Liver Disease in the Horse
By Lorna Brokenshire-Dyke, BA MA VetMB MRCVS of Rossdales Hertfordshire Equine Veterinary Surgeons

Most horse owners know something about colic, laminitis and arthritis, but how much does the average horse owner know about liver disease? Yet the liver is the powerhouse of the body; in the horse it is the single largest organ, comprising 1% of the horse’s total bodyweight. It works in partnership with every other organ in the body and therefore diseases of the liver can have far ranging symptoms and devastating repercussions.

Liver Function
The liver primarily serves the digestive system and it does this in a number of important ways:

◆ It acts as a filter for all blood that comes from the gastrointestinal tract before it is returned to the heart.
◆ It receives nutrients and regulates their metabolism, storage and distribution throughout the body.
◆ It can convert drugs and other potentially harmful substances into less harmful ones before safe excretion in the urine.
◆ It stores glucose energy in the form of glycogen and other nutrients such as fats, protein and some vitamins.
◆ It produces bile, to aid fat digestion, which is transported to the small intestine via bile ducts.
◆ It produces substances that are essential for the normal clotting process of blood.

SYMPTOMS OF LIVER DISEASE
The liver has a large capacity to cope with disease and regenerate so symptoms typically only show when the damage is so widespread that the liver is no longer able to compensate for the loss of tissue function. Classic signs of liver disease in horses include:

◆ Loss of appetite/anorexia
◆ Depression
◆ Weight loss
◆ Dianhoea

COMMON LIVER CONDITIONS
Hepatitis simply means ‘inflammation of the liver’ and can be caused by a number of different things, including the ingestion of chemicals or plants toxins or following an infection, either bacterial or viral in origin. Individual liver cells can be destroyed by this inflammation and replaced with scar tissue but, due to the organ’s vast reserve capacity, we tend to only see clinical signs when the damage is so widespread that there is no longer enough healthy tissue to cope.

Hyperlipaemia is a condition that results in an excessive amount of fat in the bloodstream. This is usually seen in fat ponies or donkeys who receive a sudden and dramatic reduction in food intake, or in cases where appetite is drastically affected, perhaps as a result of another condition. These conditions are life threatening if

DIAGNOSIS
Liver disease can be difficult to recognise in the early stages due to the vague and often subtle clinical signs. Only once disease progresses will the clinical picture become more obvious. Your veterinary surgeon will want a detailed history of your horse’s symptoms and management; he/she will also perform a thorough clinical examination. The next step will usually involve taking some blood samples to confirm the presence of liver disease and suggest possible inciting causes. When the liver is stressed or in a diseased state a number of blood serum enzymes and biochemicals can alter quite dramatically and the laboratory information can be used to build up a blood picture of potential origins for the disease. The diagnostic process is significantly enhanced with liver biopsies and ultrasonography which are considered the gold standard in understanding potential causes of the disease and hence provide the information required to plan the most effective treatment regime and a realistic prognosis. Further investigation of this kind is usually performed following referral to a specialist equine hospital.
effective treatment isn’t started immediately.

Ragwort poisoning (pyrrolizidine alkaloid toxicity) unfortunately is still common in our equine population. The toxins in the ragwort plant (Senecio jacobaea) cause liver cells to merge together (megakaryocytes) and lose function. Frustratingly, the damage is cumulative and non-reversible so by the time symptoms are apparent, the disease is already very advanced and effective treatment is difficult and often impossible. The start of the disease may even pre-date the current ownership of the animal. A liver biopsy is required to confirm the disease. Remember, there is no ‘safe’ amount of ragwort!

**TREATMENT OF LIVER DISEASE**

The initial cause, if known, needs to be effectively treated, this often involves antibiotics or steroid therapy. Injections and dietary supplements of vitamins, especially vitamin B1 and vitamin E and SAMe (S-adenosylmethionine) can be very useful until liver function is returned. A change in diet is often necessary and your vet may discuss a diet that is higher in carbohydrates and lower in proteins and fat, with the protein component being proportionately higher in branched chain amino acids. For example, a diet that is high in grass, oat hay, molassed concentrate grain and sugar beet pulp, whilst avoiding alfalfa, beans and leguminous grasses/hay. Small frequent feeds are often preferred too. Sometimes the biggest challenge facing owners of horses with liver disease is simply getting their horse to eat enough to regain or maintain weight as appetite can be significantly affected.

**PROGNOSIS**

One of the most difficult aspects of liver disease is that, in many cases, symptoms do not appear until the disease is fairly advanced. The prognosis and likely outcome of the disease will depend on the initial cause (and therefore how readily it will respond to treatment) and the severity of the damage. A liver biopsy alongside comprehensive blood tests and ultrasound scans will enable the best treatment route to be taken and will allow your vet to give you an accurate prognosis. Many horses with liver disease go on to make excellent recoveries and a full return to their previous career. Sadly, some cases are already too advanced by the time clinical symptoms appear. In these cases, at best, the condition may only be able to be managed; at worst, euthanasia may be considered the most humane option.

This horse had end stage liver disease and dramatic oedema of his abdomen.