CONDITION

Tick paralysis

Tick paralysis is temporary muscle weakness caused by a nerve toxin released by certain feeding ticks.

WHAT IT IS
Temporary paralysis caused by toxin from a feeding tick

BODY SYSTEM
Nervous system and breathing muscles

MAIN SYMPTOMS
Unsteady walking, rising weakness, reduced reflexes, breathing difficulty

WHAT CAUSES IT
Neurotoxin released by certain attached ticks

HOW IT IS DIAGNOSED
Neurologic examination and finding an attached tick

MAIN TREATMENT
Complete tick removal and supportive hospital care

CAN IT BE CURED?
Yes - toxin exposure ends after tick removal

IS IT AN EMERGENCY?
Yes - new weakness or breathing or swallowing trouble

LONG-TERM OUTLOOK
Usually full recovery after prompt tick removal

Overview

Tick paralysis is a rare form of muscle weakness caused by a toxin in the saliva of certain ticks. The tick releases the toxin while feeding. The toxin interferes with messages traveling from nerves to muscles.

Symptoms usually begin only after the tick has remained attached and fed for several days. Early signs may include tiredness, unsteady walking, or weakness in the legs. Without removal of the tick, weakness can spread upward and affect the arms, face, throat, and muscles used for breathing.

Tick paralysis is different from infections such as Lyme disease or Rocky Mountain spotted fever. It is poisoning by a tick toxin, not an infection passed through the blood. Antibiotics like amoxicillin or doxycycline do not treat the paralysis itself.

Complete removal of the tick stops further toxin exposure. Many people improve after removal, although recovery time differs by tick species and severity. Some people, particularly those affected by Australian paralysis ticks, may worsen for a period after removal and need close hospital monitoring.

Because breathing and swallowing can be affected, new or progressive weakness after possible tick exposure should be treated as an emergency.

Symptoms

Symptoms often begin with changes in balance and movement. A child may suddenly stumble, have difficulty standing, or appear unusually floppy. An adult may notice heavy legs, difficulty climbing stairs, or trouble walking in a straight line.

Weakness usually affects both sides of the body and rises from the legs toward the upper body. This is called ascending paralysis . "Paralysis" can mean severe weakness as well as complete loss of movement.

Possible symptoms include:

Sensation is often normal, so you may still feel touch, pain, and temperature even when muscles are weak. Fever, rash, and confusion are not typical features of uncomplicated tick paralysis. Their presence may suggest an infection or another condition that also needs assessment.

Symptoms can progress over hours. Breathing difficulty may develop before a person looks severely unwell, especially in young children.

- Unsteady walking or repeated falls
- Weakness beginning in the legs
- Reduced or absent reflexes
- Weakness spreading to the arms and upper body
- Slurred or quiet speech
- Drooping eyelids or facial weakness
- Double vision
- Trouble chewing or swallowing
- A weak cough or difficulty clearing saliva
- Shortness of breath or shallow breathing

Causes and risk factors

Tick paralysis is caused by a nerve toxin made by certain tick species. Usually, an attached female tick releases the toxin while taking a blood meal. Only some species produce paralysis, and not every bite from those species causes it.

The toxin disrupts communication between nerves and muscles. Muscles then become weak even though the brain is still trying to move them.

Different ticks cause human paralysis in different regions. Cases have been reported in North America and Australia, with occasional reports elsewhere. The Australian paralysis tick, Ixodes holocyclus , can cause particularly severe illness and may continue to affect the body after removal.

Risk is higher when an attached tick is not noticed. Ticks may be hidden:

Young children may be at greater risk of severe effects because a given amount of toxin has more impact on a smaller body. Their ticks are also often hidden on the scalp.

Activities in wooded, brushy, or grassy areas increase exposure. Contact with outdoor animals can also bring ticks close to the home, although tick paralysis does not spread directly from an animal to a person.

- In the scalp or hair
- Behind the ears
- In the armpits
- Around the groin
- Between the toes
- In skin folds
- Under close-fitting clothing

Diagnosis

There is no single blood test or scan that confirms tick paralysis. Diagnosis is based on the pattern of weakness, a careful nervous-system examination, and finding an attached tick.

A clinician will usually examine the entire skin surface. The scalp and other hidden areas need particular attention. Hair may need to be separated carefully, and more than one tick may be present.

Finding the tick and seeing improvement after its complete removal strongly supports the

diagnosis. If no tick is found, other causes of rapidly developing weakness must be considered.

Tick paralysis can resemble Guillain-Barré syndrome, in which the immune system attacks nerves. It can also resemble botulism, myasthenia gravis, spinal cord disease, poisoning, or certain infections. Blood tests, imaging, nerve tests, or a lumbar puncture may be used to rule out these conditions, but they do not directly confirm tick paralysis.

Do not delay urgent care while searching for a tick if weakness, swallowing difficulty, or breathing symptoms are present.

Treatment and management

The main treatment is prompt, complete removal of every attached tick. This stops additional toxin from entering the body.

In many regions, an attached tick is removed with fine-tipped tweezers. The tick is grasped close to the skin and pulled upward with steady pressure. Crushing or squeezing the tick's body should be avoided. Regional advice may differ, especially in Australia and for people with a history of severe tick allergy.

If paralysis is suspected, removal should not replace emergency assessment. A person may need monitoring even after the tick has been removed.

Hospital care may include:

Tick antitoxin may be considered for serious paralysis caused by Australian paralysis ticks. It is a specialist treatment with potential risks and is not routinely used for North American tick paralysis.

Antibiotics do not reverse the toxin's effect. They may be used only if there is evidence of a separate tick-borne bacterial infection.

Recovery should be watched closely. With some North American tick species, improvement may begin within hours after removal. With Australian paralysis ticks, symptoms can continue to worsen for 24 to 48 hours before improving. Hospital observation is often needed when weakness is significant.

- Repeated checks of breathing strength and oxygen levels
- Monitoring of swallowing and the ability to clear saliva
- Fluids and nutrition support when swallowing is unsafe
- Oxygen or mechanical breathing support when needed
- Treatment of complications such as inhaling saliva into the lungs

Complications

The main complication is weakness of the breathing muscles. This can cause respiratory failure, meaning the body cannot move enough air without support.

Weak throat muscles can make swallowing unsafe. Saliva, food, or liquid may enter the airway instead of the stomach. This is called aspiration and can lead to pneumonia.

Other possible complications include:

Death is possible without timely recognition and breathing support, but prompt tick removal and modern supportive care greatly improve the outlook.

Tick paralysis itself does not usually cause permanent nerve damage. Lasting problems are more likely to result from severe breathing failure, lack of oxygen, aspiration, or another condition that was present at the same time.

- Dehydration because swallowing is difficult
- Injury from falls
- Temporary inability to walk
- Abnormal heart rate or blood pressure in severe cases
- Complications from prolonged immobility or intensive care

Prevention

Not every case can be prevented, but reducing tick bites and finding ticks early can prevent the prolonged feeding that allows paralysis toxin to build up.

When spending time in tick habitats:

Pay close attention to the scalp, behind the ears, armpits, groin, waistline, and backs of the knees. Clothing can be washed and dried as directed by local public health advice.

If you find a tick, remove it promptly using the method recommended in your region. Seek medical advice about removal if you have a history of severe tick allergy or if the tick is near the eye.

- Wear long sleeves, long trousers, and closed shoes
- Use a registered tick repellent according to its label
- Treat clothing or equipment with an appropriate tick product where recommended
- Walk in the centre of trails and avoid brushing against vegetation

- Check your skin, hair, clothing, children, and pets afterward
- Shower after returning indoors and inspect hidden skin areas

Living with it and what to expect

Tick paralysis is usually a short-term condition rather than a chronic illness. Once all ticks are removed, no more toxin is added. The body then gradually clears the toxin and nerve-to-muscle communication recovers.

Mild cases may start improving within hours. More severe cases can take days or, occasionally, longer to recover fully. Recovery may be slower after paralysis caused by Australian ticks. People who needed breathing support may also require rehabilitation to rebuild strength.

During early recovery, walking and balance may remain unsafe even when strength is improving. Assistance with movement may be needed until a clinician confirms that falls are unlikely. Eating and drinking should resume only when swallowing is safe.

Most people who receive prompt treatment recover without ongoing paralysis. Tick paralysis does not usually return unless another toxin-producing tick attaches and feeds in the future. Having had it once does not provide reliable immunity.

Follow-up may be advised after a severe episode, especially if breathing, swallowing, or mobility was affected. Weakness that does not improve as expected needs reassessment for another or additional cause.

When to get medical help

Call emergency services now for:

These symptoms need emergency assessment even if a tick has already been removed.

Seek urgent same-day medical care if you develop unsteady walking, unusual leg weakness, repeated falls, drooping eyelids, or speech changes after possible tick exposure. Children with sudden clumsiness or difficulty standing also need prompt assessment.

Routine follow-up may be appropriate after treatment to confirm that strength, balance, breathing, and swallowing have returned. Arrange reassessment if recovery stops, symptoms return, or weakness remains after the expected recovery period.

A tick bite without weakness is not usually an emergency. Monitor for new symptoms and follow local advice about tick removal and tick-borne infections.

- New or rapidly worsening muscle weakness
- Difficulty breathing, shallow breathing, or a weak cough
- Trouble swallowing, choking, or inability to manage saliva
- Bluish or grey lips or skin
- Collapse, severe drowsiness, or inability to stand
- Facial weakness or slurred speech with spreading limb weakness

Common questions

How quickly does tick paralysis go away after removing the tick?

Some people begin improving within several hours, but full recovery may take days. Illness caused by Australian paralysis ticks can worsen for a time after removal. Significant weakness should therefore be monitored in hospital rather than watched at home.

Can tick paralysis be fatal?

It can be life-threatening if the toxin weakens the muscles used for breathing or swallowing. Prompt removal, monitoring, and breathing support when needed greatly improve the chance of recovery.

Is tick paralysis contagious?

No. It cannot spread through coughing, touch, food, or close contact. It occurs when a toxin-producing tick attaches and feeds.

Does every tick bite cause paralysis?

No. Only certain tick species produce paralysis toxin, and most tick bites do not cause paralysis. The tick generally needs to stay attached and feed before enough toxin enters the body.

Can you have tick paralysis without finding a tick?

A hidden tick may be difficult to find, especially in thick hair or skin folds. However, other serious conditions can cause similar weakness. A full medical assessment is needed rather than assuming an unseen tick is responsible.

Can tick paralysis happen again?

Yes, if another toxin-producing tick attaches in the future. A previous episode does not provide dependable protection, so tick checks and bite prevention remain important.

Sources

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