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FACT FILE

OWNERS' GUIDE: ATYPICAL MYOPATHY

INTRODUCTION

Atypical myopathy (AM) or sycamore myopathy, is a severe and often fatal muscle disorder of horses caused by ingesting sycamore seeds, leaves or seedlings.

These seeds and seedlings contain the toxin hypoglycin A (HGA). It is this toxin that slows or stops energy production in muscle cells. HGA is an unusual amino acid that is found in certain trees but not others. Its function is, as yet, unknown - although it might be important for growth or for protection from grazing animals.

Survival rate is around 30-40 % and is highly dependent on fast diagnosis and treatment.

The first reports of cases are from the 1940s but there has been a marked increase in recent years.

Atypical myopathy (AM) can affect individual horses or several horses within the same group. In addition, some apparently unaffected horses have high concentrations of HGA in their blood suggesting that some horses are more susceptible to the disorder than others.

Research indicated that it is mainly the sycamore tree (a member of the Acer family) that contains HGA. There are over 25 species of Acer tree but not all of these species have the toxin and it can be hard to distinguish between the different species.

CAUSES

AM is caused by horses eating sycamore seeds and leaves that fall onto pasture in autumn and winter, and their germinating seedlings in spring.

CLINICAL SIGNS

- General weakness : horses struggle to walk, stand and breathe
- Many horses develop heart problems
- Horses appear depressed with low hanging heads
- Muscle trembling
- Signs of colic - yet they often still have an appetite
- Brown or dark red urine
- Severely affected horses are unable to stand

To find out if your property has plants that contain the toxin known to cause AM - you now can send plant samples directly to the RVC Comparative Neuromuscular Diseases Laboratory using the sample submission form (Form also online).

RISK REDUCTION

In addition to sample submission, there are practical steps you can undertake to minimise the risk to your horses from this disease.

- Provide supplementary forage during Autumn
- Clear fallen sycamore leaves and seeds from grazing areas
- Check neighbouring areas as some 'helicopter' seeds can travel up to 200 yards
- Test for the presence of HGA in your own horses' pastures

BOOKING YOUR TEST

- Cost: £117 (inc VAT)
- Timing: Results take 2-3 weeks
- Expedited 3 day turnaround service is available at a higher cost
- Payment: Via invoice
- Sample submission guidelines & form overleaf
- Samples must be seeds OR leaves OR seedlings rather than mixed materials

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DIAGNOSIS

If Atypical Myopathy is suspected then swift identification and early intensive, supportive treatment is vital. Your vet can use specialist AM serum tests to support diagnosis (available from the RVC Diagnostic Laboratories).

TREATMENT

Confirmation can take several days so vets often start treatment immediately before diagnosis has been officially confirmed. You may be advised to take your horse to a specialist equine hospital for 24-hour advanced care. If horses survive the first few days of treatment they usually go on to recover completely, although this can take several months.

SAMPLE COLLECTION GUIDELINES

- **Testing a particular tree**

Collect leaves and/or seeds from at least three different branches.

- **Testing toxins in grazing area**

Collect samples from the affected area

- **Testing toxins in a whole paddock**

Divide the paddock into several regions and collect material from each area. Combine all the samples in a single plastic sandwich bag if you want a general toxin level from the whole paddock

Definition of a sample

One bag of plant material. If you test more than one paddock or more than one area of a paddock; or more than one tree, this will involve more than one sample submission and therefore greater costs.

- Samples can be collected at any time but testing is most relevant in the spring (seedlings) or autumn (seeds)
- Collect seeds OR leaves OR seedlings (rather than a bag of mixed materials from either the tree or the ground.
- - double handful of seeds
- - single handful of seedlings
- - 10 leaves
- Keep at room temperature
- Place material in sealable plastic sandwich bag with your sample submission form and payment
- Send to lab to arrive within 24 hours of

FREQUENTLY ASKED QUESTIONS

Do all sycamore trees contain the same amount of toxin?

No. The toxin levels can differ between trees.

Are there certain ages/breeds/sexes of horses that are more susceptible to atypical myopathy?

No, as far as we know horses and ponies of any age, breed, sex and height can develop atypical myopathy. There is some evidence that young horses might be more severely affected.

Does the toxin remain at the same level all year and from year to year?

Research is being conducted to answer this. It is possible that the toxin is affected by variables such as climatic or soil conditions.

How much toxin do horses need to eat to cause atypical myopathy?

It is difficult to be precise about the amount of toxin a horse would need to ingest to be affected, as multiple factors are involved. Horses seem to differ in their response to the toxin which might be due to genetic factors, diet, prior exposure or other variables. These factors are being investigated.

I have had horses on my field for many years without a problem. Does that mean that it is safe, even though I have sycamore trees?

No. For reasons presently unknown, some horses seem not to be affected by the toxin even though they are potentially exposed. Some evidence suggests that certain horses ingest the toxin, but do not develop the life-threatening disease. There is currently no way of knowing which these horses are. Even if horses have been grazing in the field for many years - this does not mean it is safe either for these horses, or for newly introduced horses.

RVC RESEARCH

In work supported by The Horse Trust and the Animal Care Trust, the RVC is conducting research to look at factors influencing AM in horses and in their enviroment.