

Tikrit University

College of Nursing

Basic Nursing Sciences



Second Year - 2023-2024

Microbiology

Trematoda and nematoda class

By: lecturer

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Trematoda class

Fasciola hepatica (Sheep liver fluke)

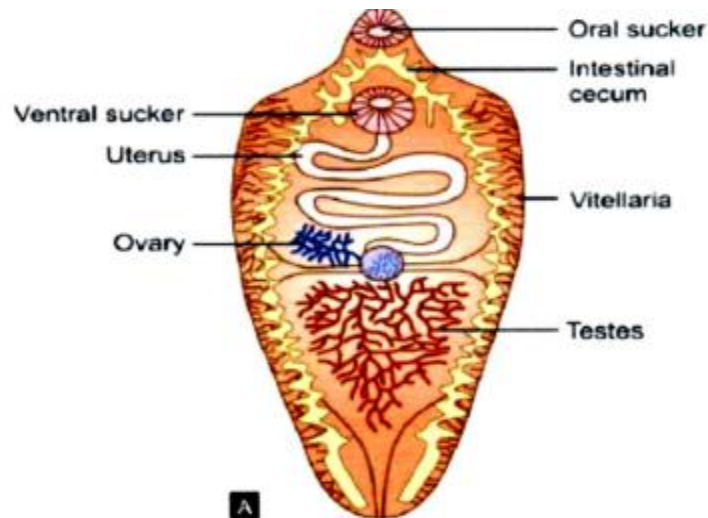
General Properties:

- Common name: sheep liver fluke.
- Diseases: fascioliasis, sheep liver rot.
- Habitat: Large bile ducts & gall bladder.
- Final Host: sheep, goats & occasionally man.
- Intermediate Host: Snail.
- Stages: Adult worm, Egg, miracidium, sporocyst, cercariae, Metacercariae.
- Infective stage: Metacercaria
- Diagnostic stages: Embryonated egg

Morphology:

Adult worm It is large in size, flat leaf-shaped fluke measuring 30 mm long and 15 mm broad, gray or brown in color. It has a conical projection anteriorly containing an oral sucker and is rounded posteriorly.

The adult worm lives in the biliary tract of the definitive host for many years about 5 years in sheep and 10 years in humans.



Laboratory Diagnosis:

1-Stool microscopy: Demonstration of eggs in feces or aspirated bile from duodenum is the best method of diagnosis. Eggs of *F. hepatica* and *F. buski* are indistinguishable.

2-Blood picture: It reveals eosinophilia.

3-Serodiagnosis: Serological tests such as immunofluorescence, ELISA, immunoelectrophoresis and complement fixation are helpful in lightly infected individuals for detection of specific antibody. ELISA becomes positive within 2 weeks of infection and is negative after treatment. In chronic fascioliasis, Fasciola coproantigen may be detected in stool.

4-Imaging: Ultrasonography, computed tomography (CT) scan, endoscopic retrograde cholangiopancreatography (ERCP) and percutaneous cholangiography may be helpful in diagnosis.

Egg and adult of *Fasciola hepatica*

Egg: large , shaped-like hens egg (130-140)-- μ -m by (80-85) μ m—, thin transparent shell, small operculum at one end & are unembryonated when evacuated in the hosts feces . yellowish – brown in color.

Laboratory Diagnosis:

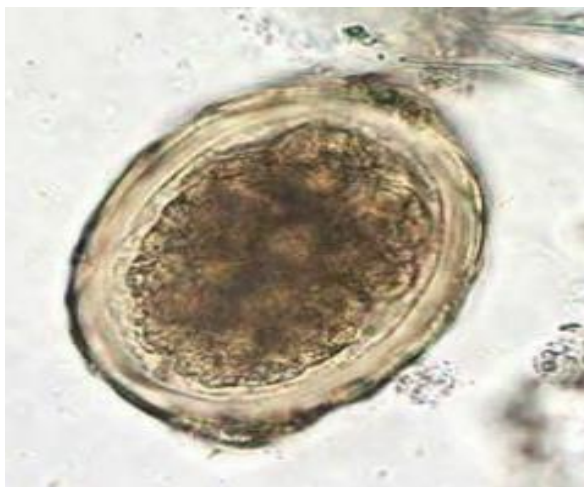
- The specimen choice for recovery of the eggs of *Fasciolopsis buski* is stool.
- Other methodologies available for the detection of *Fasciola* include the Enterotest, ELISA, and gel diffusion.

Class Nematoda

A- *Ascaris lumbricoides* (Round worm)

General Properties :

- Common name : large intestinal roundworm ,round worm of man.
- Diseases : ascariasis , round worm infection . Habitat : large intestine
- Stages : Adult worm , Egg , Larva .
- Infective stage : Embronated egg and larva .
- Diagnostic stages : Embronated egg





□



Fertilised egg



Unfertilised egg

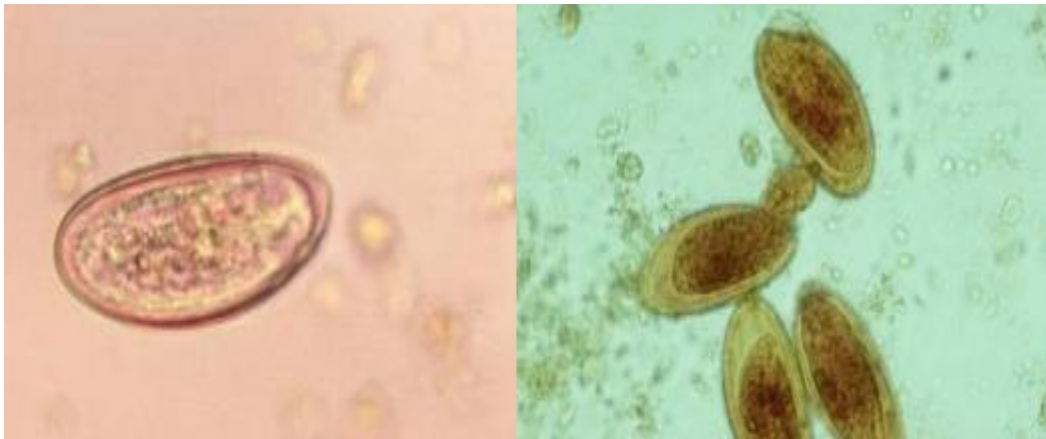
Laboratory Diagnosis:

1- General stool examination to see eggs , adult worm may be recovered in several specimen types .

2- Enzyme linked immunosorbent assay (ELISA) is also available .

B. *Enterobius vermicularis* (Pin Worm)

- General Properties :
- Common name : Pinworm , seat worm .
- Diseases : enterobiasis , pinworm infection .
- Habitat : small intestine
- Stages : Adult worm , Egg , Larva .
- Infective stage : Embronated egg .
- Diagnostic stages : Embronated egg



Laboratory Diagnosis:

- 1) The eggs are recovered from perianal skin by using cellophane tape technique and examined microscopically.
- 2) The technique preferably done at night or in the early morning before bathing.