



Moose measles

(*Taenia krabbei*)

in Alberta

Common name

moose measles, muscle cysticercosis

Scientific name

a tapeworm (cestode), *Taenia ovis krabbei*. Note: this species is usually referred to as *Taenia krabbei*

What's Bugging Wild Critters?

Fact sheet #16: Moose measles

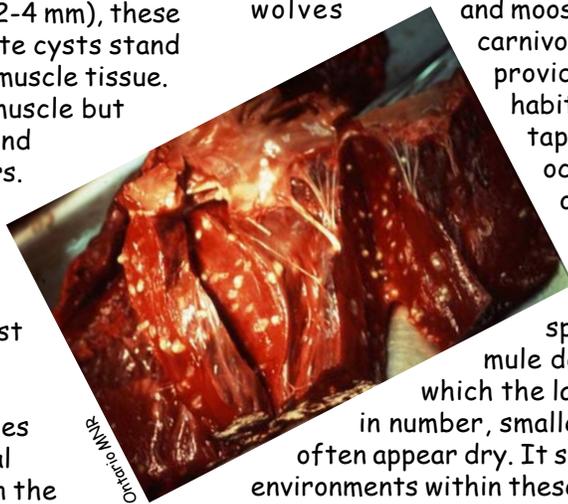


Significance

The primary habitat for this tapeworm is the muscle/meat of moose (as larvae) and the intestines of carnivores (as adult worms). Although some hunters assume the meat containing larvae is inedible, the parasite does NOT infect humans and is completely harmless! Dogs fed infected moose meat may provide suitable conditions for adult tapeworms.

What? Where? How?

As with *Taenia hydatigena*, *Taenia krabbei* uses the relationships between herbivores and carnivores to maintain the tapeworm population. Adult worms are seldom seen (who looks in the intestines of a wolf?); however, larvae are conspicuous in the muscle/meat of moose. Although they are small (2-4 mm), these round to oval, yellow/white cysts stand out against the dark red muscle tissue. Larvae can occur in any muscle but most often live in the round steaks of the hindquarters. The number of larvae in a moose can vary from few to many thousands. One moose shot near Warburg had larvae in just about every muscle in its body, including tongue, heart, and even the muscles behind the eyes! The total count in this moose was in the order of 50 000 larvae. However, most moose have far fewer cysts. Older moose are more likely to be infected and provide habitat for more larvae. *T. krabbei* occurs in northern ecosystems around the world.



Transmission Cycle

Adult tapeworms live in the intestines of carnivores (usually wolves but also coyotes, dogs, cougars, black bears, and grizzly bears). Eggs are shed in the faeces and can end up on the ground or on vegetation. If the eggs are eaten by a grazing herbivore (mainly moose but also antelope, mule deer, and caribou), they migrate to various muscles, including the heart. Once they reach the muscles, the larvae stop moving and enter a resting stage that stays in the muscle until it is eaten by a carnivore. In the gut of the carnivore, the larvae are reactivated and they develop into adult tapeworms.

Distribution in Alberta

This tapeworm is by far the most common parasite seen by hunters in Alberta. The larvae are common in moose of northern and western Alberta in areas where wolves and moose overlap. Other carnivores appear to provide only marginal habitat for this tapeworm and it occurs in them only as spillover from the wolf/moose cycle. Similarly the species is rare in mule deer and elk, in which the larvae are fewer in number, smaller in size, and often appear dry. It seems that environments within these species are barely suitable as habitat for the larvae. White-tailed deer seem to be unsuitable habitat and cannot sustain this tapeworm.

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Importance for Wildlife Management

The tapeworm is not harmful either as adults or as larvae.

Public Significance

T. krabbei does NOT infect humans. Further, the larvae are killed by freezing and cooking (except in "blue" steaks). Regrettably, some hunters are not aware of the facts and they unnecessarily abandon infected carcasses in the bush. This is illegal and results in loss of edible meat. However, the Fish and Wildlife Division recognizes that meat which is heavily infected is unappealing to eat and a replacement tag may be issued (at the discretion of the Fish and Wildlife Officer). As with all such situations, you must tag and gut the animal in the field and then take the entire carcass to a Fish and Wildlife Officer for assessment. If a new tag is issued, all parts of the original moose are forfeit.



If you have any concerns about a specific carcass, please contact any Fish and Wildlife office. Some hunters find that infected meat is more acceptable at the table if processed as ground meat with added fat.

This way the larvae are less obvious than when they are in roasts and steaks (although with enough gravy, they completely disappear!). On occasion, uninformed meat inspectors declare infected moose meat unfit for human consumption. This declaration is not justified and again, if you have a problem, contact any Fish and Wildlife office. Note that larvae in fresh (unfrozen) meat can infect domestic dogs. However, such infections also are harmless.

Prevention/Control

The presence of *Taenia krabbei* in wildlife cannot be prevented or controlled. As a general rule, fresh meat from wild game should not be fed to dogs.



Summary

This harmless tapeworm is part of the biodiversity of our natural ecosystems. It occurs commonly throughout the areas where moose and wolves coexist. For aesthetic reasons, heavily infected moose may warrant a replacement tag for the hunter.

Additional Information

Parasitic Diseases of Wild Mammals, Second Edition. Edited by William M. Samuel, Margo J. Pybus and A. Alan Kocan. 2001. Chapter 7 - Taeniasis and Echinococcosis.

University of Northern British Columbia: http://www.unbc.ca/nlui/wildlife_diseases/taenia_krabbei.htm

Newfoundland and Labrador Agriculture: <http://www.gov.nf.ca/agric/pubfact/moose.htm>

Northwest Territories Resources, Wildlife and Economic Development. : <http://www.nwtwildlife.rwed.gov.nt.ca/Publications/diseasepamphletweb/muscleTapewormCysts.htm>

Alaska Department of Fish and Game: <http://www.wildlife.alaska.gov/aawildlife/disease/guide/muscle1.cfm>