

**Topic
On
PARAGONIMIDAE**

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PARAGONIMIDAE

- ▶ Body is oval to fusiform with spinosed cuticle.
- ▶ Oral sucker is subterminal oesophagus short and caeca are long.
- ▶ The ventral sucker is small near the middle of the body.
- ▶ Testes are lobed, symmetrical and lie in the posterior half of the body.
- ▶ Cirrus pouch is absent.
- ▶ Genital pore is situated just behind the ventral sucker.
- ▶ Ovary is lobed and pretesticular.
- ▶ Vitelline follicles are lateral and dorsal present throughout the length of the body.
- ▶ Uterus is coiled.
- ▶ The flukes are parasitic in lungs of mammals.

Paragonimus kellicpoti

- ▶ The species occurs in wild animals and cat, dog and pig.
- ▶ The adult parasites are reddish-brown in colour and measures 7.5-16 mm x 4-8 mm.
- ▶ The tegument is covered with spines.
- ▶ The ventral sucker is situated slightly anterior to the middle.
- ▶ The eggs are yellowish-brown in colour.
- ▶ These are provided with an operculum and the shell is thickened at the pole opposite this.

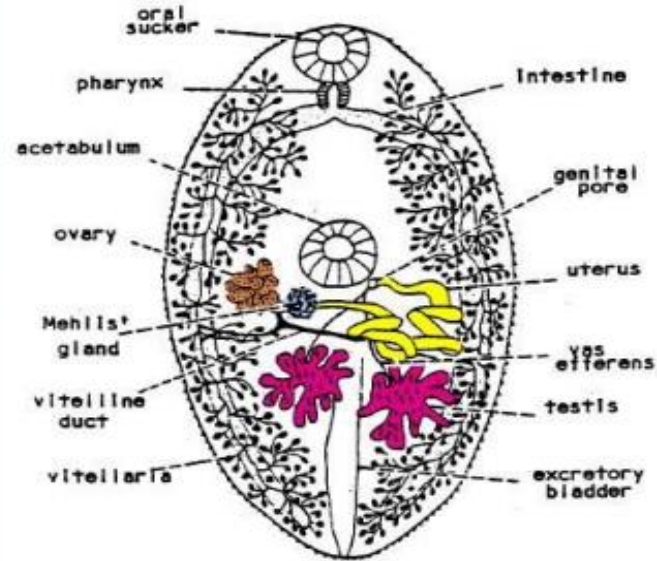
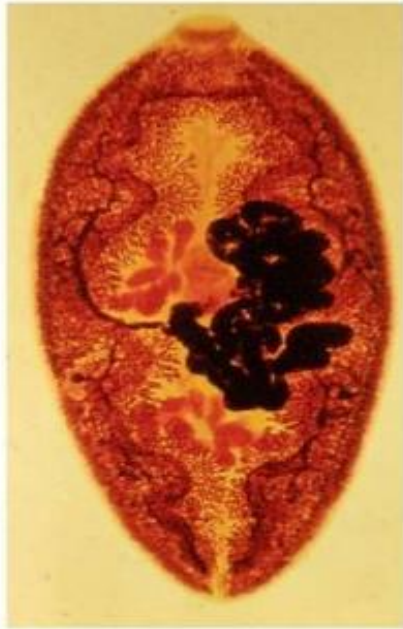
Paragonimus westermanii

Common name	Lung fluke
Location	Lungs rarely in brain spinal cord
Host	Cats, dogs, pigs, wild carnivores and human
intermediate hosts	1. Amphibious snails – Melania spp. 2. Crustaceans – crabs or cray fish .

MORPHOLOGY

- ▶ Adults live in pairs in cysts in lungs.
- ▶ Thick set, ovoid flukes, reddish brown in colour.
- ▶ Cuticle is spiny.
- ▶ Ventral sucker present in the middle of the body.
- ▶ Genital pore immediately behind ventral sucker.
- ▶ Testes in posterior half of the body.
- ▶ Ovary anterior to testes.

Morphology of Adult *Paragonimus westermani*



Paragonimus : Parts of the body

Eggs:

- **SIZE**

Range from 80 to 120 μm long by 45 to 70 μm wide.

- **COLOUR**

yellow-brown

- **SHAPE**

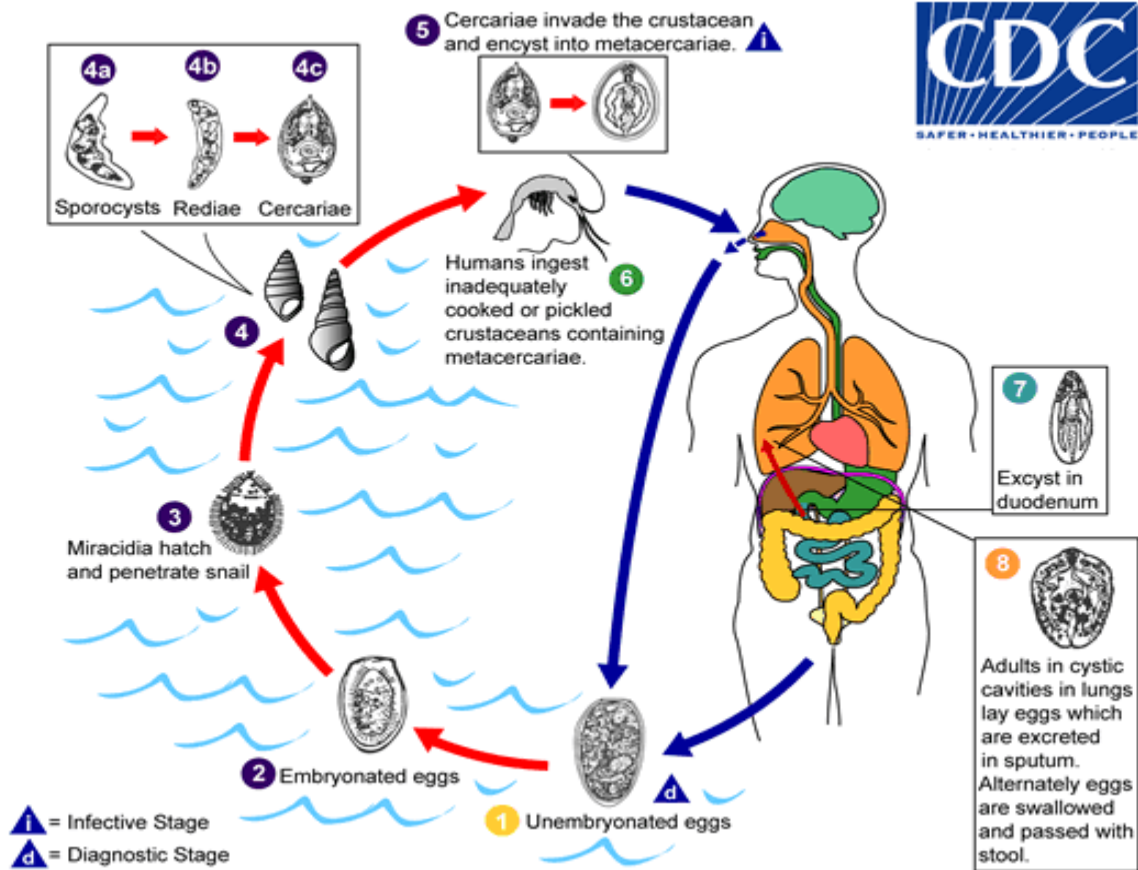
Ovoid or elongate,

- **SHELL**

Thick shell, and often asymmetrical with one end slightly flattened.



LIFE CYCLE



- ▶ Eggs are laid within the cyst in which the worms live, escape into the bronchi, the eggs may pass up from the lungs with mucosa and may be found in sputum which has a characteristic rusty colour.
- ▶ Animals swallow the mucous and hence eggs are found in the faeces.
- ▶ By 2-7 weeks the miracidium hatches, penetrates the snail where it develops into the sporocyst, redia and cercaria in 3 months.
- ▶ Cercaria comes out the snail which is eaten by crabs/cray fish (II Intermediate host) to become metacercaria.
- ▶ The metacercariae are found mostly in the heart, liver and muscle of II Intermediate host.

DEVELOPMENT IN DEFINITIVE HOST

- ▶ After ingestion young flukes penetrate the intestinal wall, enters the peritoneal cavity to diaphragm and then the lungs after 1 –3 weeks of infection.
- ▶ The parasite penetrate the pulmonary forming a cystic cavity where the parasite mature into adult.
- ▶ The cyst usually contains two parasites surrounded by a purulent fluid mixed with blood and eggs of the parasite.
- ▶ In cats, 1000-200 eggs are laid/ day flukes

PATHOGENESIS

- ▶ Migrating immature flukes causes eosinophilic peritonitis, pleuritis, myositis and multifocal pleural hemorrhages.
- ▶ In infected animals chronic bronchitis with hyperplasia of bronchiole epithelium and pneumonia associated with degenerating eggs in the tissue.

CLINICAL SIGNS

- ▶ Affected animals are lethargic with intermittent cough.
- ▶ Dyspnoea associated with Pneumothorax.
- ▶ Immature flukes may be carried away to the other organs and dislodging in the brain causing CNS disturbances

DIAGNOSIS

- ▶ Eggs demonstration in sputum / faces.
- ▶ x-ray for identification of cyst in lungs.
- ▶ Very commonly observed in the right caudal lobe of lung.
- ▶ Serological test such as CIE (counter immuno electrophoresis)
- ▶ ELISA, IFAT (indirect fluorescent antibody technique)

TREATMENT

- ▶ Albendazole – 50 – 100 mg/kg day for 2-3 weeks
- ▶ Bithionol- 100 mg /kg / day for 7 days.
- ▶ Niclofolon- 2 mg/kg day for 3-5 day

PREVENTION & CONTROL

- ▶ More hygienic food preparation and safer cooking techniques can be preferred .
- ▶ Their should be more sanitary handling of potentially contaminated seafood required .
- ▶ The elimination of the first intermediate host, the snail can be practicized.

Thank
you!

