Trichinellosis

Epidemiology in New Zealand

Trichinellosis is caused by intestinal roundworms of the genus *Trichinella*. Most human infections are caused by *T. spiralis*, which is found worldwide and is hosted by a variety of carnivorous animals.

Since 1969 New Zealand authorities have undertaken various forms of surveillance for *Trichinella* spp. in such areas as domestic farmed pigs, feral pigs, slaughtered horses and meat export premises. No *T. spiralis* has been found. *T. spiralis* is present, although at low prevalence, in New Zealand feral cats and rats and has, on rare occasions, entered the domestic pig population.

More detailed epidemiological information is available on the Institute of Environmental Science and Research (ESR) surveillance website at www.surv.esr.cri.nz.

Case definition

Clinical description

A disease caused by ingestion of *Trichinella* larvae, and invasion of the larvae into muscle tissues. The disease has variable clinical manifestations. Common signs and symptoms among symptomatic people include fever, myalgia and periorbital oedema. Eosinophilia is also common.

Laboratory criteria for diagnosis

**Laboratory confirmation requires** at least one of the following:

- demonstration of *Trichinella* larvae in tissue obtained by muscle biopsy
- positive serologic test for *Trichinella*.

Case classification

- **Under investigation**: A case that has been notified, but information is not yet available to classify it as confirmed.
- **Probable**: Not applicable.
- **Confirmed**: A clinically compatible case that is laboratory confirmed.
- **Not a case**: A case that has been investigated and subsequently found not to meet the case definition.
Spread of infection

Incubation period
Gastrointestinal symptoms may appear 1–2 days after ingestion of infected meat; systemic symptoms usually appear 8–15 days (range 5–45 days) after ingestion of infected meat.

Mode of transmission
Humans become infected by eating raw or insufficiently cooked domestic or feral meat containing viable, encysted *Trichinella* larvae. Stomach acids degrade cysts encapsulating ingested larvae, resulting in maturation of adult worms in the small intestinal mucosa. Fertilised female worms produce hundreds of larvae over a period of 2–3 weeks and are then expelled in faeces. Newborn larvae migrate via the bloodstream to skeletal muscles, where they may remain viable for several years.

The animal reservoir is perpetuated in carnivorous wild animals and in domestic animals (especially pigs) that are fed uncooked meat (for example, swill), eat infected rodent carcasses or cannibalise infected carcasses. Horses and pigs may also become infected through ingestion of larvae passed in rat faeces that contaminate feed.

Period of communicability
Not transmitted from person to person.

Animals may remain infected for several years. Meat requires cooking, freezing or irradiation to kill the larvae. Freezing kills *T. spiralis* but not some other *Trichinella* spp.

Notification procedure
Attending medical practitioners or laboratories must immediately notify the local medical officer of health of suspected cases. Notification should not await confirmation.

Management of case

Investigation
Ascertain if there is a history of travel and ingestion of inadequately cooked domestic or wild meat and the source of such meat. A definitive diagnosis is important given the potential implications for livestock and export markets. Liaise with an infectious diseases physician or microbiologist to ensure laboratory confirmation by serology has been attempted; antibodies may not become detectable until 3 weeks after infection. When a muscle biopsy is necessary (uncommon), it should be taken from a tender, swollen area of muscle. If infection is present, the uncalcified parasitic cyst will be demonstrated.
**Restriction**
Nil.

**Treatment**
The treating doctor should liaise closely with an infectious diseases physician or microbiologist who will advise on management and treatment. Bed rest and anti-inflammatory analgesics are the main treatments. Mebendazole, or albendazole as an alternative, should be started as soon as possible, but these treatments may have little benefit. Corticosteroids are used for severe inflammatory manifestations but are of unknown benefit.

**Counselling**
Advise the case and their caregivers of the nature of the infection and its mode of transmission.

**Management of contacts**
Identify contacts for prophylaxis and counselling where appropriate.

**Definition**
All people who have ingested trichinous meat in the past 1–2 weeks.

**Investigation and restriction**
Nil.

**Prophylaxis**
Offer contacts albendazole 5 mg/kg orally twice daily for 1 week or mebendazole 5 mg/kg orally twice daily for 1 week. These drugs are active against the intestinal worms but not muscle-embedded larvae.

**Counselling**
Advise all contacts of the incubation period and typical symptoms of trichinellosis. Encourage them to seek early medical attention if symptoms develop.
Other control measures

Identification of source
Check for other cases in the community. Liaise with Ministry for Primary Industries staff to investigate potential animal sources of infection. See ‘Reporting’ below.

Disinfection
Nil.

Health education
General information on safe food preparation, home-kill practices and consumption of recreational catch with relevance to trichinellosis can be found on the Ministry for Primary Industries foodsafety webpages.

Reporting
Ensure complete case information is entered into EpiSurv.

Medical officers of health should immediately notify the Ministry of Health Communicable Diseases Team on receiving a notification themselves.

If a cluster of cases occurs, contact the Ministry of Health Communicable Diseases Team and outbreak liaison staff at ESR, and complete the Outbreak Report Form.

If the case may have acquired trichinellosis in New Zealand, the Ministry of Health will notify the appropriate staff in the Ministry for Primary Industries on phone: 0800 809 966 so that further investigation of the source can be undertaken.