

## *Schistosoma japonicum*

**Class:** Trematoda

**Family:** Schistosomatidae

**Predilection site:** intestinal blood vessels

**Final host:** This parasite has a very wide host range, infecting wild mammals, including carnivores, rodents and human.

**Intermediate host:** snails.

### **Morphology**

Schistosomes, unlike other trematodes, are long and cylindrical worms. The *S. japonicum* worms are yellow or yellow-brown. The males of this species are slightly larger than the other Schistosomes and they measure ~ 1.2 cm by 0.5 mm. The females measure 2 cm by 0.4 mm. The adult worms are longer and narrower than the related *S. mansoni* worms.

By electron microscopy there are no bosses or spines on the dorsal surface of the male, which is ridged and presents a spongy appearance. Many spines cover the inner surface of the oral sucker and extend to the pharyngeal opening. The ventral sucker possesses many spines which are smaller than in the oral sucker. The lining of the gynecophoric canal is roughened by minute spines. The tegument of the female is ridged and possesses fewer spines than in the oral sucker, the ventral sucker, and the gynecophoric canal of the male.

### **Eggs:**

The ova are about 55–85 µm by 40–60 µm, oval with a minute lateral spine or knob.

### **Diagnosis**

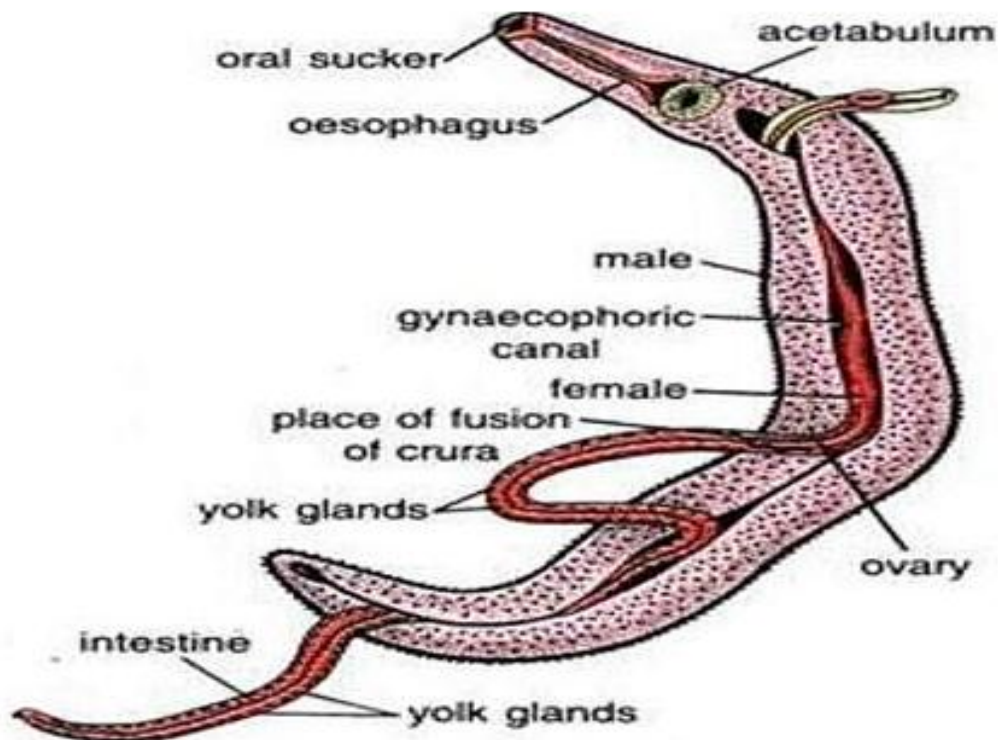
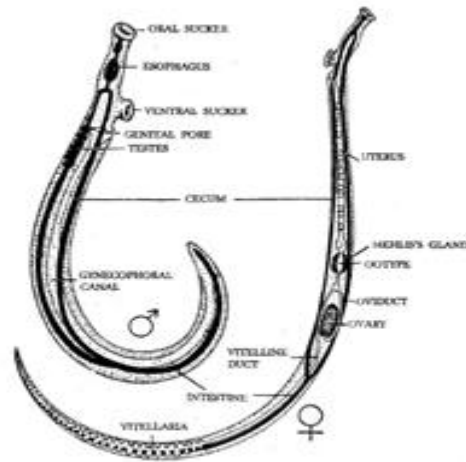
- 1- Microscopic identification of eggs in stool
- 2- Histopathological image of old state of schistosomiasis incidentally found at autopsy. The deposition of calcified eggs in the colonic submucosa suggests prior infection of *Schistosoma japonicum*.
- 3- Ultrasonographic examination can be performed to assess the extent of hepatic and spleen-related morbidity.
- 4- The problem with immunodiagnostic methods is that they can cross interact with other helminthes infections.

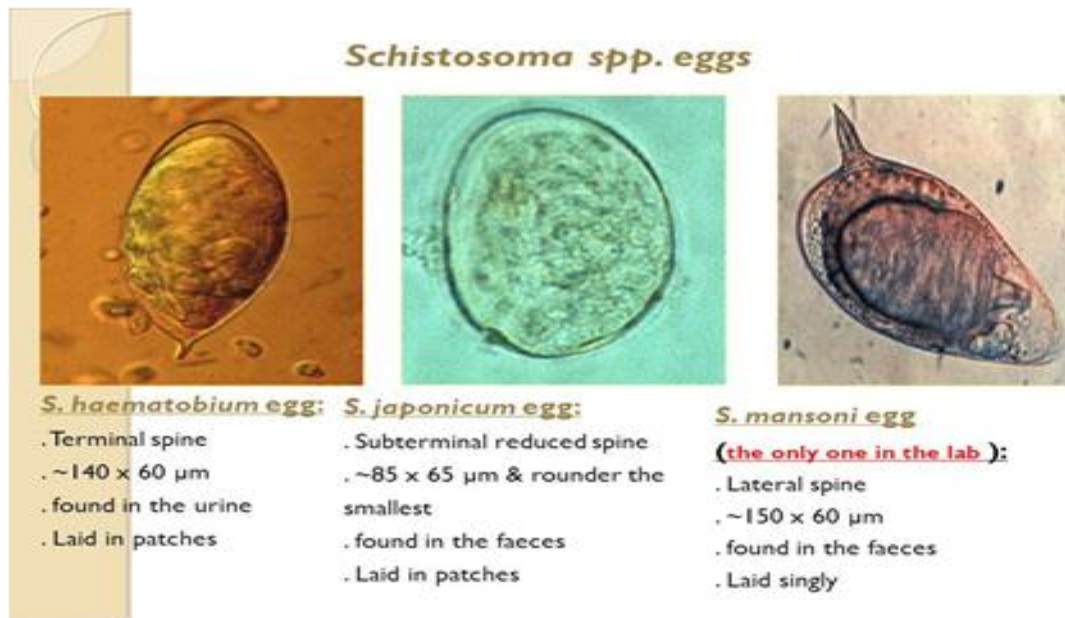
### Morphology of Adult *Schistosoma*

*Schistosoma* is \_\_\_\_\_

**Male worms** are shorter and stouter than females.

- males have \_\_\_\_\_
- ventral longitudinal groove in which the female resides
- **several testes** are located behind the acetabulum



Trematoda  
Lab3***Schistosoma mansoni*****Class:** Trematoda**Family:** Schistosomatidae**Predilection site:** mesenteric blood vessels**Final host:** man and animal.**Intermediate host:** snails**Morphology****Adult**

The male *S. mansoni* is approximately 1 cm long (0.6–1.1 cm) and is 0.1 cm wide. It is white, and it has a funnel-shaped oral sucker at its anterior end followed by a second pediculated ventral sucker. The male genital apparatus is composed of 6 to 9 testicular masses, situated dorsally. The male has gynaecophoric canal.

The female has a cylindrical body, longer and thinner than the male's (1.2 to 1.6 cm long by 0.016 cm wide). It has the general appearance of a roundworm. The female parasite is darker, and it looks gray. The darker color is due to the presence of a pigment (hemozoin) in its digestive tube. This pigment is derived from the digestion of blood. The ovary is elongated and slightly lobulated and is located on the anterior half of the body. The genital pore opens ventrally. The digestive tube begins at the anterior extremity of the worm, at the bottom of the oral sucker. The digestive tube is composed of an esophagus, which divides in two branches (right and left) and that reunite in a single cecum. The intestines end blindly, meaning that there is no anus.

**Egg:**

The eggs are oval-shaped, measuring 115-175  $\mu\text{m}$  long and 45-47  $\mu\text{m}$  wide, and ~150  $\mu\text{m}$  diameter on average. They have pointed spines towards the broader base on one side( lateral spines).

**Ceraria:**

The ceraria has a characteristic bifurcated tail The body is pear-shaped and measures 0.24 mm in length and 0.1 mm in width. Its tegument is fully covered with spine.

**Diagnosis:**

- 1- The presence of *S. mansoni* is detected by microscopic examination of parasite eggs in stool. A staining method called Kato-Katz technique is used for stool examination .
- 2- Serological and immunological tests are also available. Antibodies and antigens can be detected in the blood using ELISA to identify infection.
- 3- Polymerase chain reaction (PCR) is also used for detecting the parasite DNA



## *Schistosoma mansoni*



***S. mansoni*  
(male)**

- 8-10 mm long
- has gynaecophoric canal
- dorsal surface covered with tubercle



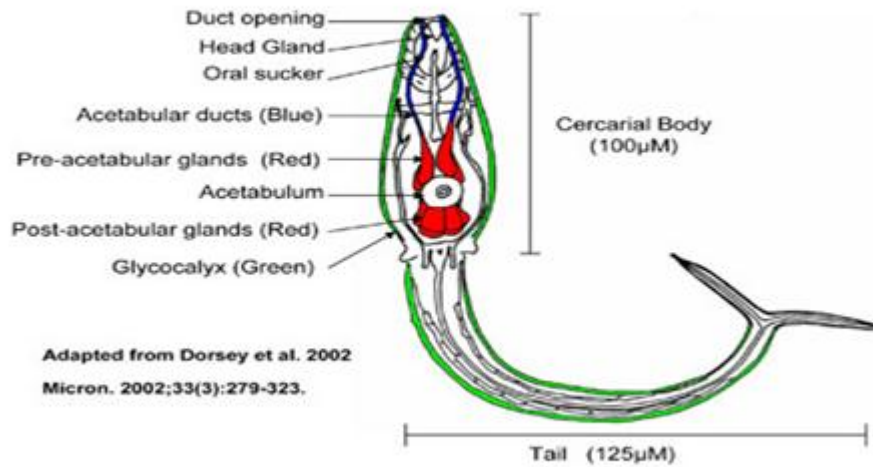
***S. mansoni*  
(male & female)**



***S. mansoni*  
(female)**

- 14 mm long
- taller and thinner
- vitelline glands occupy 2/3 of the body

### Diagram of *Schistosoma mansoni* cercaria



***Paragonimus westermani:***

**Common name:** Oriental lung fluke.

**Predilection site:** lung

**Parasite class:** Trematoda

**Family:** Troglotrematidae

**Final host:** dog, cat, pig, goat, cattle, fox other carnivores and man.

**Intermediate host:** water snails and cray fish or fresh water crab.

**Morphology: gross**

The parasite is rounded and thick, reddish brown in colour 7.5-16×4-8mm and covered in scale-like spine. The ventral sucker is situated slightly anterior to the middle of the flukes.

**Morphology: microscopic****Adult:**

Species differentiation is based on the shape of the spines. The spines are large and have bifid points.

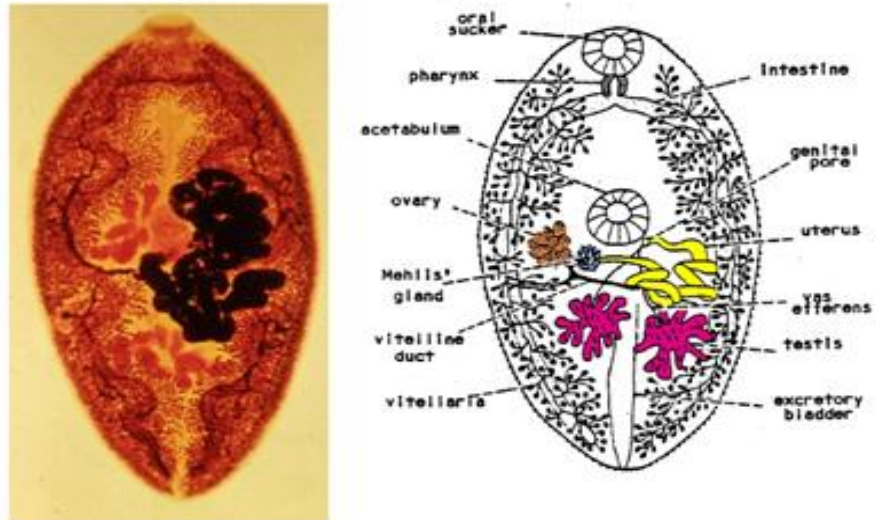
**Eggs:**

Eggs are yellowish brown in colour, operculated, 75-118×42-67µm, and the shell is thickened at the opposite end to the operculum.

**Diagnosis:**

Identifying the presence of eggs in the sputum or faeces.

### Morphology of Adult *Paragonimus westermani*



## Paragonimus Westermani

### Eggs Morphology

