

**Lab: parasitology** •

**Subclass Digenea (Trematoda) – include:** •

**-Intestinal:** •

*Fasciolopsis buski* •

*Heterophyes heterophyes* •

*-Fasciolopsis buski* •

*Fasciolopsis buski* is the largest, most prevalent, and most important intestinal fluke of humans. •

**Geographic Distribution:** Asia and the Indian subcontinent, especially in areas where humans raise pigs and consume freshwater plants. •

**Morphology :** •

1-they are fleshy worm, 2-7.5 cm long by 0.8-2 cm wide. •

2-leaf-shaped, dorsoventrally flattened fluke characterized by a blunt anterior end. •

3-unbranched ceca (sac-like cavities with single openings) •

4- dendritic testes, branched ovaries •

5- ventral suckers to attach itself to the host. The acetabulum is larger than the oral sucker . •

6-The fluke has extensive vitelline follicles. It can be distinguished from other fasciolids by a lack of cephalic cone or "shoulders" and the unbranched ceca. •

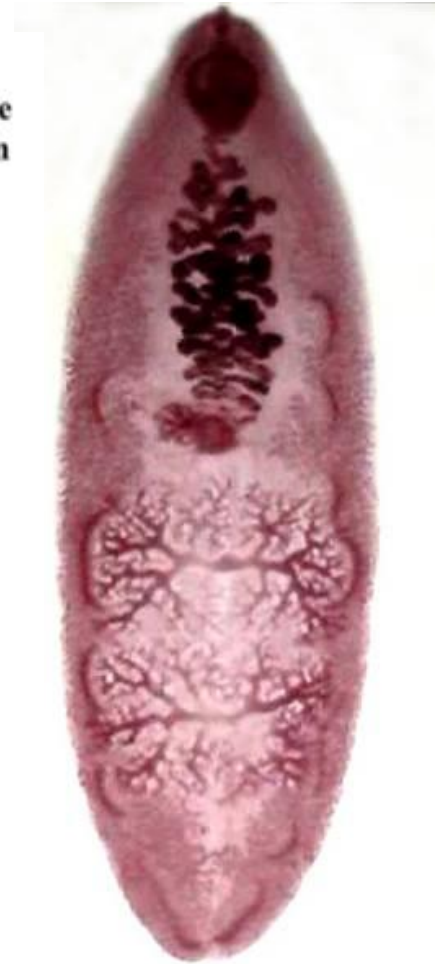
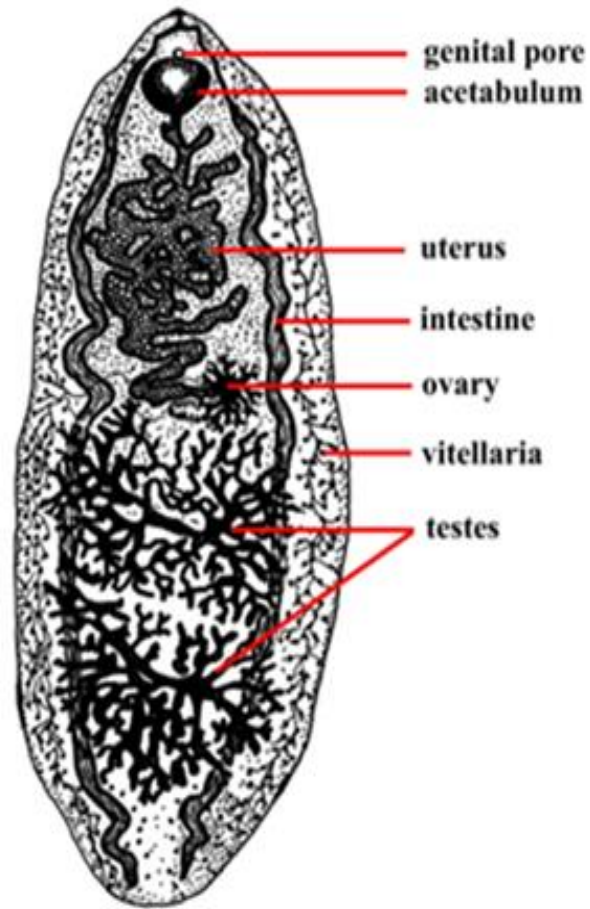
7-Egg: large, golden, bile-stained eggs with an operculum on the top. The measurements and appearance of *F. buski* eggs are similar to that of the liver fluke *Fasciola hepatica* •

**Habitat:** occurs in places with warm, moist, weather. This species is found in aquatic environments, where aquatic plants grow. Once consumed by the definitive host, the adult stage of Fasciolopsis buski adheres to the small intestine of its host, remaining until it dies or is removed •

egg



Adult

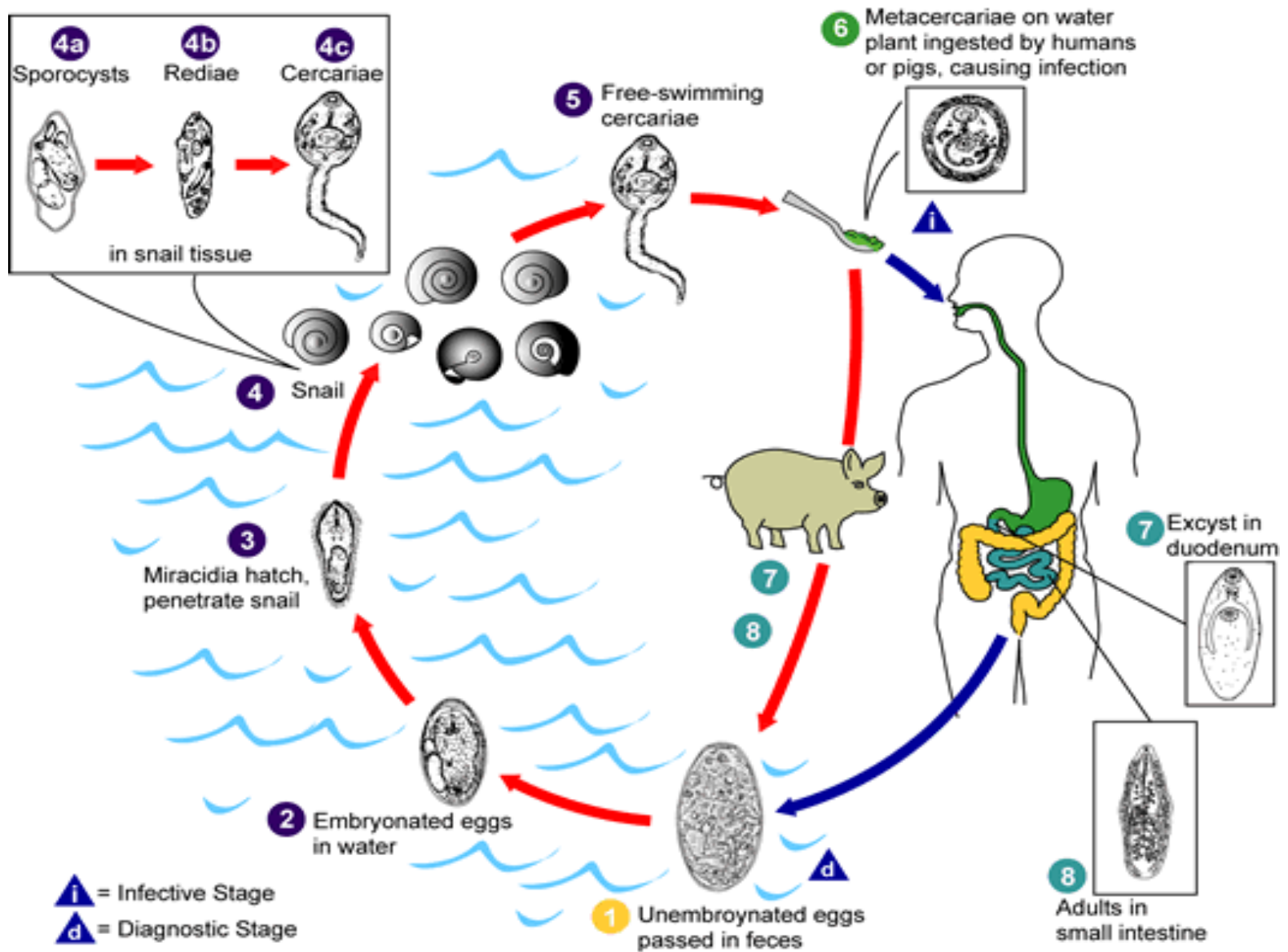


## **Life cycle of *Fasciolopsis buski***

Immature eggs are discharged into the intestine and stool . Eggs become embryonated in water , eggs release miracidia , which invade a suitable snail intermediate host . In the snail the parasites undergo several developmental stages (sporocysts , rediae , and cercariae ). The cercariae are released from the snail and encyst as metacercariae on aquatic plants. The mammalian hosts become infected by ingesting metacercariae on the aquatic plants. After ingestion, the metacercariae excyst in the duodenum and attach to the intestinal wall.-There they develop into adult flukes in approximately 3 months, attached to the intestinal wall of the mammalian hosts (humans and pigs) . The adults have a life span of about one year .

## **Laboratory diagnosis**

Stool examination reveals the large, golden, bile-stained eggs with an operculum on the top. adult flukes can rarely be found in feces or specimens collected at surgery.



life cycle of *Fasciolopsis buski*

## *Heterophys heterophyes* •

**Causative agent :** Heterophyiasis •

**Geographic Distribution** •

*Egypt, the Middle East, and Far East* •

**Morphology:** •

1-Minute teardrop-shaped flukes found in the small intestines of fish-eating birds and mammals. •

2-the adult flukes range from 1.1mm to 1.7mm long and about 0.35mm at their greatest width •

3-The body of the fluke is covered in scales mostly concentrated at the anterior end •

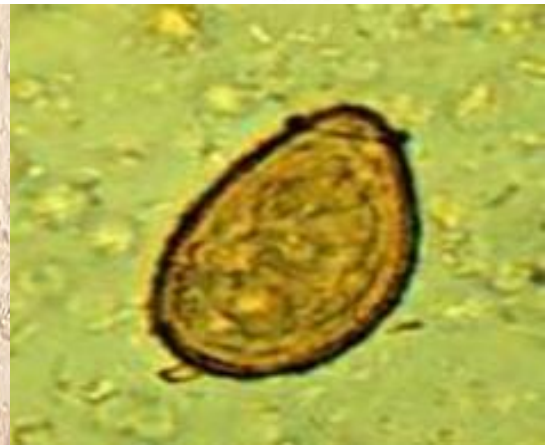
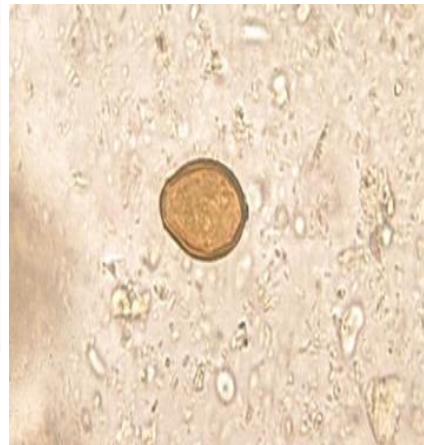
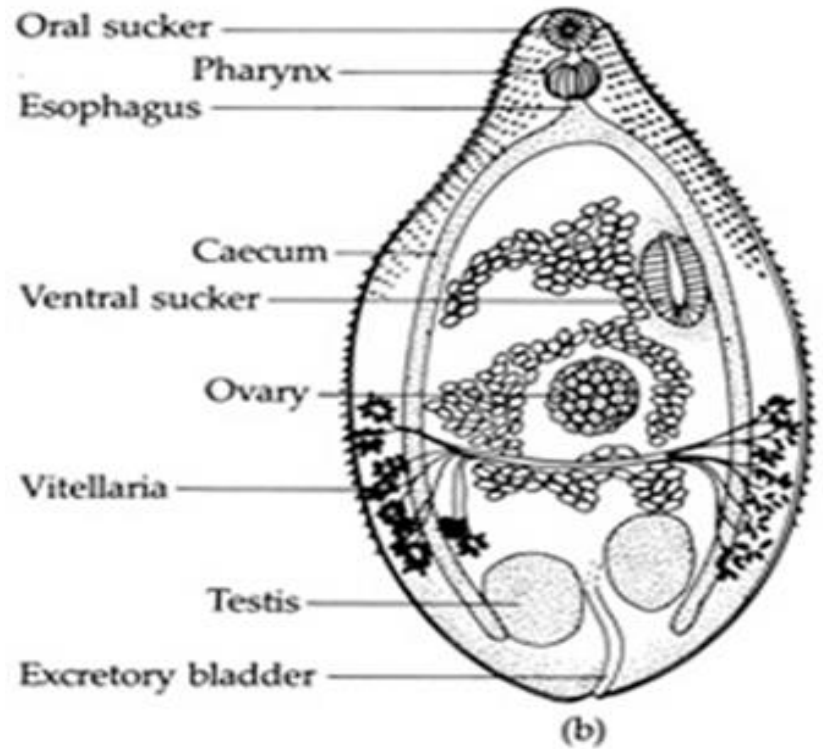
4-Also at the anterior end is an oral sucker. Located in the medioanterior of the body is the acetabulum. •

5-At the posterior end of the fluke are two oval testes. The uterus is a long tube like structure that also leads away from the ovary and joins up with the ejaculatory duct to form the genital duct which leads to a genital sinus •

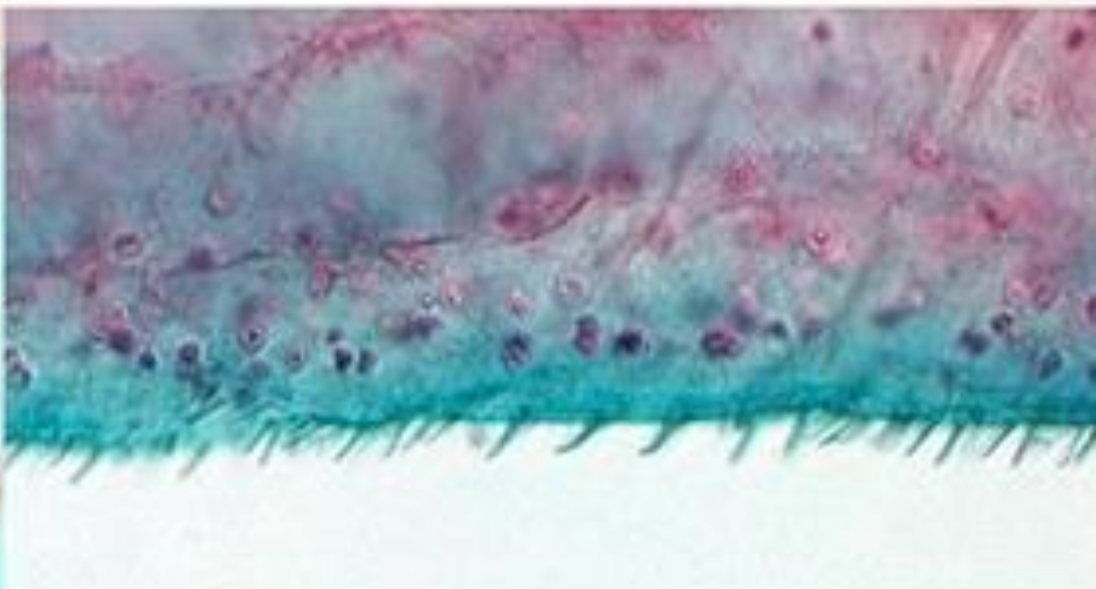
6-Some species have or genital sucker •

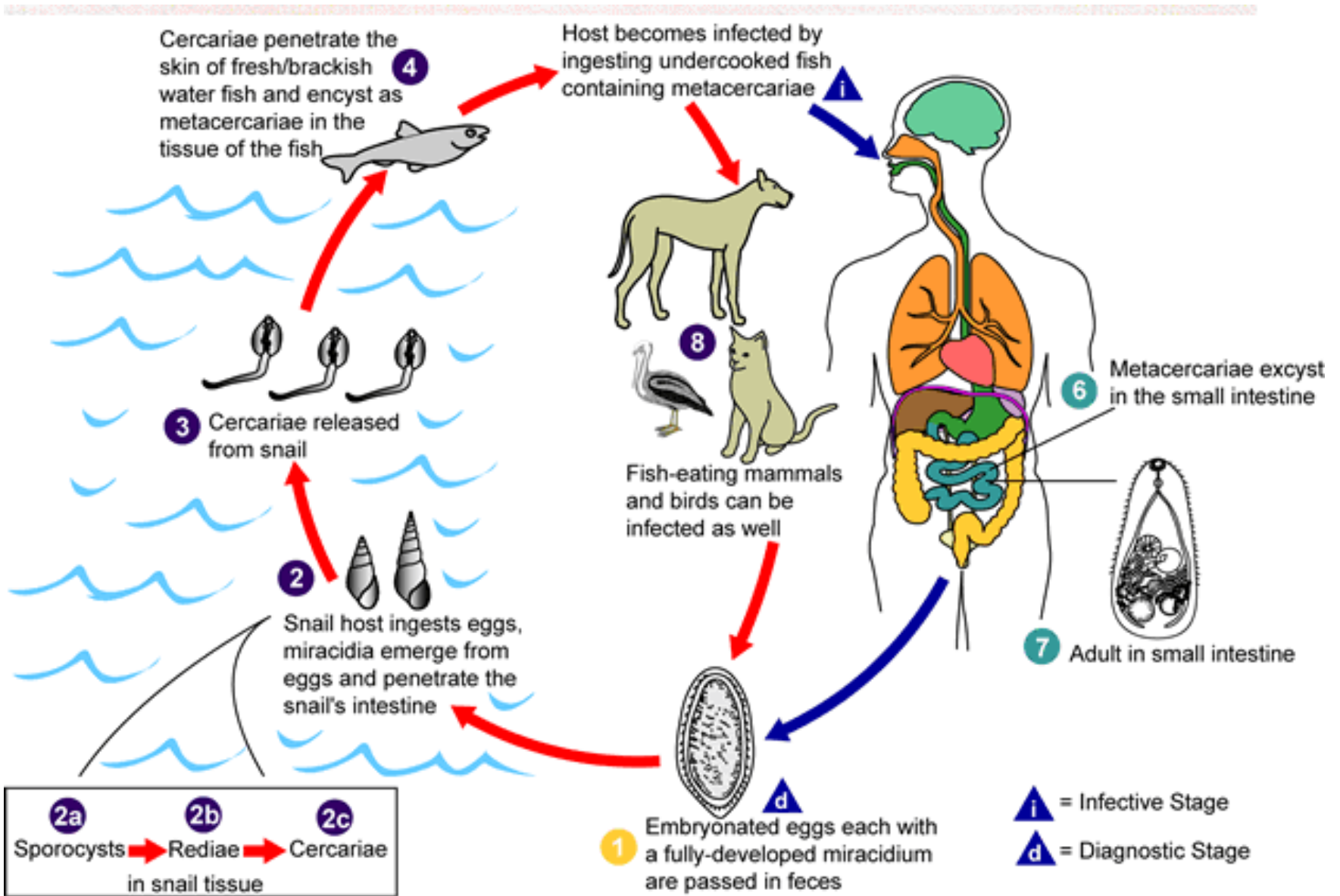
7-egg: Light brown in color, ovoid, operculated, fully developed miracidium is already present and operculum fits into the egg smoothly •

- *Heterophyes heterophyes*  
Adult



egg





life cycle of *Heterophyes heterophyes*



## Life cycle •

Adults release embryonated eggs each with a fully-developed miracidium, and eggs are passed in the host's feces . After ingestion by a suitable snail (first intermediate host), the eggs hatch and release miracidia which penetrate the snail's intestine . Pironella is important snail host . The miracidia undergo several developmental stages in the snail, i.e. sporocysts , rediae , and cercariae . Many cercariae are produced from each redia. The cercariae are released from the snail and encyst as metacercariae in the tissues of a suitable fresh/brackish water fish (second intermediate host) . The definitive host becomes infected by ingesting undercooked or salted fish containing metacercariae . After ingestion, the metacercariae excyst, attach to the mucosa of the small intestine and mature into adults . In addition to humans, various fish-eating mammals (e.g., cats and dogs) and birds can be infected by *Heterophyes heterophyes* .

## Diagnosis •

Detection of eggs in the stool using Kato Katz method •