Foodborne parasitic infections

**TAENIASIS and CYSTICERCOSIS**

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).

**Introduction**

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).

**Transmission and risk factors**

- **Consumption of undercooked infected pork**
- **Definitive host (Adult tapeworm)**
- **Lack of sanitation and open defecation**
- **Intermediate host (Larval stage)**
- **Pig roaming around contaminated environments**
- **Porcine cysticercosis**

**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.

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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.**

**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 oxendazole
  - 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

**References**

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

www.who.int/news-room/questions-answers/cysticercosis