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***Fasciola* species**

**Introduction**

*Fasciola*, *Fasciolopsis* and *Echinostoma* species are trematodes which parasitise a variety of vertebrates. They are hermaphroditic and their distinguishing characteristics are shown in the following table.

	<b><i>Fasciola hepatica</i></b>	<b><i>Fasciola gigantica</i></b>	<b><i>Fasciolopsis buski</i></b>	<b><i>Echinostoma</i> species</b>
<b>Geographic distribution</b>	Cosmopolitan	Africa, the Orient and Hawaiian islands	Far East and Indian sub-continent	South East Asia and Japan
<b>Reservoir hosts</b>	Sheep	camels, cattle and water buffalo	pigs, dogs and rabbits	Variety of mammals
<b>Location of adult in host</b>	Bile ducts	Bile ducts	Intestine	Intestine
<b>Size of ova</b>	130 - 150µ by 63 - 90µ	160 - 190µ by 70 - 90µ	130 - 140µ by 80 - 85µ	88 - 116µ by 58 - 69µ

**Life cycle**

The life cycles of *Fasciola*, *Fasciolopsis* and *Echinostoma* species are complex, requiring more than one intermediate host. The first intermediate host is the snail in which the miracidia undergo a complex series of development, ultimately resulting in the liberation of large numbers of larvae known as cercariae. The cercariae of *Fasciola* and *Fasciolopsis* become attached to water vegetation and form a resistant cyst wall. These stages are known as metacercariae and they remain on the vegetation until ingestion. Infection with *Echinostoma* species is thought to be contracted by ingestion of fresh water snails containing metacercaria.

**Morphology of ova**

Ova of *Fasciola*, *Fasciolopsis* and *Echinostoma* species are all thin shelled, ellipsoid bile stained ova with an operculum that is often inconspicuous. Although ova of *Echinostoma* species can usually be differentiated by size, there is much crossover in the size of *Fasciola* and *Fasciolopsis* species as shown in the table above.

**Pathogenesis**

Light infections due to *Fasciola hepatica* may be asymptomatic. However, they may produce cholangitis. Epigastric pain and nausea may also occur.

Infections due to *Fasciola gigantica* occur mainly in cattle raising areas and cause clinical symptoms similar to those of *Fasciola hepatica* although human infections are less common.

The adult flukes of *Fasciolopsis buski* attach to the intestine, resulting in local inflammation and ulceration. Heavier infections may subsequently lead to abdominal pain, malabsorption and persistent diarrhoea. Marked eosinophilia may be seen.

The adult flukes of *Echinostoma* species attach to the intestine resulting in little damage to the intestinal mucosa.. Light infections are generally asymptomatic and heavy infections may produce light ulceration, diarrhoea and abdominal pain..

### **Laboratory diagnosis**

Definitive diagnosis is made by observing the ova in faeces. Where identification cannot be made from the size of the ova, clinical information and the source of infection may help to provide a diagnosis. Serological techniques are available for the diagnosis of *Fasciola hepatica*.



An ovum of *Fasciola* species