

What is a tick?

Ticks are small ectoparasites feeding with the blood of animals and humans. They undergo three distinct life stages of development: larval, nymph and adult. Areas with woods, bushes or high grass are likely to have more ticks. A larger number of tick bites is registered during spring-summer season, namely May and June. Its bite does not hurt, however it is noted after it has been attached to the skin due it begins to itch. Tick can remain attached to the skin during several day periods until the moment it has fed with a blood and let go the host.

How to prevent the infection?

1. Take all precaution measures against tick bite.
2. If you see tick on the skin, please, consult your doctor for timely removal.
3. Bring the tick at the MMA Institute of Epidemiology for its examination.
4. In case your tick has been infected consult epidemiologist and follow the advices of your doctor.

They will bring the decision based on several factors if there is need to take antibiotics posterior to tick bite or not.

5. Monitor closely your medical condition one month after the bite. If you note anywhere a red rash looking as erythema migrans or symptoms including fever, headache, muscle and joint aches or enlarged lymph nodes in the bite area, please consult specialist in infectious disease.

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Examinations at the MMA Institute of Epidemiology (5th floor, room 11) are carried out every workday between the hours of 07.30 a.m. and 03.30 p.m.

Outside the Institute's hours of operation, the tick removal is made through the MMA Emergency Department.

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TICK BITE AND LYME DISEASE

Ticks can be vectors of a number of diseases, but the only proved tick infection in our country is Lyme disease. It is caused by *Borrelia burgdorferi*, a genus of bacteria of the spirochete phylum present in various types of ticks, the most familiar species is *Ixodes ricinus*. The other domestic species of ticks usually are not carriers of the mentioned disease. Within 24 -72 hours after tick has bitten and taken enough of blood *B. burgdorferi* passes the intestinal mucus spreading on the other tissues and salivary glands ending with the inoculation in a host. For this reason, it is very important to promptly and timely remove the tick from the skin.

Not each bite of the infected tick is infection transmission, but several factors influence. The longer the feeding continues the greater is potential for borrelia infection. It is considered that adult tick should be in the skin more than 24 hours to transmit the infection, but with those in the larval or nymph stage that period could be even shorter, several hours.

How to properly remove tick from the skin?

For proper removal of the tick, please, consult your doctor, if possible. However, if you must remove it on your own the best way is mechanically, using tweezers, by catching tick mouthparts as close to the skin as possible and detaching it by applying a steady upward force. It is important to disinfect the bite area thoroughly after removal of the tick. If the tweezers didn't help you to remove tick as a whole you can use sterile needle for any parts left inside. Avoid crushing, jerking or pulling tick or using any chemical/thermal agents (i.e. alcohol, petrol, oil, nail polish, cigarettes). All these acts can provoke regurgitation of infective fluids into the wound, which could be avoided by following the advices above.

How can I find out if tick is infected with a bacterium?

The content of the tick and its possible infection with *B. burgdorferi* can be examined in dark field microscopy. The laboratory testing demonstrating the presence of borrelia helps doctor to plan prophylactic measures posterior to tick bite (recommendations for eventual prophylactic use of antibiotics). At the present, the MMA Institute of Epidemiology is only specialized unit for this kind of method. For this analysis, please bring the specimen within the working hours of the Institute after storing it in a dish with a little water.

How to prevent tick bite?

- 1.** Avoid being in a high tick prevalence area. If not possible, walk on concrete path, avoid tall grass or fields with shrubs as well as sitting or lying on the grass.
- 2.** When being in nature wear light-colored clothing, hat, long-sleeved shirts and long trousers tucked into socks. Put repellents on exposed skin.
- 3.** Use repellents only adhering to the instructions given by the producer. Children younger than 2 years should not use repellents, but only mechanical methods, as insect nets.
- 4.** When living the area in the nature check your body and clothes for eventual presence of ticks. Take off all your clothes dumping it in the tub, dress the hair using comb with close teeth and closely check up whole body (use mirror for inaccessible body parts).

What is Lyme disease and its symptoms?

Lyme disease is classified as a zoonosis, multisystem stadium disease affecting human and animals, caused by the bacterium *Borrelia burgdorferi*. It is discovered in 1975, in the town of Lyme, USA and in 1987 in our country. This disease infects more and more people every day.

Large number of countries has been named endemic for this disease. Common symptoms of Lyme disease may involve skin, joints, heart and nervous system, progressing through three stages: I stadium-erythema migrans- 3-32 days post-tick bite occurring in approximately 70-80% of infected persons. This early erythema is rarely painful, but quickly expanding with a common ring-shaped rash. If not treated, it can endure for several weeks. The other symptoms during this phase are fever, headache, muscle and joint aches, and swollen local lymph nodes.

II stadium-early disseminated stage- weeks to months post-tick bite, namely post initial infection. In this period, borrelias begin to spread through the bloodstream or like borrelial lymphocytoma infecting other tissues and organs (other skin parts, nervous system, bone and joint system and heart).

III stadium-late disseminated stage - months-to-years post-tick bite (initial infection). It includes chronic infection of organs and permanent health problems which can result death.

The symptoms of Lyme disease can overlap without clear separation of stages, while infection can be asymptomatic.

The actual medical facts say that human person can be infected of Lyme disease only with a direct tick bite. There is no evidence that Lyme disease is transmitted from person-to-person. Only possibility is transplacental transmission, from infected mother to fetus.

The vaccine protecting people from Lyme disease isn't still in use while Lyme disease needs to be discovered timely and treated with the appropriate antibiotic therapy to be successfully cured.