CONDITION

Black widow spider bite

Learn how black widow spider bites cause pain and muscle spasms, which symptoms need urgent care, and how clinicians diagnose and treat the effects of the venom.

WHAT IT IS
Venomous black widow spider bite injury

BODY SYSTEM
Nervous system and muscles

MAIN SYMPTOMS
Severe pain, muscle spasms, sweating, nausea

WHAT CAUSES IT
Black widow spider venom

HOW IT IS DIAGNOSED
Clinical assessment and reliable spider identification

MAIN TREATMENT
Supportive care and sometimes antivenom

CAN IT BE CURED?
Yes, most recover without permanent injury

IS IT AN EMERGENCY?
Sometimes, with difficulty breathing or unconsciousness

LONG-TERM OUTLOOK
Most recover without permanent injury

Overview

A black widow spider bite is an injury caused by a spider in the Latrodectus group. Several widow species live in the United States and other parts of the world. Adult female black widows are often shiny and dark, with a red or orange marking on the underside of the abdomen. Appearance varies by species and age, so a spider cannot always be identified by color alone.

Black widow venom affects nerves and causes the release of chemical signals that make muscles tighten. A person may develop intense pain, muscle cramps, sweating, nausea, or changes in heart rate and blood pressure. This group of whole-body symptoms is called latrodectism .

The bite itself may feel like a pinprick, or it may not be noticed. Symptoms can then increase

over the next several hours. Some bites cause only local discomfort, while others cause severe pain and muscle spasms that require treatment in an emergency department.

Deaths from black widow bites are very rare with modern medical care. However, severe symptoms can be difficult to manage without professional treatment. Children, older adults, pregnant people, and people with significant heart or lung disease may need closer observation.

If you think a black widow may have bitten you, contact a poison center or healthcare professional promptly. In the United States, Poison Control is available at 1-800-222-1222 . Call emergency services for trouble breathing, collapse, loss of consciousness, or other rapidly worsening symptoms.

Symptoms

Symptoms may begin near the bite and then spread. The bite area may have mild redness, swelling, or tenderness. One or two small puncture marks may be visible, but their absence does not rule out a bite.

Early symptoms can include:

As the venom affects the nerves and muscles, the pain may become severe. Muscles can tighten or spasm, especially in the abdomen, back, shoulders, or thighs. Abdominal muscles may become firm and painful, sometimes resembling appendicitis or another abdominal emergency.

Other possible symptoms include nausea, vomiting, headache, restlessness, weakness, trembling, and heavy sweating. The heart may beat faster, and blood pressure may rise. Some people develop increased saliva, watery eyes, or drooping eyelids.

The amount of redness at the skin does not show how severe the venom's effects are. A small-looking bite can still cause significant muscle pain. In contrast, a large area of skin breakdown is not typical of a black widow bite and may suggest another cause.

Seek urgent medical advice for spreading pain, muscle cramping, repeated vomiting, heavy sweating, marked weakness, or symptoms involving the chest or abdomen. Children, older adults, pregnant people, and those with serious medical conditions should be assessed promptly after a suspected bite.

Call emergency services now if the person has difficulty breathing, faints, becomes confused, has a seizure, develops severe chest pressure, or cannot be awakened normally.

- Burning or sharp pain at the bite site

- Redness or mild swelling
- Tingling or numbness
- Sweating near the bite
- Pain that spreads into the affected arm, leg, chest, back, or abdomen

Causes and risk factors

Black widow spiders usually bite in self-defense when they are trapped against the skin, pressed, or disturbed. They are not known to seek out people.

Widow spiders prefer protected, quiet spaces. Depending on the region, they may be found in woodpiles, sheds, garages, crawl spaces, outdoor furniture, storage boxes, meter boxes, or piles of debris. Bites may happen when someone reaches into a dark space or puts on clothing, shoes, or gloves where a spider is hiding.

Activities that can increase exposure include:

Wearing gloves and long sleeves, shaking out stored clothing and shoes, and using care around clutter can reduce risk. Firewood should be handled cautiously and stored away from living areas when practical.

Not every suspected spider bite is caused by a spider. Skin infections, allergic reactions, other insect bites, and several painful medical conditions may be mistaken for spider bites. A confirmed diagnosis is more likely when the spider was seen biting and can be identified by someone with appropriate expertise.

- Moving firewood, rocks, or stored materials
- Cleaning garages, sheds, barns, or crawl spaces
- Gardening or landscaping without gloves
- Working in areas where spiders can hide
- Leaving shoes, clothing, or gloves outdoors

Diagnosis

There is no routine blood test that confirms a black widow spider bite. Diagnosis is usually based on the circumstances, the pattern of symptoms, a physical examination, and whether a spider was reliably identified.

A clinician may ask where and when the exposure happened, how quickly pain developed, and whether the symptoms are spreading. They may check the bite area, muscle tone, temperature, heart rate, blood pressure, breathing, and hydration.

Tests are not always needed for mild symptoms. With severe or unusual symptoms, clinicians may order blood or urine tests, an electrocardiogram to assess the heart, or other studies. These tests help evaluate complications and rule out conditions that can look similar.

For example, severe abdominal cramping may resemble appendicitis, gallbladder disease, kidney stones, or pancreatitis. Chest pain and sweating may require evaluation for a heart problem. Muscle stiffness can also have causes unrelated to spider venom.

If it can be done without another exposure, a clear photograph of the spider may help with identification. Do not handle a live spider or place yourself at risk to catch it.

Treatment and management

Immediately move away from the spider. Wash the bite gently with soap and water. A cool pack wrapped in cloth may help with local pain and swelling. Apply it for short periods rather than placing ice directly on the skin.

Keep the affected limb at a comfortable level and limit strenuous activity. Remove rings, watches, or tight clothing if swelling is developing. Do not cut the wound, try to suck out venom, apply electric shock, or use a tourniquet. These measures do not remove the venom and can cause additional injury.

Contact Poison Control or a healthcare professional for case-specific advice. If symptoms are more than mild or are getting worse, evaluation in an emergency department may be appropriate.

Medical treatment depends on symptom severity. It may include:

Some pain or spasm medicines can slow breathing or cause sedation, so they may require monitoring. Antibiotics like amoxicillin or doxycycline do not treat the venom and are not routinely needed unless a separate bacterial infection develops. A clinician may also review tetanus vaccination status as part of routine wound care.

Black widow antivenom contains antibodies that bind to the venom. It can relieve severe symptoms, sometimes rapidly. However, it is not needed for every bite. Clinicians generally consider it when serious pain, muscle spasms, or other whole-body effects are not adequately controlled with supportive treatment, or when complications are developing.

The available antivenom may cause allergic reactions, including a rare severe reaction called

anaphylaxis. A delayed immune reaction known as serum sickness can also occur. Because benefits and risks differ by situation, the decision is usually made with emergency medicine or medical toxicology guidance.

Calcium was historically used for muscle cramping from black widow venom, but research has not shown consistent benefit. It should not replace effective pain control, monitoring, or toxicology consultation.

- Medicines to control pain
- Medicines that reduce severe muscle spasms or agitation
- Fluids and treatment for nausea or vomiting
- Monitoring of breathing, heart rate, and blood pressure
- Observation until symptoms are clearly improving

Complications

Most people recover without permanent injury. Pain and cramping often improve over one to several days, although fatigue, weakness, or muscle soreness may last longer.

Possible complications include dehydration from sweating or vomiting, severe increases in blood pressure, and breathing difficulty caused by pain or muscle involvement. Rarely, extensive muscle injury can release proteins into the blood. This is called rhabdomyolysis , and it can strain the kidneys.

A skin infection can develop after any break in the skin, but infection is not a direct effect of black widow venom. Increasing warmth, pus, expanding redness, or fever after the initial illness should be assessed.

Severe abdominal or chest symptoms may also delay recognition of a different medical emergency if they are assumed to be caused by a spider. New or worsening symptoms deserve reassessment rather than relying only on the initial explanation.

Follow up

Follow the discharge instructions given by the treating clinician or poison center. Take only the medicines recommended for you, and avoid driving or alcohol if a medicine causes drowsiness.

Arrange routine follow-up if pain, weakness, or muscle soreness is not steadily improving, or if symptoms interfere with sleep and normal activity. A clinician should also review increasing

redness, drainage, fever, or swelling around the bite.

Seek urgent reassessment for worsening muscle spasms, repeated vomiting, inability to drink, very little urine, severe headache, or new chest or abdominal pain.

Call emergency services for breathing difficulty, fainting, confusion, seizure, severe chest pressure, or rapidly worsening weakness.

If antivenom was given, follow instructions about delayed allergic symptoms. Rash, itching, fever, joint pain, or swollen glands developing days later may indicate serum sickness and should be discussed promptly with a clinician. Trouble breathing or swelling of the face, lips, tongue, or throat is an emergency.

To reduce future exposure, shake out stored shoes and clothing, wear gloves when moving firewood or debris, and reduce clutter in areas where spiders may hide. Pest-control professionals can help if widow spiders are repeatedly found around a home or workplace.

Sources

- Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. "Venomous Spiders at Work." Workplace Safety and Health Topics.
- National Library of Medicine. "Black Widow Spider." MedlinePlus Medical Encyclopedia .
- Merck Manual Professional Edition. "Spider Bites." Injuries and Poisoning.
- Ryan NM, Buckley NA, Graudins A. "Treatments for Latrodectism-A Systematic Review on Their Clinical Effectiveness." Toxins . 2017;9(4):148. doi:10.3390/toxins9040148.
- Isbister GK, Fan HW. "Spider Bite." The Lancet . 2011;378(9808):2039-2047. doi:10.1016/S0140-6736(10)62230-1.
- U.S. National Library of Medicine, DailyMed. "Antivenin (Latrodectus mactans) Kit." Prescribing information, Merck Sharp & Dohme LLC.