

## **“LYME DISEASE” IN HORSES**

Lyme disease, or borreliosis, is an increasingly suspected clinical condition of horses and other species caused by the tick-borne spirochaete *Borrelia burgdorferi*. High rates of seropositivity have been recorded in horses from many regions of the UK and clinical cases certainly occur with the most frequent clinical signs including various combinations of the following:

- mild pyrexia
- lethargy
- weight loss
- stiffness/Lameness
- muscle soreness
- synovial effusions
- laminitis
- uveitis
- behavioural changes
- other neurologic problems such as hyperaesthesia or ataxia

The absolute confirmation of Lyme disease is problematic. Currently laboratory support of the diagnosis can only be achieved by finding a positive *Borrelia* antibody titre in a horse with suspicious clinical signs. This has several limitations however. Firstly, with standard test methods it may take up to 3 months following infection for horses to seroconvert – meaning that many early cases will be ‘negative’ on serology. Secondly, horses may become infected and seroconvert without showing any clinical signs – hence many healthy horses or horses with other conditions could be misdiagnosed with Lyme disease on the basis of serology. Thirdly, horses that are successfully treated may still remain seropositive for a very long time thereafter – complicating interpretation of successful resolution.

A new ELISA method has recently been validated in equine cases for detection of *Borrelia* antibodies targeting a different membrane protein (V1sE). In experimental infections, animals became seropositive to V1sE within 3-5 weeks of infection, well before clinical signs arose. Additionally, infected horses that are successfully treated show waning antibody titres more rapidly than with other test methods (although this may still be a matter of months). Furthermore, the method was able to detect some seropositive cases that had been missed using standard Western Blot techniques and this new approach is now used at The Liphook Equine Hospital Laboratory on all sera submitted for Lyme titres.

Tetracyclines are the antibiotics of choice to treat clinical cases. Oxytetracycline @ 5 mg/kg iv sid or bid for a week followed by oral doxycycline @ 10 mg/kg bid for a further 2-3 weeks is the usual treatment approach. Ceftiofur (Excenel, @ 2-4 mg/kg im bid) has also been recommended by some. Clearly close observation for diarrhoea is worth emphasising to owners but rarely seems to occur during treatment. Total eradication of organisms from clinical cases can sometimes be problematic and recurrence of clinical signs following apparently successful treatment is unfortunately not unlikely. Although vaccines are available in other countries, none is licensed in the UK.