Adopt a Pathogen Week 1 - Tapeworms

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1. Name of our pathogen and the diseases it causes.

There are several species of pathogenic tapeworm including *Taenia saginata* (beef tapeworm) and *Taenia solium* (pork tapeworm). They are vertebrate endoparasites, causing the diseases taeniasis (intestinal infection) and cysticercosis (tissue infection, particularly with the pork tapeworm).

1. Its morphology

The tapeworm is a flat, segmented worm with a morphology broken down into 3 components: scolex (head), neck, and the strobila (segmented body). The strobila is a segmented chain of proglottids, each containing male and female genitalia.

Tapeworms lack a digestive tract and instead absorb nutrients directly from the host’s small intestine. Tapeworms can be very large in some cases (up to 40meters in a whale tapeworm)

1. Taxonomic information — what else is it related to? Are its siblings and cousins (so to speak) also pathogenic?

Kingdom: Animalia

Phylum: Platylhelminthes (flatworms)

Class: Cestoda

Subclass: Eucestoda (tapeworms)

Cestoda is composed of Eucestoda, the “true” tapeworms, and Cestodaria. While both subclasses are vertebrate parasites, Cestodaria are distinct from Eucestoda in that they are more often found in fish and they lack the characteristic segmentation that tapeworms are known for.

1. Information on the disease it causes, including:
   1. How we diagnose the disease today.

Taeniasis is diagnosed by finding tapeworm segments or eggs in the stool

* 1. The pathogen's reservoir(s)

The intestines of vertebrates.

* 1. Its mode(s) of transmission

Transmission is indirect, resulting from consumption of eggs or larva present in undercooked meat as well as from poor hygiene practices.

* 1. The natural history of disease

The natural history of disease caused by tapeworms varies slightly between species and disease, specifically in the requirement of an intermediate host.

With taeniasis, definitive hosts (humans) get infected when they consume meat containing larval cysts. These larvae develop in the intestine before the adult tapeworm produces proglottids filled with eggs which are released into the environment through the feces. When ingested by the intermediate host (livestock), these eggs hatch into larvae that form cysts in tissues. The cycle is completed when the larvae-containing tissue is eaten by the definitive host. With cysticercosis, the disease is caused by the larval cyst formation resulting from consumption of tapeworm eggs, and an intermediate host is not involved.