Ticks and tick-borne diseases

Ticks

Ticks are small, blood sucking arthropods related to spiders, mites and scorpions. Ticks are only about one to two millimetres long before they become engorged with blood during feeding. The feeding phase occurs twice during the year, from late March to late May or early June; and from August to October, however ticks are known to feed throughout the year.

The ticks require living conditions of high humidity, such as in moist, coarse, permanent vegetation, characteristic of forest and woodland, moorland and heath.
Animal hosts for the disease-carrying ticks include deer, foxes, squirrels, sheep, mice and other rodents, and sometimes domestic pets.

What diseases can a tick carry?

Three of the diseases that can be caught from a tick bite in Britain are, Lyme disease, Babesiosis and Ehrlichiosis. Ticks carry a number of diseases at the same time and can transfer them to you in a single bite. The resulting symptoms can easily be confused and are liable to misdiagnosis. Treatment in such cases is very difficult.

Lyme Disease

What is Lyme Disease?

Lyme Disease, also known as Lyme borreliosis, is an infectious disease caused by the bacterium Borrelia burgdorferi. Lyme disease is transmitted to humans when bitten by ticks of the Ixodes ricinus family which are infected with the bacteria.

Lyme disease is becoming common in the UK, with reported cases having increased in recent years due to greater medical and public awareness of the disease, and increased involvement in outdoor leisure activities.

The symptoms

The most famous symptom of Lyme disease is a bull's eye rash (erythema migrans), consisting of a red ring-shaped rash which gradually spreads from the site of the tick bite, usually with a fading centre. The rash can cover a large area and last for weeks if untreated.

Some patients have 'flu-like' symptoms. More serious symptoms can appear in untreated patients in the following weeks or months. These can affect the central nervous system, joints, and occasionally the heart or other organs.

Diagnosis and treatment

If you get any of the signs or symptoms in as described above within days or weeks of exposure or tick bites, or to ticks, go to your doctor. Tell the doctor that you may have been exposed to ticks and take our Information Note with you so that they can consider the possibility of Lyme disease and carry out blood tests.

A 'positive' blood test merely shows that you have been exposed to the infecting organism; the test is a marker that your natural defences have produced antibodies to the bacterium. It does not mean that the you have Lyme disease, nor that you will necessarily develop the disease.

It is best to discuss with your Doctor about starting antibiotics as soon as you see him because Doctors are likely to need to recommend more aggressive and longer antibiotic treatment for patients if not started straight away.

Babesiosis

What is Babesiosis?

[bab-EE-see-OH-sis] is caused by the Babesia parasite, an organism similar to that causing malaria. This attacks the red blood cells and its existence can only be shown by laboratory identification of the parasite.

The symptoms

Symptoms, if any, begin with tiredness, loss of appetite and a general ill feeling. In severe cases, as the infection progresses, fever, drenching sweats, muscle aches and headache can follow, leading to complications such as very low blood pressure, liver problems, severe haemolytic anaemia (a breakdown of red blood cells) and kidney failure. Other cases usually have a milder illness and often get better on their own. The symptoms can take from 1 to 12 months after the tick bite to appear and can last from several days to several months.

Diagnosis and treatment

Blood smears may be examined under a microscope to try to identify the parasite inside red blood cells, however this method is reliable only in the first two weeks of the infection. Commercial tests currently work for only three species of Babesia, and there are likely many species yet to be discovered. The PCR (polymerase chain reaction) test can detect babesia DNA in the blood. The FISH (Fluorescent In-Situ Hybridization) assay can detect the ribosomal RNA of Babesia in thin blood smears. The patient's blood can also be tested for antibodies to Babesia. It may be necessary to run several different tests and negative results should not be used to rule out treatmen

Babesiosis is treated with a combination of two types of anti-parasite drugs. Long-standing infections may need to be treated for several months, and relapses sometimes occur and must be retreated

Ehrlichiosis

What is Ehrlichiosis?

[air-LICK-ee-OH-sis] There are two kinds of ehrlichiosis, both of which are caused by tick-borne rickettsial parasites called Ehrlichia that infect different kinds of white blood cells.

The symptoms

Symptoms usually appear 3 to 16 days after a tick bite. The most common symptoms are sudden high fever, tiredness, major muscle aches, severe headache, and, in some cases, a rash.

Diagnosis and treatment

Diagnosis is limited by our current ability to test for only two species. Diagnostic tests are not widely available and the diagnosis of Ehrlichiosis is usually based on symptoms and a history of exposure to ticks. Severely ill patients can develop abnormally low numbers of white blood cells or platelets and kidney failure.
Ehrlichia parasites multiply inside host cells, forming large mulberry-shaped clusters called morulae which doctors can sometimes see on blood smears. The infection still can easily be missed.

The treatment of choice for ehrlichiosis is antibiotics which fights the bacteria in the body.

Who is at risk?

Anyone who works or pursues leisure activities in the countryside, during the feeding phase, may be exposed to tick bites which can transmit tick-borne diseases. However, please remember that not all ticks are infected, and the risk of transmitted infection is reduced if you remove an infected tick from your skin within 24 hours.

Prevention

There is no preventative medicine. The first line in prevention is don't get bitten, so wear protective clothing and use a repellent spray. Simple common sense precautions can minimise the risk of tick-borne disease. However, don't let the small risk of infection spoil your enjoyment of the countryside or unreasonably disrupt your work.

There is no requirement for staff to wear any special safety clothing, and so there is no special issue by the FC.

What you must do.

- Wear long trousers, preferably tucked into your socks or boots, and long-sleeved shirts with cuffs fastened if you are walking in grassy, bushy or woodland areas that are suitable for ticks. Wear shoes or boots rather than open-toed sandals.
- Use a repellent spray
- Try to keep to paths in woodland and heathland, and avoid areas of long grass where ticks might be.
- Inspect skin and clothing for ticks every three to four hours, especially if you are likely to be in a tick area for a long time. Make a thorough check for any attached ticks at the end of each day, pay particular attention to skin-fold areas, such as your groin, armpits, under your breasts, behind your knees and around your waist.

Removing ticks

Please follow this advice carefully.

- Brush or shake ticks off clothing, and pick them off your skin before they become attached.
- Whenever you find an attached tick remove it without delay using small tweezers or a specifically designed tool. A feeding tick lies parallel to the skin with its mouth-parts at right angles to the skin. When enlarged with blood, gently raise the body of the tick so that it is in line with the mouth-parts. The specifically designed tools help removal of the tick without squeezing the tick's body.
- After you have removed it, clean the bite area thoroughly with an antiseptic wipe.
- Check your pets for ticks and use tick repellent collars or "spot-on" treatments.
- Do not try to burn a tick off with a match or lighted cigarette, or apply volatile oils, as these methods may damage your skin or cause the tick to regurgitate.

Recording and reporting

- All unit managers must use the unit resumption system to make sure that all their staff are issued with the Information leaflet every 2 years.
- Staff must report any case of suspected or confirmed tick-borne disease, diagnosed by a doctor, to their unit managers.
- The unit manager must report any case of suspected tick-borne disease to Occupational Health as quickly as possible in the usual way so they can follow it up to confirm the diagnosis.
- The unit manager must report any case of suspected or confirmed tick-borne disease to the Safety, Health & Environment Officer (SHEO) and to HSE as required under RIDDOR.

Be tick aware!

- Cover exposed skin - wear light coloured trousers or gaiters
- Use an insect repellent
- Inspect clothing and skin regularly for ticks
- Remove any attached ticks promptly
- Be aware of the symptoms of tick-borne diseases
- Seek medical attention promptly if affected