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New, serious parasite takes form of tapeworm in humans

UAlberta team of experts confirm appearance in Alberta of tapeworm, harmless in canines but potentially fatal to people.



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The parasite *Echinococcus multilocularis* may be transmitted to humans when pet dogs and other canines eat infected rodents, like this mouse. While experts are keeping an eye on the transmission of this parasite to humans, they say the public should not be overly worried about the disease as it very rare in North America.

By LESLEY YOUNG

A formidable parasitic disease, recently introduced into Alberta coyotes, has been found in humans here, according to UAlberta physicians.

"There have been four Alberta patients with the tapeworm in the last four years. The only previous Canadian case was in 1928 in Manitoba. This is significant enough to warrant a watchful eye on the problem," said Stan Houston, a UAlberta infectious diseases expert.

University of Calgary biologists identified a high infection rates among Alberta coyote populations a few years ago, and confirmed the parasite strain is from Europe, where the disease has long been recognized.

"Presumably somebody from Europe brought an infected dog over," said Houston.

UAlberta physicians, including one of the world's leading experts on the tapeworm parasite, Klaus Buttenschoen, are keeping an eye on the transmission of *Echinococcus multilocularis* to humans, along with Alberta Health Services.

"The public should not be overly worried about getting this disease as it is rare in North America," said Buttenschoen. "People with low immunity are at greater risk."

There are ways to help prevent transmission, he added.

How it's transmitted

The parasite starts out as a relatively harmless tapeworm in canines, typically in coyotes and foxes, said Houston. "But it changes form depending on its host," he added.

When rodents get the parasite after eating canine feces, it manifests in the form of lumps on the liver. Along comes a coyote, or potentially a pet dog, that catches and eats the rodent, and the parasite returns to tapeworm form in the symptomless canine, said Houston.

"Human exposure happens in one of two ways," he added. "We might get the tapeworm from eating foods that are grown close to the ground, like carrots from our garden, and exposed to traces of canine feces. Or, microscopic traces of pet feces lands in our pets' hair if your dog is one that hunts rodents. When we pet them and then touch our food or our mouths, we ingest the parasite's eggs."

Once transmitted to humans, the parasite once again manifests in lumps on the liver.

"Unfortunately, while it's harmless to a dog or coyote, the rodent will die and the human needs treatment as soon as possible," said Houston.

"This is an important example of the inescapable ecological interaction between human and animal health. Most emerging infectious diseases come from animals and now here is another one right on our doorstep."

How it impacts humans

People who are most at risk are those who have a dog, hunt, and get in touch with potentially infested animals said Buttenschoen, who added that the parasite is extremely slow growing.

"It grows on average fourteen cubic centimetres per year and in 97 per cent of cases, travels to the liver in humans."

If the tapeworm's presence goes unnoticed, it can spread to other parts of the body, much like how cancer invades and destroys organs, he added.

In most cases, the early presence of *Echinococcus multilocularis* infestation is symptomless, said Houston.

"Roughly one-third of patients who are diagnosed are jaundiced (turn yellow). Another third report unspecified pain and see a doctor for that reason. The other third will visit a doctor for another reason and through an ultrasound or CT scan, a liver mass is identified."

Because the parasite is initially symptomless and may be left to slowly grow, by the time it is found, about two-thirds of patients will be inoperable.

"They can survive the parasite with lifelong anti-parasitic medicine. If it is entirely removed surgically, patients usually only need to be on the medicines for two years," added Houston.

If left untreated, the parasite will kill its human host in 10 to 15 years.

How to avoid transmission

If you suspect your dog is eating rodents, you should get him or her dewormed on a regular basis, said Houston.

"Standard dog deworming does not cover this tapeworm. Your veterinarian should know of this and provide the correct medication."

Also, be sure to thoroughly wash any food that comes from the ground or close to the ground, he added.

"Although the situation is evolving in ways we cannot confidently predict, Albertans should keep in mind that this is still a very uncommon condition," said Houston.

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