

Cinder Hill Equine Clinic



Liver Disease

The liver is one of the largest organs in the body and has an essential role in a wide variety of bodily functions. These include modification and utilisation of nutrients absorbed from the intestines to provide energy for the body's cells, removing toxins and waste products from the blood stream (either those formed as part of normal metabolism, or those accidentally ingested) and playing a role in the immune system. As a result, there are a wide range of signs which can be seen when the liver is no longer able to do its job.

The liver is frequently exposed to substances that could cause damage, but luckily it has a large reserve capacity that is a large proportion (about 2/3) of the liver that can be damaged before any signs might show. Another unique aspect of the liver is that it has a great capacity to heal itself, as long as irreversible damage has not yet occurred. When we talk about liver disease, in some cases it is called 'sub-clinical', that is the horse is showing no overt signs of illness, but the blood tests show that the liver has been damaged. In other cases, there are clinical signs that may relate to liver damage, even if they are non-specific and vague.

What signs can a horse with liver disease show?

A wide range of signs can be seen, reflecting the varied functions of the liver. The 'classic' signs include:

- **Weight loss** – Due to the liver being less able to modify and process nutrients that are ingested. A horse with liver disease may also have a reduced appetite.
- **Icterus** - Also known as 'jaundiced', a yellow discolouration of the tissues, which is usually noted on the gums. This occurs as the liver is no longer able to effectively excrete bilirubin which is a bodily waste product. It accumulates in the tissues instead and gives them the yellow colour.
- **Lethargy, dullness and occasionally severe neurological signs** - This can be a non-specific sign of just being unwell. When the signs become more severe (such as the horse pressing its head into the wall) this is termed 'hepatic encephalopathy' and is due to the liver's capacity to remove toxins made in the body being overwhelmed. The toxins then remain in the bloodstream, and some can cause damage (luckily reversible) in the brain, causing the signs.
- **Skin disease** - Also known as photosensitisation. This is seen as crusting of the skin in non-pigmented (white) areas. Again, this occurs when the liver is no longer able to remove waste products produced in body. Instead, they lodge in the skin, and when exposed to UV light (the sun) these molecules become activated and cause cell damage.

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In most instances however, these signs tend to occur when the liver damage is more advanced. As a result, probably the most common reason we as vets are called to see a horse that ends up with a diagnosis of liver disease is that the horse ‘just isn’t right’. Usually, the exam we perform is normal, and it is only on a blood test that any abnormality is seen. This is particularly the case in horses who are in work, where they might just not be as keen to work, or tire more easily than they should for their level of fitness.

How is liver disease diagnosed?

1. Clinical Signs – As discussed above, a horse showing clinical signs is the first step in making a diagnosis. These can be subtle in the early stages.
2. Bloods Tests - These can rule in or rule out liver damage. A range of different measurements, which assess damage to several different types of liver cells and test liver function are normally performed.
3. Ultrasound and Biopsies - If the blood test comes back suggesting the liver is damaged, then further investigation may include an ultrasound or a biopsy of the liver.

In many instances, so called ‘empirical’ treatment is begun initially, which aims to support the liver and potentially treat any infection or inflammation that is present. If one horse on a yard has been diagnosed with liver disease, then it is often recommended that other horses also be tested, even if they are not showing any signs. This is because in some cases the disease is caused by something that all the horses may have been exposed to (such as the hay or pasture). If several horses are affected, this can change how we treat and manage the condition.

Liver biopsy is usually only performed if severe disease is suspected (based on the signs or the blood tests) or the horse has not responded to the initial treatments. The procedure is performed with the horse sedated and local anaesthetic at the biopsy site. Complications are rare, but can include bleeding and on very rare occasions, infection. The biopsy can provide information predominately related to prognosis; how likely is the horse to respond to treatment. Only occasionally does it result in a specific cause of liver disease being identified. This is because the liver has only a limited number of ways it responds even to very different ‘insults’ and so the pathologist can only see the resultant damage rather than the actual cause of the damage.

What causes liver disease?

Because the liver is exposed daily to a wide range of potential toxins or substances that can cause liver damage, it is often difficult/impossible to find the exact cause of the disease. In some instances, the inciting cause is no longer present as the liver damage has occurred over time, adding to the difficulties in identifying a cause. Although this is very frustrating, it does not mean the liver disease cannot be ‘fixed’. In many instances, merely supporting the liver whilst it heals itself is sufficient.

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Some of the known causes of liver damage include:

Ragwort: This plant occurs throughout the UK and contains a toxin that prevents the cells in the liver from dividing normally. This results in massive cells, which ultimately die and are replaced with fibrosis (scar tissue). If sufficient damage occurs, it is irreversible. Luckily ragwort is very bitter, and horses will typically only eat it when there is no other food available. However, if ragwort is accidentally included in hay, it loses its bitter taste making it more likely that horses will eat the plant accidentally. A small amount of ragwort is unlikely to cause a problem, typically there needs to be long term ingestion over several months.

Mycotoxins: These are toxins produced by moulds, and some are toxic to horses. Even good quality hay can contain mycotoxins.

Liver fluke: This is the same fluke that can cause serious disease in cattle and sheep. Horses are not part of the fluke life cycle and thus don't have infections which can then go on to produce more fluke, but they can accidentally ingest them when grazing, especially if the pasture is wet and has been grazed by sheep or cattle in the past.

Infections: On rare occasions, bacteria from the intestine are able to travel up the bile duct which connects the liver and the intestine. An infection can be set up and spread throughout the liver. Horses with so called 'cholangiohepatitis' tend to have a fever, some may have colic and they are jaundiced. This disorder does not seem to be that common in the UK, but there are some horses with liver disease that seem to respond to treatment with antibiotics, suggesting that a bacterial infection may be involved.

Viruses: In the last few years, a number of different viruses that can infect the liver have been identified. Currently, we are not sure if they are a cause of liver disease.

Immune mediated disease: In some cases, horses develop waxing and waning liver disease, and this is called 'chronic-active' hepatitis. The underlying cause is unknown, but it is thought that the immune system is involved.

How can liver disease be treated?

The specific treatment plan will need to be based on the signs the horse is showing, the test results (blood, ultrasound, biopsy) and being able to rule in or rule out any potential causes.

- A Supplement – Usually containing milk thistle, is designed to support liver function.
- Changing the forage source - if the forage source (hay/haylage/pasture) is suspected to be a cause, then changing this is recommended.
- Antibiotics – To treat potential bacterial infections.
- Liver fluke treatment - Routine wormers are not effective so a specific fluke treatment needs to be given.

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- Steroids – To limit inflammation and fibrosis.

Regardless of the treatment involved, a long duration (typically several months) is often necessary, with regular blood tests to ensure the horse is responding.

What is the outcome for a horse with liver disease?

Most horses with liver disease make a full recovery, even if the initial cause is not identified. It is also rare (except in cases with chronic-active hepatitis) for the disease to come back. There are several things that make a full recovery less likely:

- A blood test that shows liver failure.
- A biopsy that shows significant fibrosis (this stops the liver from regenerating).
- A horse that does not respond to treatment.