## Capillaria

### Family: Capillariidae

### Species:

<table>
<thead>
<tr>
<th>Species</th>
<th>Host</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td><em>Capillaria caudinflata</em></td>
<td>Fowl and pigeons</td>
<td>Duodenum and Ileum</td>
</tr>
<tr>
<td><em>(Hair worm)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Capillaria annulate</em></td>
<td>-do-</td>
<td>Crop &amp; oesophagus</td>
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<td><em>(Hair worm)</em></td>
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<tr>
<td><em>Capillaria hepatica</em></td>
<td>Rat and mouse, occasionally dog, cat &amp; man</td>
<td>Liver</td>
</tr>
<tr>
<td><em>Capillaria aerophila</em></td>
<td>Dog, foxes and coyotes</td>
<td>Trachea and bronchi</td>
</tr>
<tr>
<td><em>Capillaria plica</em></td>
<td>Dog, cat &amp; fox</td>
<td>Urinary bladder</td>
</tr>
<tr>
<td><em>(Bladder worm)</em></td>
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<tr>
<td><em>Capillaria philippinensis</em></td>
<td>Man</td>
<td>Intestine</td>
</tr>
<tr>
<td><em>(Pudoc worm)</em></td>
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Morphological Characters:

- Closely related to *Trichuris* species but are smaller and hair-like.
- Anteriorly thinner whereas gradually become thicker posteriorly.
- Male worm has single spicule.
- Female worm is oviparous.
- Eggs are colourless, more barrel-shaped, with the sides nearly parallel and the bipolar plugs do not project as far in comparison to *Trichuris* species eggs.
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Capillaria

Life-cycle:

- Direct or indirect life-cycle depending upon the species.
- Earth worm acts as intermediate host for *Capillaria annulata*, *Capillaria caudinflata* and *Capillaria plica*.
- Fish acts as intermediate host for *Capillaria philippinensis*. 
Transmission:

- **Hosts** get infection by the ingestion of food contaminated with eggs shed by intercalary or cannibalistic host or from a dead decomposed infected carcase.
- Ingestion of infected earthworm (*Capillaria annulata, Capillaria caudinflata* and *Capillaria plica*)
- Ingestion of infected fish (*C. philippinensis*)

**Intercalary host** is a host that liberates the infective stages of a parasite of another trapped in the body of the original host.
Capillaria

Life-cycle:

1. Adults and eggs in liver
2. Eggs embryonate in environment
3. Eggs ingested by definitive host
4. Unembryonated eggs released upon death and decomposition of host
5. Unembryonated eggs released in feces following cannibalism or predation
6. Cannibalism or Predation
7. Infective Stage
8. Diagnostic Stage
Life-cycle:

1. Adults and eggs in liver
2. Unembryonated eggs may be released into the environment upon death and decomposition of the host carcass.
3. Predation or cannibalism
4. Unembryonated eggs released in feces following consumption of infected host.
5. Eggs embryonate in environment.
6. Eggs ingested by definitive host.
7. Human infection via ingestion of eggs

Capillaria hepatica

Infective stage
Diagnostic stage
Life-cycle:

**THE LIFE CYCLE OF CAPILLARIA PHILIPPINENSIS**

- Humans are infected when they ingest infective juveniles in raw or undercooked fish.
- Juveniles mature into infective (third stage) juveniles in the fish.
- The egg (or juvenile) is eaten by a fish.
- Eggs and/or juveniles are passed in the host's feces.
- Worms mature in the host's small intestine, and female worms produce eggs and juveniles.
- If the eggs hatch in the small intestine, the juveniles can penetrate the small intestine and develop into adult worms.
- AUTOINFECTION

(Parasites and Parasitological Resources)
Life-cycle:

- Worms lay eggs in liver parenchyma from which there is no natural access to the exterior.
- The unembryonated eggs must be released from the liver by a predator (an intercalary host) or by cannibalism (*Capillaria hepatica*).
- Eggs are passed in the faeces of the predator or cannibal.
- Eggs are also spread on the ground by the decomposition of dead carcasses.
Pathogenesis & Clinical signs:

- Granulamatous lesions and cirrhosis are occurred in liver of infected domestic animals and man.
- Splenomegaly, peritonitis, ascites and eosinophilia.

**Capillaria species in birds**
Inflammation and thickening of the digestive tract and also bloody diarrhoea, emaciation and weakness in heavy infection.

**Capillaria plica**

Usually harmless but may cause cystitis and difficulty in urination

**Capillaria aerophila**

Rhinitis, nasal discharge with chronic inflammation of the affected parts.
On the basis of symptoms.
Microscopic examination of faces reveals eggs of worm.
Eggs are colourless, more barrel-shaped, with the sides nearly parallel and the bipolar plugs do not project as far in comparison to *Trichuris* species eggs.

**Diagnosis:**

- Faeces or Sputum or nasal discharge or urine
Treatment:

- Levamisole
- Mebendazole
Control:

- Rodent control programs and preventing dogs and cats from eating rodents.
- Preventing host from earthworm eating
THANK YOU