CONDITION

Snake bites

A snake bite is an injury that may inject venom and damage tissues, blood, nerves, or organs.

WHAT IT IS
Bite injury with possible venom injection

BODY SYSTEM
Skin, blood, muscles, nerves, kidneys, and breathing

MAIN SYMPTOMS
Pain, swelling, bleeding, weakness

WHAT CAUSES IT
Bite from a venomous or non-venomous snake

HOW IT IS DIAGNOSED
Clinical assessment and repeated blood tests

MAIN TREATMENT
Antivenom, wound care, and organ support

CAN IT BE CURED?
Sometimes - treatment stops venom, but damage may remain

IS IT AN EMERGENCY?
Yes - any suspected venomous snake bite

LONG-TERM OUTLOOK
Most recover; severe envenoming can cause disability or death

Overview

A snake bite is an injury caused by a snake's teeth or fangs. Some snakes inject venom, a mixture of toxic substances that helps the snake capture prey. Venom can affect the tissues around the bite, blood clotting, muscles, nerves, kidneys, heart, or breathing.

A bite from a venomous snake does not always inject venom. This is sometimes called a dry bite . However, you cannot safely tell whether venom was injected by looking at the wound or judging the first few minutes of symptoms. Fang marks may also be small, unclear, or absent.

Snake bites matter because serious effects may develop quickly or over several hours. Prompt medical assessment allows healthcare professionals to monitor for these changes and give antivenom when it is needed.

The kinds of venomous snakes and the effects of their venom differ by country and region. First-aid guidance can also differ. Follow instructions from the local emergency service or poison centre rather than relying on advice intended for another part of the world.

Symptoms

A bite may leave one or more puncture marks, scratches, or a small area of broken skin. The wound can be painless at first. Some people do not see the snake clearly or do not realise they have been bitten.

Symptoms around the bite may include:

Venom affecting the blood may cause unusual bruising, bleeding from the gums or nose, blood in urine, or bleeding that does not stop normally.

Venom affecting nerves and muscles may cause drooping eyelids, blurred or double vision, trouble speaking or swallowing, weakness, or difficulty breathing. Some bites cause muscle pain and dark urine because damaged muscle releases proteins into the blood.

Other possible symptoms include nausea, vomiting, sweating, dizziness, headache, abdominal pain, fainting, or severe tiredness. Kidney injury may reduce the amount of urine produced.

Not every symptom is caused directly by venom. Fear, pain, and a stress response can cause rapid breathing, tingling, sweating, dizziness, or a fast heartbeat. Medical assessment is still needed because these reactions can occur at the same time as envenoming.

Envenoming means that venom has entered the body and is causing harmful effects.

- Pain, swelling, bruising, or redness
- Bleeding, blisters, or darkening skin
- Swelling that spreads up the affected limb
- Tender or enlarged lymph nodes

Causes and risk factors

Snake bites usually happen when a snake feels threatened, is stepped on, is handled, or is surprised at close range. Many bites happen outdoors, but snakes may also enter homes, storage areas, farm buildings, or other sheltered spaces.

Risk is higher for people who work or spend time in places where venomous snakes live. This includes agricultural workers, herders, forestry workers, gardeners, hunters, military personnel,

hikers, and people collecting firewood or water.

Other factors that may increase risk include:

Children may receive a larger amount of venom relative to their body size. Older adults and people with existing heart, kidney, lung, or blood-clotting problems may have fewer reserves if severe envenoming occurs. Even so, the snake species, bite location, amount of venom, and time to treatment are usually more important than any one risk factor.

- Walking through long grass or brush without protective footwear
- Reaching into holes, wood piles, rocks, or dark storage spaces
- Sleeping on the ground where snakes may enter
- Handling a snake that appears dead or injured
- Attempting to catch, move, or kill a snake
- Keeping venomous snakes in captivity

Diagnosis

Diagnosis begins with what happened, where the bite occurred, and what symptoms have developed. If you can describe the snake without approaching it again, that information may help. A photograph taken from a safe distance can sometimes be useful, but delaying care or trying to capture the snake is unsafe.

Healthcare professionals examine the bite and check whether swelling is spreading. They also monitor breathing, muscle strength, alertness, blood pressure, heart rate, urine output, and signs of abnormal bleeding.

Blood tests may be repeated because early results can be normal. Depending on the likely snake and symptoms, testing may include:

An electrocardiogram, or ECG, may be used to check the heart's electrical activity. Imaging is not usually needed to confirm envenoming, but it may help assess a complication or another injury.

Some countries have venom-detection tests for selected snake species. These tests are not available everywhere and are not required for every diagnosis. Doctors often base treatment on the clinical pattern, local snake species, and repeated test results.

- Blood-clotting tests
- A full blood count, including platelets

- Kidney function and electrolyte tests
- Tests for muscle or tissue damage
- Urine testing for blood or muscle proteins

Treatment and management

A suspected venomous snake bite needs urgent hospital assessment. Treatment depends on whether there is evidence that venom is affecting the body.

While waiting for emergency help, move away from the snake and keep as still as practical. Rest the bitten limb in a comfortable, neutral position and remove rings, watches, or tight clothing before swelling increases. Follow the emergency dispatcher's instructions about immobilising the limb.

Do not:

Pressure-immobilisation bandaging is recommended for certain snake bites in some regions, particularly where neurotoxic snakes are common. It may be unsuitable for bites that cause major local tissue damage. Use it only when local emergency guidance recommends it and you know the correct method.

At hospital, care may include monitoring, intravenous fluids, pain relief, wound care, breathing support, and treatment for bleeding, kidney injury, or other organ problems. A tetanus booster may be offered when appropriate. Antibiotics like amoxicillin or doxycycline are generally reserved for bites with infection or a high risk of contamination rather than given automatically to everyone.

Antivenom contains antibodies that bind to particular snake venoms. It may be given when there are signs of significant envenoming, such as abnormal clotting, worsening nerve weakness, cardiovascular problems, kidney injury, or severe progressive swelling. It works best when matched to the likely venom.

Antivenom can stop circulating venom from causing further harm, but it cannot always reverse tissue or nerve damage that has already happened. It can also cause allergic reactions, so it is given where these can be recognised and treated.

Some people need surgery or rehabilitation. Surgery is not a routine treatment for every bite. It may be considered for dead tissue, severe wound complications, or confirmed pressure damage within a muscle compartment.

- Cut, burn, or suck the bite

- Apply ice, chemicals, herbs, or electric shocks
- Use a tight arterial tourniquet
- Massage the bite or encourage walking
- Try to catch or kill the snake

Complications

The risk of complications depends on the snake, amount of venom, bite location, time to treatment, and access to appropriate care.

Possible early complications include:

A compartment syndrome can occur when pressure rises inside a closed muscle space and reduces blood flow. Severe swelling alone does not prove that this has happened. Doctors use the examination and sometimes pressure measurements before considering surgery.

Later problems may include scarring, long-lasting pain, stiffness, weakness, reduced movement, nerve damage, chronic wounds, or loss of part of a finger, toe, or limb. Severe kidney injury can occasionally require dialysis.

Some people develop serum sickness several days to weeks after antivenom. Symptoms can include fever, rash, joint pain, or swollen lymph nodes. This is treatable but should be medically assessed.

A frightening bite can also lead to anxiety, sleep problems, or distress around outdoor activities. These effects deserve attention, especially if they continue after physical recovery.

- Dangerous bleeding or failure of blood to clot
- Weakness or paralysis of breathing muscles
- Low blood pressure, collapse, or abnormal heart rhythms
- Kidney injury
- Muscle breakdown
- Severe swelling and tissue death
- Allergic reactions to antivenom

Prevention

Not all snake bites can be prevented. Snakes may be hard to see, and bites can happen during

ordinary work or travel in regions where venomous species live.

You can reduce risk by wearing closed shoes or boots and long trousers in snake habitat. Use a light when walking outdoors at night, and watch where you place your hands and feet. Step onto, rather than directly over, logs or rocks so you can check the other side.

Keep living and storage areas clear of rubbish, dense vegetation, food waste, rodents, and clutter that may attract or shelter snakes. Shake out shoes, clothing, bedding, and equipment that have been left on the ground.

Never handle an unidentified snake, including one that appears dead. Leave removal to trained local services. Teach children to move away and tell an adult if they see a snake.

People working in high-risk areas may benefit from workplace training, protective footwear, a reliable communication plan, and knowing how to reach emergency care.

Living with it and what to expect

Many people recover fully after prompt assessment and treatment. A person with no evidence of envenoming may still need observation and repeat blood tests because some effects are delayed.

Recovery after envenoming can take days, weeks, or months. Swelling and bruising often improve gradually. Nerve weakness may take longer to resolve because nerves and muscles need time to recover. Wounds involving tissue damage can require repeated dressings, surgery, or rehabilitation.

Follow-up may include wound checks, kidney and blood-clotting tests, and assessment of strength and movement. Physiotherapy or occupational therapy can help restore function after a serious limb injury.

Seek routine follow-up if pain, swelling, weakness, wound healing, movement, or emotional distress is not improving as expected. Return to work, exercise, and outdoor activities may need to happen gradually.

The long-term outlook is less favourable after extensive tissue loss, prolonged breathing problems, severe kidney injury, or delayed access to antivenom and supportive care. Recovery cannot be predicted from fang marks or early pain alone.

When to get medical help

Treat any suspected venomous snake bite as an emergency. Call the local emergency number

or poison centre immediately, even if the wound looks minor and you feel well.

Get emergency help for:

Do not drive yourself if symptoms are developing. Avoid unnecessary movement and wait for emergency transport when available.

After discharge, seek urgent medical advice for renewed bleeding, increasing swelling, fever, worsening wound changes, reduced urine, new weakness, or breathing difficulty. A rash, fever, or joint pain in the days or weeks after antivenom may be serum sickness and needs prompt assessment, but it is not usually an emergency unless breathing problems, facial swelling, or collapse occur.

Routine follow-up is appropriate for wound review, repeat blood tests, rehabilitation, and symptoms that are improving slowly without emergency warning signs.

- Any known or possible bite from a venomous snake
- Rapidly increasing pain or swelling
- Bleeding, unusual bruising, or blood in urine
- Drooping eyelids, weakness, or trouble speaking or swallowing
- Difficulty breathing, collapse, confusion, or severe drowsiness
- Repeated vomiting or very little urine

Common questions

How do I know if a snake bite is venomous?

You usually cannot tell safely from the bite marks. Venomous bites may be painless, and a serious bite may leave only faint marks. The snake's appearance can also be misremembered. Medical assessment, observation, and repeated blood tests are more reliable.

Can a snake bite be dry?

Yes. A dry bite happens when a venomous snake bites without injecting venom. It may still cause a wound, and infection or delayed symptoms remain possible. Dry bites are diagnosed through observation and testing, not by assuming that the absence of early symptoms means there is no risk.

Should I suck out the venom?

No. Cutting or sucking the wound does not remove a useful amount of venom and may cause further injury or infection. Commercial suction devices have not been shown to provide reliable benefit.

How long after a snake bite can symptoms start?

Some symptoms begin within minutes, while others take several hours. Blood-clotting or kidney problems may not be obvious at first. This is why hospital observation and repeat tests may be needed even when you initially feel well.

Do all venomous snake bites need antivenom?

No. Antivenom is generally used when there is evidence of significant envenoming. It has important benefits but can cause reactions, so clinicians weigh the clinical signs, test results, likely snake, and available antivenom.

Can you survive a venomous snake bite?

Many people survive and recover, especially when emergency care and the correct antivenom are available quickly. Severe envenoming can still cause death or lasting disability. Remaining still, avoiding harmful first aid, and getting urgent medical care give treatment the best chance to work.

Sources

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