

## **Tick related illnesses – TBE and Lyme borreliosis**

Ixodes ticks (also called black-legged or deer ticks) are tiny bloodsucking animals. Ticks become active in warmer weather. They particularly favour underbrush, bushes or tall grasses. Ticks are brushed off grasses and underbrush as you walk past. Two illnesses can be transmitted through tick bites: TBE and Lyme borreliosis

### **TBE(Tick-borne encephalitis)**

#### **What is TBE?**

Tick-borne encephalitis (TBE) is an inflammation of the brain and brain membranes that is caused by a virus. The pathogen occurs in many European countries and is endemic in Austria.

The TBE virus is spread naturally by small mammals such as mice. It is transmitted to humans by infected ticks. While cases of TBE are rare, outbreaks have been observed in spring and in summer.

#### **How ist TBE transmitted?**

The virus is transmitted by infected ticks. A tick bite can enable the virus to enter the human blood system. Not every bite from an infected tick leads to infection, however. Very rarely, people can infect themselves by drinking tainted, unpasteurised milk from goats or sheep.

#### **The illness ist NOT transmitted from person to person!**

#### **What signs of infection do patients have?**

Not every tick bite will lead to an infection. Most of those bitten will be free of symptoms. Only about one in three people infected will develop symptoms. The infection/incubation period is typically 1 to 2 weeks – rarely up to 4 weeks.

The disease generally progresses through two phases. First, patients suffer flu-like symptoms such as fever, headaches, muscle pain and a feeling of dizziness. Patients are then free of fever for 1–3 weeks. For one in three patients, however, this is then followed by inflammation of the brain membranes and the brain (meningoencephalitis). This is associated with a return of fever, nausea, vomiting and nervous system failure. If the disease takes a serious course, it may result in widespread paralysis and even coma in some cases. Another potential complication is inflammation of the spinal cord. TBE is fatal in about 0.5% of cases.

Complications such as headaches and paralysis can persist for several months. Most patients will make a full recovery, however, and children are particularly likely to recover without complications.

Patients should be admitted to hospital and may also need intensive care. Since there is no specific treatment for TBE viruses, the aim is to alleviate the disease symptoms. Patients will generally gain immunity following recovery from TBE infection. There is only minimal data available on how long this immune protection persists without further pathogen contact. Accordingly, immune protection should be boosted with a vaccination after 3 to 5 years, if there is still a risk of exposure to TBE.

### **Vaccination against TBE is recommended for:**

People who live in or travel to TBE high-risk areas and who spend a lot of time outdoors  
Professionals such as forest wardens/workers or hunters  
People travelling to areas with a specific risk of TBE.

Three injections are required to establish immunity.

Vaccinations are usually done on day

0-28-360

If quicker immunization is needed

0-7-21-540

is also possible.

A booster should be given after 3 to 5 years if there is a persistent risk of infection.

If the person has already been infected, a subsequent injection will be unable to prevent an outbreak of the disease.

## **LYME DISEASE**

### **What is Lyme disease?**

Lyme disease is caused by the bacterium *Borrelia burgdorferi*, which is found in small animals like mice and deer. Ixodes ticks that feed on these animals can then transmit *Borrelia burgdorferi* to people through tick bites.

It's important to know and watch for symptoms of Lyme disease because ticks are hard to find and it's easy to overlook a tick bite — in fact, many people who get Lyme disease don't remember being bitten. The good news is that most tick bites don't result in Lyme disease.

### **Signs and Symptoms**

Lyme disease can affect different body systems, such as the nervous system, joints, skin, and heart. Symptoms are often described as happening in three stages (although not everyone experiences all three). It can be easily treated with antibiotics, the sooner, the better.

A circular rash at the site of the tick bite, typically within 1-2 weeks of infection, often is the first sign of infection. Although a rash is considered typical of Lyme disease, many people never develop one.

The rash sometimes has a characteristic "bull's-eye" appearance, with a central red spot surrounded by clear skin that is ringed by an expanding red rash. It also can appear as an expanding ring of solid redness. It is usually flat and painless, but sometimes can be warm to the touch, itchy, scaly, burning or prickling. The rash may appear and feel very different from one person to the next, and it might be more difficult to see on people with darker skin tones, where it can look like a bruise. It expands over the course of days to weeks, and eventually disappears on its own. Along with the rash, a person may have flu-like symptoms such as fever, fatigue, headache, and muscle aches.

Left untreated, symptoms of the initial illness may go away on their own. But in some people, the infection can spread to other parts of the body. Symptoms of this stage of Lyme disease usually appear within several weeks after the tick bite, even in someone who has not developed the initial rash. A person might feel very tired and unwell, or have more areas of rash that aren't at the site of the bite.

Lyme disease can affect the heart, leading to an irregular heart rhythm, which can result in dizziness or heart palpitations. It can also spread to the nervous system, causing facial paralysis (Bell's palsy), or meningitis.

The last stage of Lyme disease can occur if the early stages were not detected or appropriately treated. Symptoms of late Lyme disease can appear anytime from weeks to years (average of 6 months) after an infectious tick bite, and in children is almost always in the form of arthritis, with swelling and tenderness particularly in the knee or other large joints.

Having such a wide range of symptoms can make Lyme disease difficult for doctors to diagnose, although certain blood tests can be done to look for evidence of the body's reaction to Lyme disease.

## **Treatment**

Most cases of Lyme disease are curable with antibiotics. The type of antibiotic depends on the stage of the disease (early or late) and what areas of the body are affected.

Therefore, if a person finds a typical bull's-eye skin rash (described above) developing in an area of a tick bite, they should seek medical attention as soon as possible. Generally, antibiotic treatment resolves the rash within one or two weeks with no long-term consequences. Later illness such as nervous-system disease might require intravenous drugs.

### **Prevention – avoid Tick bites (NO VACCINATION available!)**

If you are hiking through bushes and tall grass, jogging or picking berries, always wear closed shoes, long-sleeved shirts and long trousers. Pull your socks up over your trouser cuffs.

Before spending long periods of time in forests or fields, apply tick repellents to protect your skin. Remember: tick repellents only work for a short period and do not offer complete protection.

Even if you take precautions, always check your whole body for ticks thoroughly after spending time outdoors. As bloodsuckers, they like warm, soft places on the skin. Accordingly, be especially careful to check the backs of the knees, the groin, the armpits, behind the ears and over your head and hairline.

Wear clothing that is as bright as possible, to make it easier to see and remove the tiny ticks.

If you should discover a tick on your body, remove it as quickly as possible – using tick tweezers, for example. The viruses are present in the tick's salivary glands. Do not try to douse the tick with oil or glue.

Seize the tick near its head and as near to your skin as possible, then pull it straight out carefully. Once removed, disinfect the small wound around the bite mark thoroughly.

Never touch wild animals such as hedgehogs, since these often carry ticks.

If you discover any sign of infection, a red spot, an expanding ring of redness with or without a central white spot, seek medical treatment (antibiotics).