Food and Agriculture Organization of the United Nations

OIE WORLD ORGANISATION FOR ANIMAL HEALTH

World Health Organization

Foodborne parasitic infections

TAENIASIS and CYSTICERCOSIS

Introduction

Taeniasis is an intestinal infection caused by adult tapeworms of the *Taenia* genus: *T. solium* (pork tapeworm), *T. saginata* (beef tapeworm) and *T. asiatica*. Humans are the only definitive host (in which the adult worm lives) for each of these tapeworm species. For *T. solium*, humans can also act as an intermediate host (in which the larval stages live).

Only *T. solium* has significant public health importance as it causes neurocysticercosis when the larvae encysts in the central nervous system (including the brain).

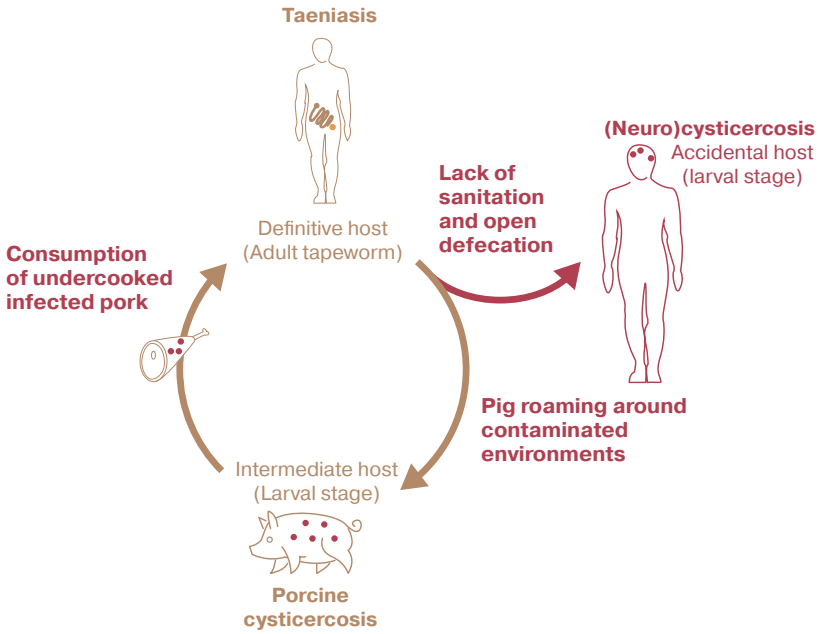
Transmission and risk factors

Taeniasis due to *T. solium* is acquired by humans through **ingestion of tapeworm larvae (cysticerci) in undercooked pork.**

The larvae develop into adult tapeworms in the intestine of infected humans and produce eggs which are **shed into the environment due to open defecation.**

Pigs get infected by eating the parasite's eggs from the environment.

In humans, cysticercosis is caused by **accidental infection with the *T. solium* eggs via faecal-oral route**, from contaminated soil, food (mainly vegetables) or water. Larvae (cysticerci) develop in the muscle, skin, eyes, and brain (in the central nervous system is called neurocysticercosis).



Signs and symptoms

Human taeniasis may cause loss of appetite, abdominal pain, nausea, diarrhoea or constipation.

Human cysticercosis is often asymptomatic; however, it can cause variable clinical symptoms including visible or palpable nodules beneath the skin.

Neurocysticercosis may cause chronic headaches, blindness, epileptic seizures, and can be fatal.

Typically, there are no symptoms in **pigs**. At examination, heavily infected pigs can show cysts in their tongue.

Detection and diagnosis

Simple, cost–effective and rapid diagnostic tools are still needed for detection of *T. solium* carriers and cases of human and porcine cysticercosis. Field-based tools include stool examination (human) and tongue palpation (pigs). They are simple and useful in high-burden areas/animals.

Confirmation of neurocysticercosis requires imaging. Laboratory-based tools such as serological tests for specific antibody or circulating antigen tests are useful to confirm epilepsy due to cysticercosis.

Treatment

Taeniasis is easily treated with praziquantel or niclosamide.

Treatment of human cysticercosis is more challenging and may involve anthelminthics, antiepileptic medicines and steroids and possibly surgery.

Pigs can be treated with oxfendazole.

Public health prevention and control

1. **Preventive chemotherapy** with a single oral dose of praziquantel or niclosamide
2. **Prevention and control in animals**
   - Improved pig-farming practices
   - Vaccination of pigs with TSOL18
   - Treatment of pigs with oxfendazole
   - Meat inspection, meat processing (freezing)
3. **Water, sanitation and hygiene (WASH)**
   - Improved sanitation, i.e. use of latrines
   - Provision of safe drinking-water supply
4. **Risk communication** Promote thorough cooking of meat, improved hygiene practices, public awareness and health education

www.who.int/news-room/fact-sheets/detail/taeniasis-cysticercosis

www.oie.int/terrestrialcode (Chapter 15.4)