

Should we be concerned about Lyme disease?

An unusual outbreak of arthritis occurred in children in Connecticut, USA, in 1975. It was initially called Lyme arthritis, since affected children came from the towns of Lyme and Old Lyme to the east of the Connecticut River, and its origins were a mystery.

We now know that Lyme disease, as the condition has become known, is caused by the bacterium *Borrelia burgdorferi*. It is spread by ticks and also infects dogs, horses and cattle. Lyme disease is currently endemic in several parts of the United States and has been recorded in most countries of the World.

There are between 500 and 2000 new cases of Lyme disease in humans in the UK each year and it is considered a significant enough public health concern for the NHS and Health Protection Agency to issue advice. This is largely targeted at rural workers, walkers and mountain bikers who run the risk of coming into contact with ticks.

Lyme disease was first recorded in a British horse in Sussex in 1993 and subsequent research has shown that many horses have been infected with the causal organism. So, as this is the time of year when ticks become active, should we as horse owners be concerned by the threat of Lyme disease? What are the signs of infection, can it be treated, and how can we prevent the disease?

Although there no accurate data on the incidence of Lyme disease in horses in the UK, it is generally agreed that infection is common but rarely results in symptoms or clinical disease. Research conducted some 15 years ago indicated that infection was particularly common in East Anglia and along the south coast of England.

The majority of British horses appear to mount an effective immune response to infection and only a handful become sick. We are fortunate in this respect, since infection more commonly causes disease in horses in the USA and Scandinavia, probably due to the presence of more virulent bacterial strains in these countries.

Lyme disease is associated with a variety of symptoms in horses, from mild depression and loss of interest in food, to weight loss, arthritis, inflammation of the eyes called uveitis, and neurological signs including behavioural changes and paralysis. Horses with arthritis are typically lame in several legs, with affected joints being swollen, hot and painful. Deaths have been reported in young foals, but the disease is rarely fatal in older animals.

This range of clinical signs, which can also be caused by a number of other common equine conditions, does make it difficult to diagnosis Lyme disease. Affected horses are often treated for the more common causes of weight loss, arthritis or uveitis, and it is only when treatment fails that the possibility of Lyme disease is considered.

A history of tick bites may arouse or heighten suspicion of Lyme disease. Definitive diagnosis of Lyme disease relies upon detecting the presence of *Borrelia burgdorferi* bacteria in blood, urine or joint fluid using a sensitive DNA test.

Unfortunately the small number of horses that do succumb to Lyme disease can become profoundly ill and often require long term treatment. The causal organism is sensitive to several antibiotics and repeated courses may be required. Anti-inflammatory drugs, such as Bute, are also prescribed for the alleviation of the lameness and joint swellings.

As yet there is no effective vaccine for Lyme disease and the best way to prevent infection is to avoid ticks. In this country Lyme disease is carried and spread by the sheep tick *Ixodes ricinus*, which lives predominantly but not exclusively in woods, heath and moorland. It

has a preference for grass or bracken habitats. *Ixodes ricinus* feed on deer and other wild mammals and birds, as well as sheep, and are most active from April through to October.

Given the ubiquity of ticks, eliminating exposure is not possible and the only effective means of reducing the risk of Lyme disease is to remove any ticks from your horse. Ticks cannot hop or fly, but climb up plant material and then latch on to limbs, lips, the muzzle or ears of passing animals.

Adult ticks then spend several days feeding and their bodies become engorged with blood. These are easily recognised on horses, as well as dogs and cats. The larval and nymph stages, which precede adulthood, are much smaller and feed for short periods and so are not readily identified.

Ticks can be removed by a number of means, from application of petroleum jelly, butter, whisky or *TCP*, to burning with matches and application of insecticides. It is not advisable to simply pull them out with tweezers since this usually results in the mouth parts being left behind and can result in skin irritation or an abscess forming.

I am reliably informed that ticks breathe through their rear ends and this explains why coating the body in *Vaseline* or butter results in their death and eventual release from the skin surface. Burning ticks off is not recommended, especially for show horses and ponies!

The two most practical and effective methods of tick removal are, in my experience, liberal application of the insecticide *Frontline* or special tick removing tools like the *O'Tom Tick Twister* and the *Trix Tick Lasso*. These are designed so that the tick is removed in its entirety, including mouth parts, and are available from vets or at the Lyme Disease Action website (www.lymediseaseaction.org.uk).

Other than the threat of Lyme disease, ticks rarely cause problems in horses other than mild irritation around the face and ears, and occasionally the lower limbs. We are fortunate that UK ticks do not carry the diseases Rocky Mountain spotted fever or Tick Paralysis, which affect horses in the United States.

Effective removal of ticks from horses is, however, advisable as a means of limiting the potential for human tick bites. Daily spraying of *Frontline* onto the lower limbs and around the muzzle may help stop your horse picking up ticks if they graze a heavily infested pasture.

In contrast to the condition in horses, Lyme disease causes long-term pain and discomfort in humans and treatment is not always effective. Further information can be obtained from the Lyme Disease Action website.

Figures

Fig 1. Adult tick before (right) and after feeding (left).

Fig 2. Removing a tick with the *O'Tom Tick Twister*