

Trichinosis



Case Definition

Confirmed Case: Clinically compatible illness (see below) with a *Trichinella spiralis* positive muscle biopsy or positive serology for trichinosis.

Clinical Case: Clinically compatible illness with epidemiological linkage to a confirmed case or to meat known to contain *Trichinella* larvae.

Reporting Requirements

- All positive laboratory tests of *Trichinella spiralis* are reportable by laboratory.
- All cases of trichinosis are reportable by attending health care professional.

Clinical Presentation/Natural History

Clinical illness in humans is highly variable and can range from inapparent infection to a fulminating, fatal disease, depending on the number of larvae ingested. Sudden appearance of muscle soreness and pain, together with edema of the upper eyelids, are early characteristic signs. These are sometimes followed by subconjunctival, subungual and retinal hemorrhages, pain and photophobia. Thirst, profuse sweating, chills, weakness, prostration and rapidly increasing eosinophilia may follow shortly after the ocular signs.

Gastrointestinal symptoms, such as diarrhea, may precede the ocular manifestations. Remittent fever is usual, sometimes as high as 40°C; the fever terminates after one to six weeks, depending on intensity of infection. Cardiac and neurologic complications may appear in the third to sixth week; in the most severe cases, death due to myocardial failure may occur.

Etiology

Trichinosis is caused by the intestinal roundworm, *Trichinella spiralis*, whose larvae migrate to and become encapsulated in muscles.

Epidemiology

Reservoir: The parasite's reservoir includes swine, dogs, cats, horses, rats and many wild animals, including fox, wolf, bear, polar bear, wild boar and marine mammals in the Arctic.

Transmission: By eating raw or insufficiently cooked flesh of animals containing viable encysted roundworm larvae. In the epithelium of the small intestine, larvae develop into adults. Gravid female worms then produce larvae, which penetrate the lymphatics or venules and are disseminated via the bloodstream throughout the body. The larvae become encapsulated in skeletal muscle.

Occurrence:

General: Worldwide. Variable in incidence, depending in part on practices of eating and preparing pork or wild animal meat, and the extent to which the disease is recognized and reported. Cases usually are sporadic and outbreaks localized, often resulting from eating pork sausage and other pork products, or meat from Arctic mammals.

Manitoba: One case of trichinosis was reported in 1998.

Incubation Period: Gastrointestinal symptoms may appear within a few days of ingestion of infected meat; systemic symptoms generally occur from five to 45 days after ingestion.

Susceptibility and Resistance: Susceptibility is universal. Infection results in partial immunity.

Period of Communicability: Not directly transmissible from person-to-person. Animal hosts remain infective for months, and meat from such animals stays infective for appreciable periods unless cooked, frozen or irradiated.

Diagnosis

Serologic tests and marked eosinophilia may aid in diagnosis. Biopsy of skeletal muscle, taken more than 10 days after infection (most often positive



after the fourth or fifth week of infection), frequently provides conclusive evidence of infection by demonstrating the uncalcified parasite cyst.

Key Investigations

- History of consumption of meat known to be infected with *T. spiralis*, or known to have been consumed by a confirmed case. Investigate for consumption of pork, and Arctic mammals.
- Relevant laboratory testing.

Control

Management of Cases:

- Treatment of choice is mebendazole, which may provide some benefit in the intestinal stage and in the muscular stage.
- Corticosteroids are indicated only in severe cases to alleviate symptoms of the inflammatory reaction when the CNS or heart is involved, but they delay the elimination of the adult worms from the intestine.

Management of Contacts:

- Epidemiologic investigation to determine the source of the infection and identify others at risk.
- Dispose of any remaining suspected food.

Management of Outbreaks:

- Case-finding for additional cases.
- Public education regarding the need to adequately cook meat.

Preventive Measures:

- Thoroughly cook meat, allowing all parts to reach at least 71°C (160°F), or until the meat turns from pink to grey in colour.
- Freeze meat before cooking, at -15°C for 30 days or -25°C for 10 days.
- Grind pork in a separate grinder or clean the grinder thoroughly before and after processing other meats.
- Only certified trichinae-free pork should be used in raw pork products that have a cooked appearance, or in products that traditionally are not heated sufficiently to kill trichinae during final preparation.
- Garbage and offal should be cooked before feeding to swine.
- Hunters should thoroughly cook the meat of walrus, seal, wild boar, bear and other wild animals.