voles, and mice. It can also infect humans, domestic dogs, and cats.

Transmission and Distribution

E. multilocularis is a tapeworm found throughout the northern hemisphere. In North America, *E. multilocularis* is most commonly found from Montana to Ohio. It has also been reported in Alaska and Canada. The first case of *E. multilocularis* in Virginia was diagnosed in November 2018 in a domestic dog with no travel history. In late 2020, the tapeworm was confirmed in a red fox originating from Clarke County. In 2021, the parasite was confirmed in a red fox from Loudoun County.

FAST FACTS:

-  Affected animals: wild canids, rodents, domestic dogs, and cats
-  Affected organs: liver and lungs
-  Transmission: ingestion of infected rodents or eggs from infected canids
-  Human health risk: YES
-  Mortality rate: high in non-canid hosts; 50-75% in humans if untreated



Hosts

The definitive hosts for *E. multilocularis* are canid species (foxes, coyotes, and dogs). Canid species typically become infected when they feed on infected rodents. Adult *E. multilocularis* tapeworms live in the small intestine of canid hosts and are transmitted in the feces. Intermediate hosts, including mice and voles, become infected when they consume *E. multilocularis* eggs in canine feces. Once ingested by an intermediate host, the larvae migrate to various organs, especially the liver and lungs. The larvae develop into hydatid cysts, which eventually affect organ function. Domestic dogs may act either as definitive or intermediate hosts.

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Clinical Signs

Wild canids typically do not show symptoms of *E. multilocularis* infection. Other species will show varying clinical signs based on the severity and location of the cysts. Since *E. multilocularis* cysts are slow-growing, infected animals may not show clinical signs for years. Clinical signs that may be noted include abdominal pain, weakness, weight loss, and signs of liver disease.

Mortality Rate

Mortality is low in wild canids and other definitive hosts. Infections in intermediate hosts exhibit a high mortality rate if left untreated for an extended period of time.

Information for Pet Owners

In areas known to be affected by *E. multilocularis*, dogs are considered at risk for infection if they have potential contact with wild canid feces or rodents. Diagnosis in dogs acting as definitive hosts may be achieved via routine veterinary fecal examination. Dogs diagnosed with *E. multilocularis* via fecal examination should be treated with an antiparasitic medication prescribed by a veterinarian. Dogs acting as intermediate hosts may require surgery for cyst removal.



Human Infection

Humans are usually exposed to this parasite via ingestion of eggs in contaminated food or water or via contact with infected canid feces. Humans infected with *E. multilocularis* may develop cysts in the liver, lungs, or occasionally other areas of the body. They will often remain asymptomatic for last several years until cysts grow large enough to cause problems. Clinical signs of echinococcosis in humans often mimic liver cancer and include abdominal discomfort, nausea, and vomiting. In humans, *E. multilocularis* is often treated surgically. Mortality in untreated human cases of *E. multilocularis* may be as high as 50-75%.

Reporting

If you encounter sick wildlife, please contact the Virginia Department of Wildlife Resources Wildlife Conflict Helpline at **855-571-9003**. This number is active Monday to Friday, 8:30AM - 4PM.