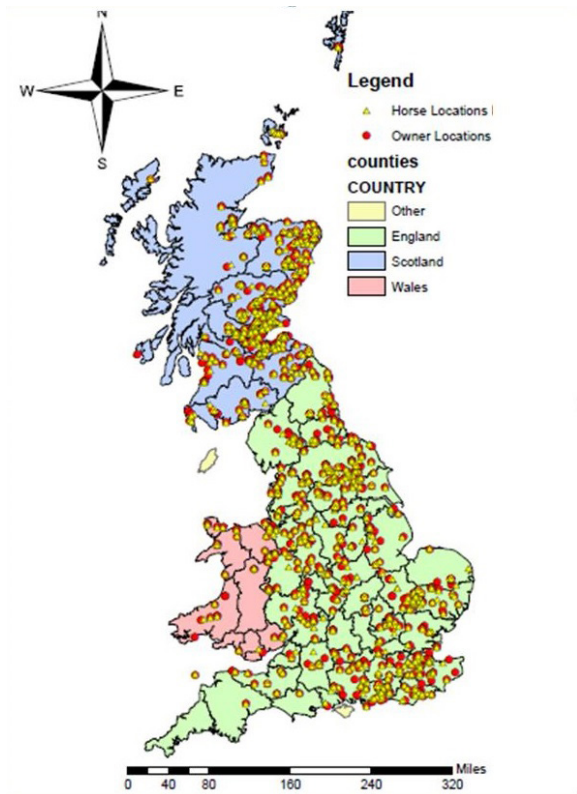


Equine Grass Sickness

Equine grass sickness (EGS) is a frequently fatal disease of the nervous system of affected horses, ponies and donkeys. Although EGS has been recognised since the beginning of the 20th Century, research has, as yet, failed to identify a specific cause. Currently in the UK, there is a major vaccination trial underway to investigate if vaccination can prevent the disease occurring, involving researchers from the University of Liverpool and the Royal (Dick) School of Veterinary Studies and co-ordinated by the Animal Health Trust.

HOW COMMON IS EGS?

The disease was first described in Forfar, Scotland and Britain continues to have the highest frequency of cases in the world. Many northern European countries also see EGS, and an identical condition called mal seco ('dry sickness') has been recognised in South America, particularly Chile. EGS is rare in the rest of the world, including Ireland which is surprising considering its close proximity, the abundance of grass, and constant movement of horses to and from mainland Britain. Newmarket is affected by EGS; at RosSDales we have identified 30 cases from the surrounding area since March 2011.



WHAT ARE THE CLINICAL SIGNS?

EGS affects the parts of the nervous system that control involuntary functions. The most severely affected body system is the gastro-intestinal tract (GIT), producing clinical signs of intestinal paralysis of varying degree. However, damage to more distant nerves also occurs. The disease can be classified into three broad types, based on the clinical signs and length of survival:

Specific clinical signs associated with EGS:

(common vet terms are included in brackets)

Acute EGS (survive 1-2 days only)

Signs are severe and appear very suddenly

Subacute EGS (survive 2-7 days only)

Similar to acute but usually less severe

Chronic EGS (survive more than 7 days)

More gradual onset

- Abdominal discomfort (colic)
- Constipation (impaction) (Fig. 2)
- Absence of gut sounds (ileus)
- Reflux of gut contents through the nose (gastric reflux) (Fig. 3)
- Increased salivation (Fig. 4)
- Difficulty swallowing (dysphagia)
- High heart rate (tachycardia)
- Muscle tremors (fasciculation)
- Drooping eyelids (ptosis)
- Patchy or generalised sweating
- Depression
- Rapid and severe weight loss leading to emaciation (Fig. 5)
- Markedly tucked-up abdomen
- Reduced appetite (inappetence)
- Standing like a circus elephant (base narrow stance) (Fig. 6)
- Moderate difficulty swallowing
- Slightly high heart rate
- Muscle tremors
- Drooping eyelids
- Patchy sweating
- Dry, crusty nose (rhinitis sicca) (Fig. 7)



Fig 2: Impaction



Fig 3: Gastric reflux



Fig 4: Increased salivation

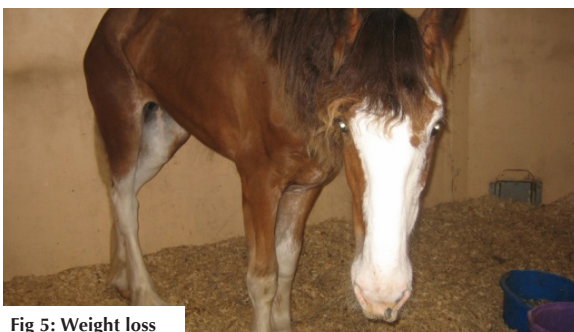


Fig 5: Weight loss



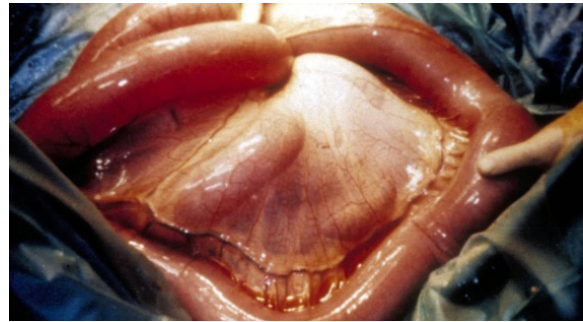
Fig 6: Base narrow stance

CAN EGS BE TREATED?

The prognosis is incredibly poor; all acute/subacute cases are incurable and euthanasia on humane grounds is unavoidable.

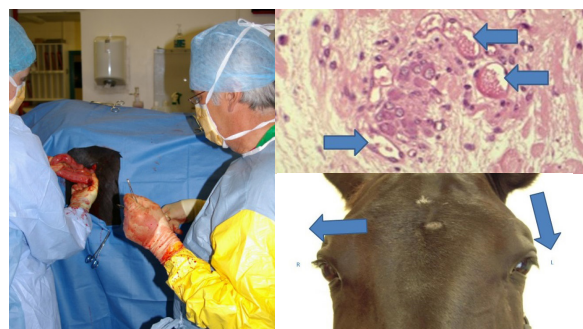
Recovery from the chronic form may be possible, but there is no specific treatment. Mildly affected chronic cases may respond to intensive nursing care, during which it is important to keep the horse warm and comfortable, maintain grooming and walking, and provide fresh, palatable, easy-to-eat succulent feed.

The University of Edinburgh, with World Horse Welfare's support, have produced a guide on the management of horses with the chronic form – available at www.worldhorsewelfare.org/Equine-Grass-Sickness.



HOW IS IT DIAGNOSED?

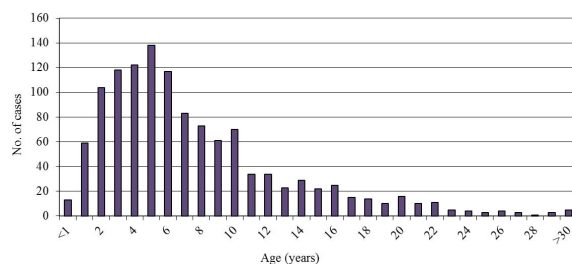
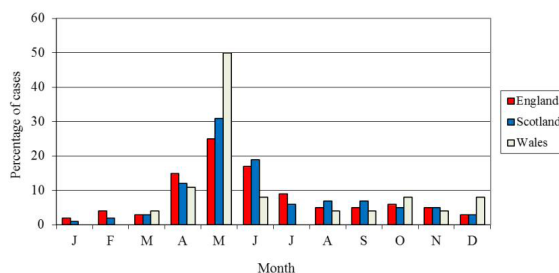
It can be difficult to diagnose EGS, as the clinical features are common to other diseases. Diagnosis is based on clues from the horse's type, history and pattern of clinical signs. A definite diagnosis relies on identification of specific lesions in the nerve cells by taking a biopsy from part of the small intestine. The tissue is stained and examined under a microscope to identify the specific nerve damage which characterises EGS. The phenylephrine eye test can provide additional evidence but it is not sufficiently clear cut to confirm a diagnosis. With this test, the neuroactive drug, phenylephrine is inserted into the eye. This temporarily overcomes the effect of the EGS-damaged nerves supplying the eye and reverses any eyelid drooping).



WHAT CAUSES EGS?

A specific cause has not been confirmed. Previous investigations have examined the role of poisonous plants, bacterial toxins, insects and viruses. Currently, many researchers believe the cause may be due to a toxins produced by a bacterium *Clostridium botulinum* type C. There are also a number of additional trigger factors that are thought to increase a horse's susceptibility to these bacteria:

Factors associated with the development of EGS	
Factor	Explanation
Grazing	As the name may suggest, EGS is almost exclusively associated with the ingestion of grass (98% of horses are grazing full-time when they become ill). Cases which occurred with no access to grazing received fresh hand-picked grass, or hay.
Season	Most cases are recognised in May). There is also an association with more sun hours and more frost days, and EGS is less likely with higher temperatures.
Movement	Many cases are associated with recent movement to new premises/pastures within the last few weeks.
Previous occurrence	Premises that have had EGS, especially within the previous two years, are at an increased risk. However, horses grazing pastures when EGS previously occurred are thought to be protected.
Pasture	Sand and loam soil types are at an increased risk, compared to clay and chalk, and disturbed pasture have been associated with EGS.
Horse type	All ages are susceptible, but most frequently affected horses are 2-7 years old). Native Scottish pure breeds are at an increased risk, while stallions are at a decreased risk compared with mares.



HOW CAN WE HELP EGS RESEARCH?

Since 2006, the AHT has monitored EGS cases in Britain and encourages all cases to be reported anonymously. They are also currently co-ordinating a nationwide vaccine trial to prove if *Clostridium botulinum* bacteria are responsible for the disease. If this can be proved, then vets may be able to prevent EGS by vaccination, in the same way that tetanus (caused by another clostridial toxin) is controlled. Horses may be eligible for the trial if they are healthy, live on a premises that has had at least one EGS case in the past three years, and have a valid passport.

SUMMARY

- Equine Grass Sickness is a predominantly fatal nervous system disease
- It occurs most commonly in Great Britain, particularly the east coast of Scotland
- It is thought to be caused by a neurotoxin produced by *Clostridium botulinum* bacteria
- There is currently no treatment, and only a proportion of chronic cases survive
- A trial is underway to test whether a vaccine can prevent EGS
- Comprehensive information is available from the Equine Grass Sickness Fund: www.grasssickness.org.uk, 0131 445 6257, info@grasssickness.org.uk