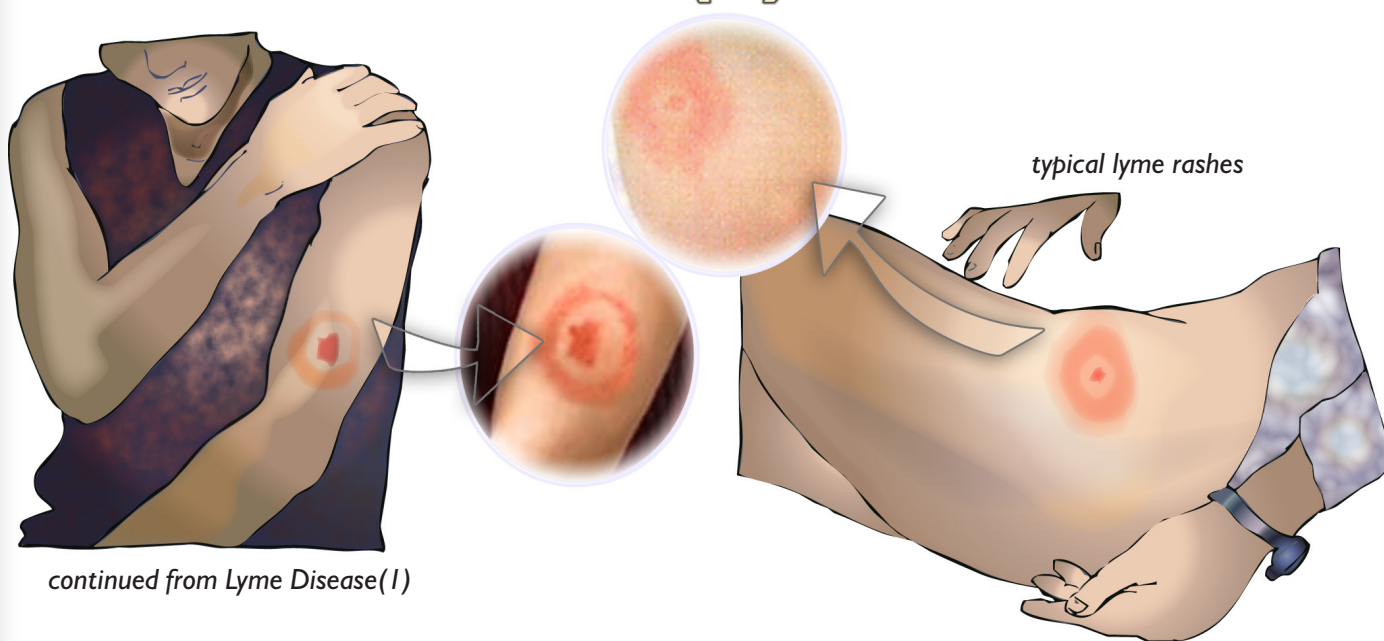




# LYME DISEASE (2)



continued from Lyme Disease(1)

Some patients may go on to develop a post-infection syndrome, termed 'Post-Lyme Syndrome', which apparently occurs when immunologic mechanisms are triggered by the infection. Differentiating treatment failure from 'Post-Lyme Syndrome' is difficult, because they have both been poorly defined. However, it is generally agreed that a true treatment failure means ongoing infection; that is, the presence of live *Borrelia burgdorferi*. By contrast, 'Post-Lyme Syndrome' consists of residual symptoms lasting for many months after therapy without evidence of the bacteria.

- 2 Ensure you are familiar with the early symptoms of Lyme disease.
- 2 If symptoms appear following a bite or exposure to a tick environment and you suspect infection of Lyme disease, seek early medical treatment.
- 2 Ensure the doctor is aware of any tick bites or exposure to ticks.

## Diagnosis

Diagnosis is easiest when there has been a known tick bite, followed by the characteristic erythema migrans. Unfortunately many people are not aware that they have been bitten, which, in areas where the incidence of the disease is low, may lead doctors to misdiagnose. Additionally, the lack of a rash, or an atypical rash, may also result in Lyme disease being overlooked as a potential cause of a patient's ill health.

To aid diagnosis, it is advisable to photograph any rashes and to keep any ticks after removal for identification purposes. Write the date of the rash occurrence on the photograph. To keep the tick, write the date of removal in pencil on a piece of paper and place it with the tick in a sealable plastic bag. Put the bag in the freezer. To dispose of the tick at a later date, throw the un-opened bag on the fire or dispose of it in the dustbin. Do not handle the tick with bare hands, even if it is dead.

Lyme disease should be diagnosed by a physical examination and medical history. This clinical diagnosis may in some cases be supported by laboratory testing. Blood tests are typically useful only after two to six weeks following infection, as they test for antibodies (the body's immune system response to infection), which takes some time to develop. Antibody tests are useful but not infallible. A few patients may have Lyme disease without the presence of antibodies (seronegative), often because of early antibiotic treatment. The serodiagnosis of late Lyme disease requires good, specific clinical histories, and with some patients there may need to be a trial of treatment.

- 1 Lyme disease acquired at work is a reportable occupational disease under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 1995<sup>1,2</sup>.

Lyme disease is a notifiable disease in Scotland and doctors are required to report suspected cases.

## Treatment

Antibiotics form the mainstay of treatment for the early manifestations of Lyme disease, and are effective at preventing the later symptoms. Later stage infections also respond to antibiotics, but recovery may be slower. For most patients the long term outcome is good. There is currently no vaccine for Lyme disease.

## Prevention

Preventing tick bites is the most effective way of avoiding Lyme disease.

Tick bites are most likely in spring, early summer and autumn; however, ticks may be actively questing from 3.5°C and can be active all year round.

**2** Avoid walking in areas of cover such as woodland, moorland, long grass or bracken, and walk in the centre of paths, where possible.

Cover exposed skin with long trousers tucked into socks (or use gaiters) and long-sleeved shirts with cuffs fastened. Elastic or drawstrings at the cuff, trouser-leg and waistband can prevent ticks from crawling under clothing.

Insect repellents can help, especially if applied to the naked skin. Repellents that contain 25-50% DEET are effective at repelling ticks. These may need to be re-applied and should not be used over large areas of the body. Always follow the manufacturers' guidelines.

Clothing can be sprayed with insect repellent or permethrin insecticide. Permethrin-impregnated clothing is also available from specialist outlets. However, for households with pet cats, it should be noted that permethrin is highly toxic to cats and they should not be allowed to come into contact with treated clothing.

Ticks can live for a long time in clothing so brush off clothes before going indoors as a precaution. In tick-infested areas consider carrying a spare change of clothing to be worn for traveling home in.

Examine for ticks every three to four hours and at the end of each day spent in a tick habitat. Pay particular attention to skin folds, e.g. the groin, armpits and waistband area and areas with thick body hair, as well as behind the ears and on the scalp. Check children thoroughly as they tend to play with the outdoor environment as well as in it.



Flea/tick collars or products such as Frontline will help to protect pets from ticks. Seek veterinary advice as some products that may be suitable for one type of animal may be harmful to another.

## Removing embedded ticks

The aim is to remove all parts of the tick's body and to prevent it releasing additional saliva or regurgitating its stomach contents into the bite wound.

**2** Remove ticks as soon as possible.

Do not apply cleansing agent to the tick as this may stimulate it to regurgitate its stomach contents into the host.

Do not attempt to freeze or burn the tick off or use any substance to remove it.

Use a tick removal hook or fine-tipped forceps or tweezers and wear plastic gloves or shield fingers with tissue or paper. Grip the head of the tick as close to your skin as possible.

If using forceps or tweezers, pull steadily upwards, taking care not to crush the body of the tick. If using a tick-removal hook, follow the manufacturers' instructions.

Do not squeeze the body of the tick as this may cause it to regurgitate its infected stomach contents.

If any parts do break away and get left behind in the skin, a magnifying glass and a sterilized needle can be used to remove the remaining bits. The bite area should be checked regularly for any signs of localised infection or an allergic reaction.

Wash hands thoroughly afterwards with soap and water.

Seek medical attention if any symptoms occur or any complications arise from the bite site. Keep the tick for later identification (as detailed previously) to aid diagnosis.

<sup>1</sup> Legislation available online at [www.opsi.gov.uk](http://www.opsi.gov.uk) or can be obtained from the Stationery Office. For addresses and contact details see BP Contacts<sup>2</sup> Publications and useful information are available online at [www.hse.gov.uk](http://www.hse.gov.uk). Information can also be obtained from HSE Books. For addresses and contact details see BP Contacts. Further information available from: Borrelia & Associated Diseases Awareness UK ([www.bada-uk.org](http://www.bada-uk.org)), Centres for Disease Control & Prevention ([www.cdc.gov](http://www.cdc.gov)) and Lyme Disease Action ([www.lymediseaseaction.org.uk](http://www.lymediseaseaction.org.uk))