**Schistosoma japonicum**

**Introduction**

*Schistosoma japonicum*, the parasite causing oriental schistosomiasis is generally recognized as the most virulent of three common human species of oriental blood flukes because it produces many more eggs (about 3,000 per day) than other *Schistosoma*. *S. japonicum* occurs in the Philippines, China, Indonesia and Thailand. The intermediate host of *S. japonicum* is a snail, *Oncomelania* sp. which is small and dark brown in colour with the adult no bigger than a grain of rice.

**Life cycle**

**Human** (definitive host)

Adult worms migrate to mesenteric and portal veins

Cercaria penetrate skin when person is in contact with water

Cercaria are released into water

Eggs excreted in faeces are passed into water

Miracidia hatch from egg into water

Snail (intermediate host)

Morphology

**Eggs**: The ova of *S. japonicum* are 55-85µm by 40-60 µm. They are large, round and non-operculate and have a transparent shell with a minute lateral spine or knob that may be inconspicuous and difficult to see. The eggs of *S. japonicum* frequently have faecal debris adhering to the shell that can obscure them.

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**Miracidium:** The miracidium is an ovoid, ciliated, free swimming organism with a functionless digestive tract.

**Adult Worms:** The worms are yellow or yellow brown in colour. The male measures 12mm by 0.5mm and female measures 20mm by 0.4mm. Both sexes have a strong sucker around the mouth and the tegument of the worms is coated with tiny spines, ridges and sensory organs.

**Laboratory Diagnosis:**

**Microscopy:**
Laboratory confirmation of *S. japonicum* is by demonstrating the characteristic eggs in faeces. Their detection is enhanced by a concentration technique such as formalin/ethyl acetate method since their eggs are passed in small numbers. The egg output can be quantified by using the Kato-Katz technique.

**Serology:**
An enzyme linked immunosorbent assay (ELISA) is used to test for antibodies specific to Schistosomes and is specially useful when *Schistosoma* eggs cannot be found.

**Clinical Disease:**
The clinical disease is related to the stage of infection, previous host exposure, worm burden and host response. Cercarial dermatitis (swimmers itch) follows skin penetration and results in a maculopapular rash which may last 36 hours or more.

The mature flukes are found in the radicles of the superior mesenteric veins draining the small intestine. There, eggs are laid and they penetrate the intestinal wall. They are excreted in the faeces often accompanied by blood and mucus.

The severity of the disease has a poor prognosis because of the high egg production capacity of the *S. japonicum* female and the small eggs. Cerebral schistosomiasis is also a known complication of the disease.

Katayama fever is associated with heavy primary infection and egg production. Clinical features include high fever, hepatosplenomegaly, lymphadenopathy eosinophilia and dysentery. This syndrome occurs a few weeks after primary infection.
### Other Intestinal *Schistosome* species

<table>
<thead>
<tr>
<th></th>
<th><em>S. japonicum</em></th>
<th><em>S. mekongi</em></th>
<th><em>S. intercalatum</em></th>
<th><em>S. mansoni</em></th>
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</thead>
<tbody>
<tr>
<td><strong>Geographic location</strong></td>
<td>China, Indonesia, Japan, Philippines</td>
<td>Mekong River basin</td>
<td>Central and west Africa</td>
<td>Africa, Brazil, Malagasy, Surinam, Venezuela</td>
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<tr>
<td><strong>Diagnostic specimen</strong></td>
<td>Stool, rectal biopsy, serology</td>
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<tr>
<td><strong>Egg size</strong></td>
<td>55-85 by 40-60µm</td>
<td>30-55 by 50-65µm</td>
<td>140-240 by 50-85µm</td>
<td>114-175µm by 45-68µm</td>
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<tr>
<td><strong>Egg shape</strong></td>
<td>Oval, minute lateral spine or knob</td>
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<td>Elongate, terminal spine</td>
<td>Elongate, lateral spine</td>
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