



# Anaplasmosis

## What is Anaplasmosis (Human Granulocytic Anaplasmosis)?

Anaplasmosis, also referred to as Human Granulocytic Anaplasmosis (HGA), is a disease caused by the bacteria *Anaplasma phagocytophilum* carried in some ticks.

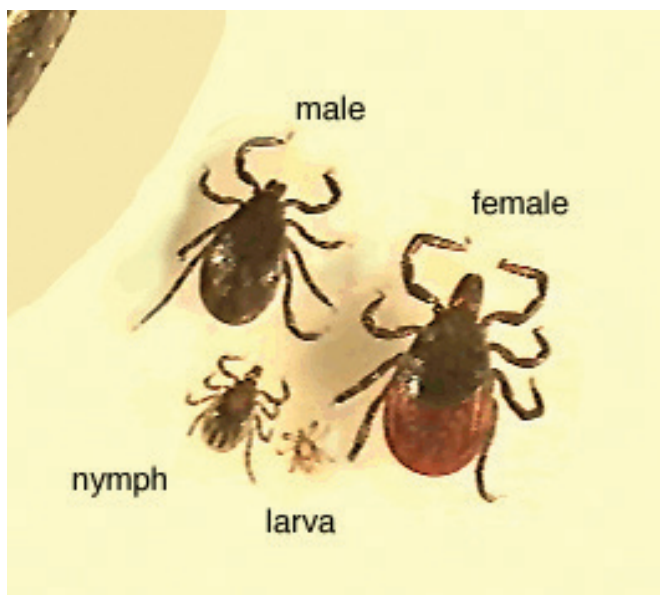
## Where has the disease been found?

Ticks capable of carrying the disease can be found in North America, Europe and Asia. In the U.S., Anaplasmosis is most frequently reported from the upper midwestern and northeastern states. Although the bacteria has been found in Canadian ticks, HGA is considered a rare disease in Canada.

Rates of infection in Canadian ticks vary greatly depending on the region where the ticks were collected but data suggests *A. phagocytophilum* affects 0.4% of deer ticks (*Ixodes scapularis*). In comparison, the United States rates are much higher at 4.7% of deer ticks being infected with the bacteria.

## How is the bacterium transmitted?

The bacteria is transmitted through the bite of an infected tick.



Deer ticks are capable of carrying and transmitting the bacteria that causes Anaplasmosis.

## What are the symptoms of Anaplasmosis?

The following is a list of symptoms commonly seen with this disease. However, it is important to note that few people with the disease will develop all symptoms and the number and combination of symptoms varies greatly from person to person.

- Fever
- Headache
- Muscle pain
- Malaise
- Chills
- Nausea / Abdominal pain
- Cough
- Confusion
- Rash (rare with Anaplasmosis)

## When do symptoms appear?

Symptoms could appear anywhere from 5 to 21 days after the bite (median- 9 days). Typically the disease lasts for 1 to 2 weeks with the person recovering without long-lasting problems. However, it is possible for complications to occur including respiratory problems, blood and kidney abnormalities, meningitis and other nervous system complications.

## How is Anaplasmosis diagnosed?

Anaplasmosis can be challenging for healthcare providers to diagnose and treat. Symptoms can vary from patient to patient and can mimic the symptoms of other diseases. False negative results can occur when diagnostic testing is conducted in the first 7 to 10 days of illness. PCR testing of blood is available but this method is most sensitive in the first week of illness, and rapidly decreases in sensitivity following the administration of appropriate antibiotics. Although a positive PCR result is helpful, a negative result does not completely rule out the diagnosis, and treatment should not be withheld due to a negative result. Hence, healthcare providers must often use their judgment to treat patients based on clinical suspicion alone. Epidemiological information such as recent tick bites, exposure to areas where ticks are likely to be found, or history of recent travel to areas where Anaplasmosis is endemic can be helpful in making the diagnosis. Healthcare providers may also find important information in the patient's history and physical examination.

that could aid in clinical diagnosis. The healthcare provider should also look at routine blood tests, such as a complete blood cell count or a chemistry panel. Low platelet count (thrombocytopenia), low white blood cell count (leukopenia), or elevated liver enzyme levels are helpful indicators of Anaplasmosis, but may not be present in all patients. After a suspect diagnosis is made on clinical suspicion and treatment has begun, specialized laboratory testing should be used to confirm the diagnosis of Anaplasmosis.

## What is the treatment?

Antibiotic treatment is available. If the patient is treated within the first 5 days of the disease, fever will generally subside within 2 to 72 hours. In fact, failure to respond to doxycycline suggests that the patient's condition might not be due to anaplasmosis. Severely ill patients could require longer periods before their fever resolves. Treatment should never be delayed pending the receipt of laboratory test results, or be withheld on the basis of an initial negative laboratory result as it is more likely to be effective if started early in the course of disease.

Patients should be treated for at least 3 days after the fever subsides and until there is evidence of clinical improvement. The standard duration of treatment is 7 to 14 days. Some patients may continue to experience headache, weakness and malaise for weeks after adequate treatment.

## How can I prevent being exposed to Anaplasmosis?

The best method to avoid acquiring Anaplasmosis is to avoid being bitten by a tick.

### Tick Avoidance Tips

#### For yourself:

- Don't walk barelegged in tall grass, wooded areas or marshlands.
- Try to stay in the centre of a cleared trail to avoid contact with overgrown grass, brush, and leaf litter.
- Wear long sleeves, slacks and fully-closed boots or shoes when walking in grassy or wooded areas.
- Tuck your pant legs into your socks.
- Conduct a "tick check" on yourself, your family and your pets after exposure to tick habitat.
- Wear light-coloured clothing to make the ticks easier to find.
- Insect repellents containing DEET (N,N-diethyl-meta-toluamide) are useful and can be sprayed onto clothing,

especially pants and socks. Please read the label when using any repellents, in particular when using them on young children. For safety tips on using personal insect repellents containing DEET, visit the following website: [www.hc-sc.gc.ca](http://www.hc-sc.gc.ca) and search "insect repellents."

#### For your pets:

- Check your pets for ticks daily, especially after they spend time outdoors.
- If you find a tick on your pet, remove it right away.
- Ask your veterinarian to conduct a tick check at each exam.
- Talk to your veterinarian about tickborne diseases in your area.
- Reduce tick habitat in your yard.
- Talk with your veterinarian about using tick preventive products on your pet.

#### For your yard:

- Remove ideal tick habitat from your property, such as brush and leaf litter.
- Keep your lawn short (<16cm).
- Place a 3-ft wide barrier of wood chips or gravel between lawns and wooded areas and around patios and play equipment. This will restrict tick migration into recreational areas.
- Keep tables, swing sets, play equipment, etc. away from woods, shrubs and tall grass. Place in a sunny location, if possible.
- Remove possible rodent habitats around your property (e.g. stack wood neatly in dry areas away from house).

#### Tick Removal

- Prompt removal of ticks from your skin will help prevent infection, since transmission of the disease agent usually requires the tick to be attached for a longer period of time.
- Using fine-tipped tweezers, carefully grasp the tick as close to your skin as possible. Pull it straight out, gently but firmly.
- Don't squeeze it. Squeezing the tick can cause the disease agent to be accidentally introduced into your body.
- Don't put anything on the tick, or try to burn the tick off.
- Thoroughly cleanse the bite site with rubbing alcohol and/or soap and water.

#### Tick Identification

- After the tick has been removed, place it in screw-top bottle (e.g. pill vial), and take it to your doctor. They can send it to the Ontario Public Health Laboratory for identification.
- Establishing the type of tick may help to assess your risk.
- It is important to remember where you most likely acquired the tick.

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