

## **Fasciolosis (liver fluke disease)**

It's a disease caused by *F. hepatica* and *F. gigantica*. The disease affected all domesticated animals including equidae.

Epidemiology...

1-It's a common and important liver fluke infestation with a world wide distribution in cooler climates

2-Lymnaeid mud snails are intermediate hosts and release the infective form, the encysted metacercariae, onto herbage which consumed by the host. (The disease has a seasonal pattern in regions where snails are active and In general, the snail prefer **يفضل** the non-acidic low-lying swampy areas with slowly moving water, but land with small streams, springs water, blocked drainage **تصريف المياه المسدود** may also be dangerous for grazing stock.

Note: Snails burrow into the soil to survive dry periods and release cercariae when free water is present

3-Hepatic fasciolosis is mainly of economic importance in sheep or cattle but other species may provide a reservoir of infection. ( high incidence mostly occur in sheep then cattle because of the type of hepatic tissue of those animals which provided a suitable media for the parasite to migration and feeding).

4-chronically infected sheep are the most important source of pasture contamination.

5-Human cases are usually associated with the ingestion of marsh **مستنقع** plants .

6- The clinical outcome of infection depends largely on the density of metacercariae on the herbage, A high intake of metacercariae over a short time will produce acute disease whereas lower numbers over a longer period lead to chronic disease.

Pathogenesis...

1-Acute hepatic fasciolosis is caused by the passage of young *F. hepatica* (Larvae) through the liver parenchyma. Clinical signs occur 5-6 weeks after the ingestion of large numbers of metacercariae. By this time, the migrating flukes are large enough to cause severe mechanical damage to the liver and acute hepatic insufficiency and hemorrhage will result.

2- *Clostridium novyi* may become activated by the anaerobic necrotic conditions created in the liver parenchyma by migrating *F. hepatica*, causing infectious necrotic hepatitis ('black disease') in sheep and cattle

3- Chronic hepatic fasciolosis develops only after the adult flukes establish in the bile ducts, they cause cholangitis, biliary obstruction, fibrosis, and a leakage of plasma protein across the epithelium

clinical findings...

Acute fasciolosis...

1-Acute fasciolosis in sheep mostly characterized by sudden death without other clinical abnormality.

2- If the disease is observed clinically in sheep it is manifested by: Dullness, Weakness, Lack of appetite, Pallor and edema of mucosae and conjunctivae

Pain when pressure is exerted over the area of the liver. Death occurs quickly and may be accompanied by the passage of blood-stained discharges from the nostrils and anus. Outbreaks are usually of relatively short duration; most deaths occur within a period of 2-3 weeks. Acute fasciolosis rarely occurs in cattle.

Subcutaneous fasciolosis....

It is manifested by weight loss and pallor of the mucous membranes. Submandibular edema will be seen in only a few cases

Chronic fasciolosis...

Affected sheep lose weight, develop submandibular edema (bottle jaw), and pallor of the mucosae over a period of weeks. Shedding of the wool may occur. The course of the disease is often as long as 2-3 months in those which die; many survive but may remain in poor condition for longer periods.

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Acute hepatic fasciolosis

Acute hepatic fasciolosis is characterized by a damaged, swollen liver. The peritoneal cavity may contain blood-stained serum. The liver capsule has many small perforations and subcapsular hemorrhages. The parenchyma shows tracts of damaged tissue and is more friable than normal. The immature flukes are often so small that they may be invisible some times. They are most easily demonstrated by cutting a piece of liver thinly and shaking in water

Chronic hepatic fasciolosis

Leaf-like flukes, are present in grossly enlarged and thickened bile ducts, particularly in the ventral lobe of the liver. The bile ducts may protrude above the surface of the liver and cysts may be present due to blockage of ducts with flukes and desquamated epithelial cells. Calcification of the bile duct walls is a common finding in cattle but not in sheep

Treatment...

For treatment of acute fasciolosis, it is essential to choose a product highly effective against the juveniles that damage the liver parenchyma. For chronic disease, a compound active against the adult fluke is required. Treatment includes

1-Triclabendazole at dose rate in sheep (10 mg/kg) and cattle (12 mg/kg) orally .

2-Closantel 10mg/kg BW orally

3-Rafoxanid 10mg/kg BW orally

4- Nitroxynil 10mg/kg BW Sc

5- Oxyclozanide used in cattle (10 mg/kg) orally

6-Albendazole 10mg/kgBW orally for chronic cases