Food and Agriculture Organization of the United Nations

OIE WORLD ORGANISATION FOR ANIMAL HEALTH

World Health Organization

Foodborne parasitic infections

# CLONORCHIASIS and OPISTHORCHIASIS

## Introduction

**Clonorchiasis** is caused by the flatworm *Clonorchis sinensis*.

**Opisthorchiasis** is caused by another flatworm *Opisthorchis viverrini*.

Both infections are common among dogs and other fish-eating mammals (reservoir hosts) in endemic areas.

*C. sinensis* and *O. viverrini* are classified as carcinogenic agents as they may cause bile duct cancer (**cholangiocarcinoma**).

These foodborne trematodes are confined to Asia and associated with food habits and fish culture practices.

## Transmission and risk factors

Definitive hosts include cat, human, dog, pigs and other fish-eating mammals. Adult flukes inhabit the bile ducts of the infected hosts and lay eggs which are **dispersed into the environment through defecation.**

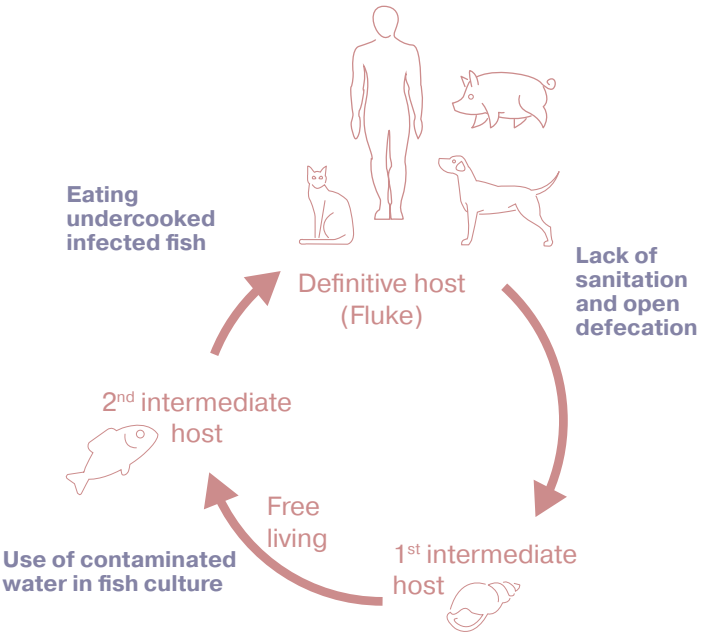
When eggs reach freshwater, they are ingested by specific aquatic snails from which miracidia hatch.

Miracidia go through different larval stages in the intermediate snail host to become cercariae.

Cercariae leave the snail and encyst in the subcutaneous tissues of various freshwater fish, becoming metacercariae.

**When animals consume raw freshwater fish**, the metacercariae excyst inside the intestine and migrate back to the bile duct, completing the life cycle.

**Humans are infected when they ingest metacercariae through infected raw, salted and undercooked freshwater fish.** Maturation takes approximately one month.




## Signs and symptoms

**Acute** clonorchiasis/opisthorchiasis may be scarcely symptomatic in infections of light intensity, but severe infection (where several thousands of flatworms are present) can cause fever and right upper-quadrant pain by the flatworms obstructing the gall bladder.

**Chronic** clonorchiasis/opisthorchiasis from prolonged reinfections can lead to **cholangiocarcinoma**, a severe and fatal form of bile duct cancer.

In animals, signs are generally seen only in heavy infections, and are similar to those in humans.

## Detection and diagnosis

Individual diagnosis in humans is made based on the clinical picture, the individual's recall of consuming raw fish, the detection of eosinophilia and typical findings on ultrasounds. Confirmation in humans and animals relies on parasitological, immunological and molecular techniques.

## Treatment

The WHO-recommended treatment for human clonorchiasis and opisthorchiasis is **praziquantel**.

For animals, praziquantel can also be used.

## Public health prevention and control

1. **Preventive chemotherapy** with a single oral dose of praziquantel
2. **Prevention and control in animals**
   - Avoidance of feeding animals with raw freshwater fish
   - Treatment of domestic animals with praziquantel
3. **Snail control** (especially in farmed fish areas)
4. **Water, sanitation and hygiene (WASH)**
   - Improved sanitation and promotion of latrines in endemic areas
   - Reduce faecal contamination of aquaculture systems
   - Provision of safe drinking-water supply
5. **Risk communication** proper cooking of freshwater fish and food handling

www.who.int/health-topics/foodborne-trematode-infections

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