



Ticks and the Powassan Virus

Powassan (POW) virus is transmitted to humans by infected ticks. Approximately 75 cases of POW virus disease were reported in the United States over the past 10 years. Most cases have occurred in the Northeast and Great Lakes region. Signs and symptoms of infection can include fever, headache, vomiting, weakness, confusion, seizures, and memory loss. Long-term neurologic problems may occur. There is no specific treatment, but people with severe POW virus illnesses often need to be hospitalized to receive respiratory support, intravenous fluids, or medications to reduce swelling in the brain.

Prevention

- Avoid wooded and brushy areas with high grass and leaf litter.
- Walk in the center of trails.
- Use repellent that contains 20 percent or more DEET, picaridin, or IR3535 on exposed skin for protection that lasts several hours.
 - Always follow product instructions. Parents should apply this product to their children, avoiding hands, eyes, and mouth.
- Use products that contain permethrin on clothing. Treat clothing and gear, such as boots, pants, socks and tents with products containing 0.5% permethrin. It remains protective through several washings. Pre-treated clothing is available and may be protective longer.

Find and Remove Ticks from Your Body

- Bathe or shower as soon as possible after coming indoors (preferably within two hours) to wash off and more easily find ticks that are crawling on you.
- Conduct a full-body tick check using a hand-held or full-length mirror to view all parts of your body upon return from tick-infested areas. Parents should check their children for ticks under the arms, in and around the ears, inside the belly button, behind the knees, between the legs, around the waist, and especially in their hair.

- Examine gear and pets. Ticks can ride into the home on clothing and pets, then attach to a person later, so carefully examine pets, coats, and day packs.
- Tumble dry clothes in a dryer on high heat for 10 minutes to kill ticks on dry clothing after you come indoors.
 - If the clothes are damp, additional time may be needed.
 - If the clothes require washing first, hot water is recommended. Cold and medium temperature water will not kill ticks effectively. If the clothes cannot be washed in hot water, tumble dry on low heat for 90 minutes or high heat for 60 minutes. The clothes should be warm and completely dry.

Symptoms

- Many people who become infected with Powassan (POW) virus do not develop any symptoms.
- The incubation period (time from tick bite to onset of illness) ranges from about 1 week to 1 month.
- POW virus can infect the central nervous system and cause encephalitis (inflammation of the brain) and meningitis (inflammation of the membranes that surround the brain and spinal cord).
- Symptoms can include fever, headache, vomiting, weakness, confusion, loss of coordination, speech difficulties, and seizures. Approximately half of survivors have permanent neurological symptoms, such as recurrent headaches, muscle wasting and memory problems.
- Approximately 10% of POW virus encephalitis cases are fatal.

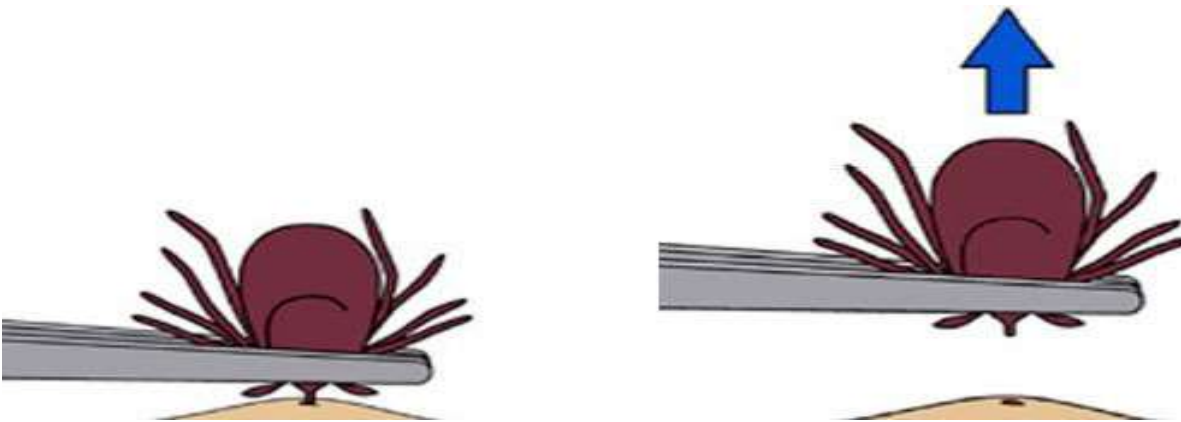
Treatment

- There are no vaccines or medications to treat or prevent POW virus infection.
- If you think you or a family member may have POW virus disease, see your health care provider for evaluation and diagnosis.
- Persons with severe POW illnesses often need to be hospitalized. Treatment may include respiratory support, intravenous fluids, and medications to reduce swelling in the brain.

If you find a tick attached to your skin, there's no need to panic. There are several tick removal devices on the market, but a plain set of fine-tipped tweezers will remove a tick quite effectively.

How to remove a tick

1. Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible.
2. Pull upward with steady, even pressure. Don't twist or jerk the tick; this can cause the mouth-parts to break off and remain in the skin. If this happens, remove the mouth-parts with tweezers. If you are unable to remove the mouth easily with clean tweezers, leave it alone and let the skin heal.
3. After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol, an iodine scrub, or soap and water.
4. Dispose of a live tick by submersing it in alcohol, placing it in a sealed bag/container, wrapping it tightly in tape, or flushing it down the toilet. Never crush a tick with your fingers.
5. Avoid folklore remedies such as "painting" the tick with nail polish or petroleum jelly, or using heat to make the tick detach from the skin. Your goal is to remove the tick as quickly as possible-not waiting for it to detach.



[Click here to view a video of how to properly remove an embedded tick.](#)

Follow-up

If you develop a rash or fever within several weeks of removing a tick, see your doctor. Be sure to tell the doctor about your recent tick bite, when the bite occurred, and where you most likely acquired the tick.