

# Tick-borne diseases in Ireland

In association with 

Researchers at University College Dublin are evaluating the prevalence of selected tick-borne diseases in Ireland

## Robert Shiel

Associate professor of Small Animal Medicine



## Pedro Guzmán

Resident/DVMS student, Small Animal Medicine



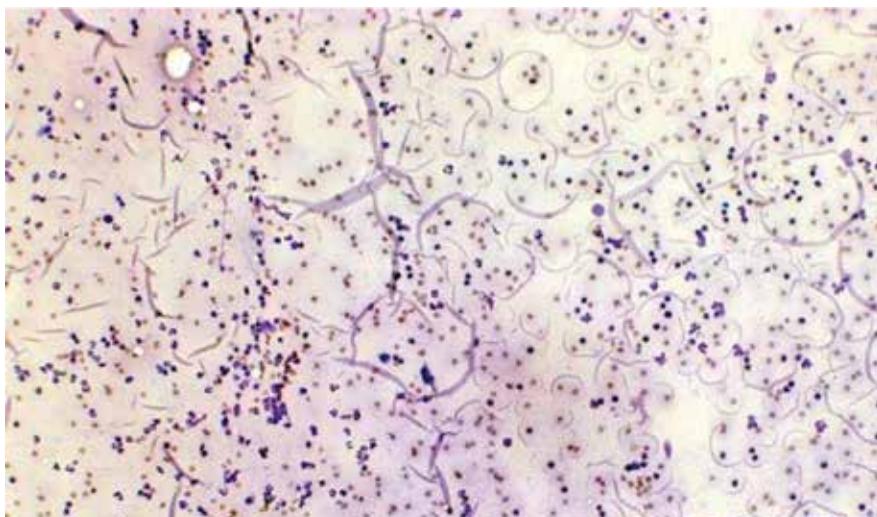
## BACKGROUND

Traditionally, tick-borne diseases have been considered rare in Ireland, largely because of the relatively limited range of tick species. However, the prevalence and geographical distribution of these diseases appear to be increasing, worldwide. Climate change, inadequate parasite control, an increase in the reservoir of chronically infected people and animals, increased housing development in rural areas, international movement of people and animals, and increased awareness of these diseases are likely responsible for this change.

## TICK PREVALENCE

Within the UK, tick infestation of dogs is common, despite widespread use of ectoparasiticides. An overall prevalence of tick attachment of 30% has recently been reported in a large-scale surveillance programme.<sup>1</sup> Several different species of tick were identified, including *Ixodes ricinus*, *Ixodes canisuga*, *Ixodes hexagonus*, *Dermacentor reticulatus*, *Dermacentor variabilis*, *Haemaphysalis punctata* and *Rhipicephalus sanguineus*.<sup>1</sup> This suggests that the range of tick species is not as limited as previously believed, which, in turn, increases the breadth of diseases that could potentially be transmitted.

Tick-borne diseases including anaplasmosis, borreliosis and



**Figure 1: Synovial fluid cytology displaying the typical features of immune mediated arthritis. There are numerous large protein crescent and smudge cells. Nucleated cells are mostly non-lytic neutrophils (>90%) containing basophilic fragments consistent with ragocytes. The rest of the cells are mononuclear with eccentric round nuclei and moderate amount of basophilic cytoplasm. Although these changes are typical of primary immune-mediated polyarthritis, identical changes can be seen when polyarthritis is triggered by an infectious agent such as *Borrelia*. The role of such agents in Ireland is largely unknown.**

ehrlichiosis are important differentials for common presenting signs in dogs including lethargy, fever, lameness, kidney disease, clotting disorders, lymph node enlargement, vomiting and diarrhoea. In the UK, tick-borne diseases are being recognised in dogs with increasing frequency. In 2016, the PDSA (the UK's leading vet charity) reported a 560% increase in the prevalence of Lyme disease diagnosed in dogs between 2009 and 2015 (esccapuk.org.uk). *Borrelia* spp., *Anaplasma phagocytophilum* and *Babesia canis* have been identified in ticks.<sup>2,3</sup>

In addition, *Ehrlichia canis* has been identified in a dog that had not travelled outside of this country.<sup>4</sup>

Data from Ireland are limited. A recent pilot survey identified *A. phagocytophilum* and *Borrelia* spp. in Irish ticks.<sup>5</sup> However, it is not known if the strains identified are capable of causing disease in dogs.

## STUDY DESIGN

Robert Shiel and Pedro Guzmán are evaluating the prevalence of selected

tick-borne diseases in Ireland by performing a multicentre study between UCD Veterinary Hospital in Dublin, Ark Vets in Galway and Gilabbey Veterinary Hospital in Cork, and in collaboration with researchers from Colorado State University and the Complutense University of Madrid. Blood samples will be screened for exposure to *A. phagocytophilum*, *Anaplasma platys*, *Borrelia burgdorferi*, *E. canis*, *Ehrlichia ewingii* and *Dirofilaria immitis* by means of a patient-side ELISA test. A subset of blood samples from positive dogs will be submitted for polymerase chain reaction (PCR) analysis. In addition, owner questionnaires will be used to identify factors associated with seropositive results. This study will provide evidence for the prevalence of tick-borne diseases in Ireland and the necessity for considering them as differential diagnoses in dogs with compatible clinical signs.

*Disclaimer: The study was sponsored by MSD Animal Health.*