



A foal with Atypical Myopathy receives intensive care at RosSDales Equine Hospital. This foal survived

ABOUT..

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Kate joined RosSDales Hertfordshire as a member of our ambulatory team in 2015. She qualified from Szent István University, Budapest in 2014 and subsequently completed a 15-month internship at Fethard Equine Hospital in Co Tipperary, Ireland, where she trained in all aspects of racehorse and sports horse poor performance work.

Kate is currently working towards her Certificate in Advanced Veterinary Practice (Orthopaedics) and while she enjoys all aspects of ambulatory equine work, she is particularly interested in lameness cases.

Kate has ridden from a young age and has competed to a high level in 3-day Eventing. She is a keen follower of all equestrian disciplines, especially eventing and showjumping.

Poisonous Plants

The Effects of Poisonous Plants on Horses

By Kate Hannigan DVM MRCVS



While many plants can be poisonous to horses if eaten in excess, there are some plants that should be avoided at all costs.

Poisonous plants adversely affect the health of a horse when eaten. Not all plants are poisonous to horses at all times. Whether or not a plant is poisonous can depend on its growth stage, the nature of the poison and the time it takes to exert its effect on the animal.

In the UK, the most common form of poisoning is caused by the ingestion of ragwort over a period of time, but there are other plants that can cause severe problems when consumed by horses. Almost anything can be poisonous if eaten to excess. For example, excess consumption of wheat will result in a horse being unwell, but wheat itself is not a poison. Likewise, excess consumption of herbs such as St John's Wort can cause photosensitisation

(excessive sensitivity to sunlight), but when eaten in moderation this is not a problem.

Poisoning can take many forms in a horse, from ill thrift and photosensitisation to disease or disruption of the function of key body systems. The most extreme result is, of course, death.

Types of Poison

There are seven different broad types of poison: alkaloids (as found in ragwort, yew, hemlock), glycosides, nitrates, photosensitisers, saponins and complex proteins. Within each category are many different active compounds.

Horses are most likely to consume poisonous plants if they have nothing else to eat as a result of a combination of poor grazing with a heavy infestation of such plants, or due to their undetected presence in hay or haylage.

Here is a guide to some of the fatal flora commonly encountered by horses.



Ragwort is just as toxic when it has been dried, so is a huge threat when found in hay

RAGWORT

Instantly recognisable from its frilly leaves and star-shaped yellow flowers, the deadly ragwort plant is common in British meadows. One of the biggest problems with ragwort is that it is just as toxic when it has been dried, so it is a huge threat when it is found in hay.

Horses will normally avoid eating ragwort because of the bitter taste, but it is palatable when dried and fed in hay. Under DEFRA regulations, landowners can be penalised for allowing ragwort to spread to grazing land, but horse owners should always remain vigilant and frequently check their hay.

Unless very large quantities of fresh plants are eaten, which is very uncommon in UK, the symptoms of poisoning are usually not seen until 4 weeks to 6 months after eating the plants. Small doses of the poison gradually accumulate in the horse's liver where it causes damage to the liver cells and subsequent scarring, eventually causing the liver to shrink in size.

Symptoms:

Symptoms of liver disease only develop when the organ is no longer able to compensate for the loss of functional tissue. Symptoms usually develop quite suddenly, although in some horses and ponies slight illness can precede more severe clinical signs. Early signs include loss of appetite, depression, diarrhoea, weight loss and mild jaundice. More severe symptoms include marked jaundice and collapse or abnormal behaviour, which can range from profound depression to compulsive walking and pressing the head against objects, apparent blindness, photosensitisation and convulsions. These behavioural abnormalities are caused by toxic effects on the horse's brain (hepatic encephalopathy). Most severely affected cases with behavioural abnormalities die within approximately 10 days.

The diagnosis of ragwort poisoning is based on clinical signs and laboratory tests. A history of ingestion of ragwort is often unclear due to the time lag between ingestion and the development of clinical signs. Laboratory tests, including the measurement of liver enzymes, bile acids and bilirubin levels in the horse's blood, confirm a diagnosis of liver disease and assess the liver's ability to function. To confirm the diagnosis of ragwort poisoning, a liver biopsy is required to demonstrate the typical microscopic

abnormalities. If these are not found, the biopsy may help to suggest other possible causes of liver damage. Follow-up liver biopsies help to monitor progression of the condition in horses receiving treatment for ragwort poisoning. As symptoms often only develop late in the course of the disease, treatment is rarely successful for severely poisoned horses, especially those with behavioural abnormalities. The scar tissue that develops in the liver cannot be replaced by normal liver tissue, but less severely poisoned horses can sometimes be helped to compensate for their loss of liver tissue.

What to do:

Ragwort is a biennial plant. In the first year a flattish crown of branched leaves is formed. This flat crown is fairly resistant to mowing and is often not noticed. In the second year yellow flowers are produced on stems that are up to approximately 80cm high. Any plants that are found should be pulled up by their roots and disposed of away from livestock. It is recommended to wear gloves when handling the plant. Use a reputable and trusted hay supplier. Do not leave cut or pulled plants in the paddock or they may be eaten when they have dried and are more palatable. Plants on adjacent land should be removed to avoid the spreading of seed back into your paddocks. Always ensure that there is adequate grazing or alternative food sources such as hay, so that your horse or pony is not tempted to eat any ragwort that may have been missed.

OAK/ACORNS

Acorns and oak contain tannic acid and other tannins, which are toxic when consumed in sufficient quantities. These poisons can cause damage to the gut leading to problems such as diarrhoea and colic signs, they can also cause damage to the liver and kidneys. There is no specific antidote and the prognosis is poor if kidney damage develops. In rare cases, acorn poisoning can be fatal.

Although most horse owners are aware of the dangers of acorns, it should be remembered that the leaves of the oak tree are also poisonous to the horse. Despite being toxic, acorn poisoning is fortunately uncommon in horses. Regardless of this, it is a potentially life-threatening disease and it makes sense to try to limit horses' access to acorns.

Symptoms:

Some horses have a higher intrinsic tolerance to acorns and may not develop disease following ingestion. Alternatively, some horses will become extremely sick after consuming only a small number of acorns or leaves. The damage that acorn toxins cause to the intestine can lead to diarrhoea, which often contains blood. This intestinal damage can be painful, causing signs of colic. In addition, horses can develop secondary gas distention



Acorns and leaves of the oak tree are poisonous to horses

of the colon, which can also lead to colic signs. In some cases, despite being quite sick, the only signs seen might be lethargy, reduced appetite or increased recumbency. Some horses will develop an increased body temperature. Unfortunately in some horses, this disease rapidly becomes fatal.

Specific diagnosis can be difficult unless your horse has a history of consuming acorns. Activated charcoal (which absorbs toxins from the gut and allows them to be harmlessly excreted) is known to be an effective treatment if given immediately after ingestion; however, always seek the advice of your vet first.

What to do:

Protecting horses from ingesting acorns and other parts of the oak tree can prevent this disease. If possible, oak trees and an area around them should be fenced-off in order to prevent acorns from falling onto grazing pastures. Acorns and leaves should be collected and removed from any unfenced areas as regularly as possible. Practically, however, it may not be possible to do this frequently enough to prevent ingestion. Provisions of supplementary forage for horses turned out on poor pastures may help decrease the risk of acorn ingestion. If it is not possible to fence-off or frequently collect acorns from the pasture, then stabling should be considered.

SYCAMORE

Historically, sycamores were not thought to be harmful to equines, but recently the often-fatal muscle condition Atypical Myopathy (AM) has become much more common in Britain. Triggered by the ingestion of sycamore seeds (also known as helicopter seeds), leaves and seedlings, AM is a fast killer with a mortality rate of between 75 and 90%. There's no specific treatment for the condition, with affected horses given intensive veterinary care and IV fluids.



Toxins in sycamore seeds are now known to be associated with Atypical Myopathy

The sycamore seeds contain a toxin called hypoglycin A, which is highly toxic to horses. Once ingested, the toxin interferes with the typical operation of the horse's muscles, blocking the beta-oxidation or the breaking down of fatty acids and leading to direct damage of cardiac and respiratory muscles. The toxin also has an indirect effect by causing renal failure.

The level of hypoglycin A in the seeds of different trees from the Maple family is variable and can be affected by a number of environmental factors. For example, factors including dry conditions, compacted soil, and wind strength may affect the number of seeds produced, seed dispersal and concentration of different substances within fruits and seeds.

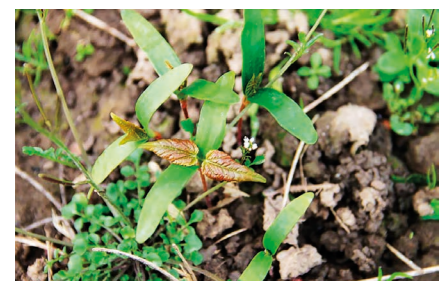
Symptoms:

The onset of atypical myopathy is rapid, with the major clinical signs relating to acute, severe damage to the postural and respiratory muscle groups. In some cases, the early clinical signs may be confused with colic or laminitis. Occasionally atypical AM can cause sudden death, but more frequently affected horses will show various clinical signs including reluctance to move, muscular weakness, stiffness, apparent sedation or depression, sweating, fine muscle tremors, dark discoloured urine, high heart rate, high respiratory rate and difficulty breathing. The substances produced following the rapid breakdown of muscle cells can reach high levels in the bloodstream, and are then processed via the kidneys, which can lead to acute kidney failure. Unfortunately, once signs of the disease are present, the prognosis is very poor and case mortality has been reported from 74% to almost 90%.

A presumptive diagnosis of atypical myopathy is based on history, clinical signs, and laboratory findings. Blood test reveal marked increases in the concentrations of serum muscle enzymes, confirming the presence of severe acute muscle damage. Horses affected by atypical myopathy require intensive supportive and nursing care. There is no specific treatment for atypical myopathy and symptomatic treatment is aimed at reducing the risk of kidney failure.

What to do:

Avoid grazing on high-risk pastures during high-risk periods (autumn to spring). Where complete avoidance of affected pastures is not possible, efforts should be made to reduce the



Be vigilant for sycamore seedlings growing in paddocks in the spring

risk of horses accessing sycamore seeds, either by fencing off areas where seeds and leaves have fallen from trees, or by removing the seeds. Providing horses with supplementary forage during high-risk periods is also recommended. Following autumn outbreaks, new cases or outbreaks can be expected to occur the following spring, and the role of sycamore seedlings in causing these spring outbreaks has yet to be determined. Where AM is suspected, all co-grazing animals should be removed from the pasture and their muscle enzymes should be assessed via a blood test, which could help to detect any early cases before the onset of clinical signs. Co-grazing horses should be monitored for several days and receive medical care where required.

The condition is more common in autumn, when the seeds and leaves are blown from the trees. Remove them along with any sycamore seedlings that appear in spring. Fence off sycamore trees from paddocks and ensure that horses have access to sufficient supplementary feed to minimise the risk of foraging for alternative foods.



Yew is deadly to horses

YEW

Most commonly seen in cemeteries, this tree is deadly to horses. The leaves, twigs and bark of the Yew tree are all toxic to horses and the lethal dose can be extremely small. The plant's toxic alkaloids (taxine A and B) are extremely fast acting. As little as 6-8 ounces of the fresh plant can kill an adult horse within five minutes. Some cases have been found dead with the remains of leaves still in their mouths. The whole plant is toxic and poisoning typically occurs when people who do not understand the potential harm toss clippings from these plants into grazing fields. Horses should not be allowed to graze anywhere near this plant.

Symptoms:

Sudden death, often within 2-3 hours of ingestion, is the most common observation with yew poisoning. Animals are often found dead next to yew bushes or clippings. Prior to death, muscle trembling, incoordination, nervousness, difficulty breathing, slow heart rate, vomiting, diarrhea and convulsions may be observed. No post-mortem signs are specific to yew poisoning, unless partially digested twigs and needles are found in the mouth and stomach. There



Bracken poisoning results in neurological (nervous system) symptoms in the horse

is no specific treatment or antidote for yew poisoning. Supportive therapies have variable success rates, depending on the amount of yew ingested and how quickly actions are taken.

What to do:

There is no treatment. Never graze horses in a field where they will have access to yew or where there is a risk that yew clippings might be tossed into their paddock.

BRACKEN

Found on moors and in meadows, horses will usually avoid eating bracken ferns unless grazing is particularly poor – although some do develop a taste for it. The good news is that it's only harmful if digested in large quantities, such as ongoing consumption over a couple of months.

Symptoms:

Bracken poisoning results in neurological (nervous system) symptoms that may include nervousness, circling, staggering, muscle spasms, blindness and convulsions. Treatment for bracken fern poisoning is relatively straightforward if it has been diagnosed early enough. Your vet will put your horse on a regimen of thiamine supplementation over the course of several days until your horse shows signs of improvement.

What to do:

Horses usually avoid bracken, but if you are concerned, remove it from your horse's field. Maintain good pasture management, regularly removing weeds to allow grass to grow, so your horse has no reason to consume it.

Conclusion

This list of plants that are poisonous to horses is by no means exhaustive – others include laburnum, laurel, privet, hemlock, buttercup, horsetail, foxglove, larkspur, ivy, rhododendron, marsh marigold and lupin.

If you know or suspect that your horse or pony has consumed any poisonous plants, or exhibits any of the clinical signs outlined above, consult your vet immediately.

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