CONDITION

Leprosy

Leprosy is a long-lasting bacterial infection that mainly affects the skin and nerves.

WHAT IT IS
Chronic bacterial infection of skin and peripheral nerves

BODY SYSTEM
Skin, peripheral nerves, eyes, and upper airways

MAIN SYMPTOMS
Numb skin patches, tingling, weakness, painless wounds

WHAT CAUSES IT
Infection with Mycobacterium leprae or Mycobacterium lepromatosis

HOW IT IS DIAGNOSED
Clinical examination, skin smear, and sometimes biopsy

MAIN TREATMENT
Combination antibiotics and treatment of nerve inflammation

CAN IT BE CURED?
Yes - multidrug antibiotics clear the infection

IS IT AN EMERGENCY?
Sometimes - sudden vision loss or severe medicine reaction

LONG-TERM OUTLOOK
Cure is expected; existing nerve damage may remain

Overview

Leprosy is a long-lasting infection caused mainly by the bacterium Mycobacterium leprae . A related bacterium, Mycobacterium lepromatosis , causes some cases. These bacteria grow very slowly and mainly affect the skin and peripheral nerves. Peripheral nerves carry feeling and movement signals between the brain, spinal cord, and the rest of the body.

Leprosy is curable with a combination of antibiotics like amoxicillin or doxycycline . Early treatment can prevent further nerve damage and reduce the chance of passing the infection to someone else. Nerve damage that happened before treatment may not fully recover, which is why early assessment matters.

Leprosy does not spread easily. Most people have natural resistance to the bacteria and will never develop the condition, even after exposure. Brief contact, shaking hands, sharing a meal, or sitting near someone is not thought to spread it.

The infection can carry a strong social stigma. This stigma is based partly on outdated beliefs. Leprosy is treatable, and people receiving effective treatment can usually continue family, work, and social life.

Symptoms

Symptoms often develop slowly. They may appear several years after exposure because the bacteria multiply at a very low rate.

Skin changes are often the first sign. A patch may be lighter, darker, or redder than the surrounding skin. The most important clue is reduced feeling in the patch. You may not sense light touch, pain, heat, or cold normally.

Other possible symptoms include:

Leprosy affects people differently. Some people have only a few numb skin patches. Others develop wider skin changes and involvement of several nerves. The pattern partly reflects how the immune system responds to the bacteria.

Sudden redness, swelling, pain, or nerve tenderness can be caused by an immune reaction. This is inflammation triggered by the immune system, not necessarily a sign that the antibiotics have failed.

- Numbness or tingling in the hands, feet, arms, or legs
- Weakness in the hands, feet, eyelids, or facial muscles
- Thickened or tender nerves, often near the elbow, wrist, knee, or ankle
- Painless burns, blisters, or wounds caused by reduced sensation
- Dry, cracked skin or reduced sweating in an affected area
- Lumps, widespread skin thickening, or loss of eyebrows in some forms
- Eye dryness, difficulty closing an eyelid, eye pain, or blurred vision
- A blocked nose, nosebleeds, or ongoing nasal irritation

Causes and risk factors

Leprosy usually spreads through prolonged, close contact with someone who has untreated infection. Bacteria are thought to leave the nose and mouth in respiratory droplets. Transmission generally requires repeated or long-term exposure rather than casual contact.

Once effective antibiotic treatment begins, the ability to spread the bacteria falls quickly. Leprosy is not passed through sexual contact specifically, and it is not inherited from a parent through genes.

Risk is higher if you:

In parts of the southern United States, some nine-banded armadillos carry M. leprae . Human infection linked to armadillos is uncommon. Avoiding direct contact with wild armadillos and their tissues reduces this possible exposure.

Most exposed people do not become unwell because their immune systems control the bacteria.

- Live with or have prolonged close contact with someone who has untreated leprosy
- Live in or have spent substantial time in an area where leprosy occurs
- Have a rare immune susceptibility to the bacteria
- Have contact with infected armadillos in places where animal transmission occurs

Diagnosis

A healthcare professional will ask about your symptoms, travel or residence history, possible contact with someone who had leprosy, and when the skin changes began. They will carefully test sensation in skin patches and check muscle strength, nerves, eyes, hands, and feet.

Diagnosis is usually based on one or more characteristic findings:

A slit-skin smear takes a small sample from a shallow cut in the skin. The sample is examined under a microscope for acid-fast bacilli, a group of bacteria that retain a special laboratory stain.

A skin biopsy may be needed. This removes a small piece of skin for examination under a microscope. Molecular testing, such as polymerase chain reaction testing, may help in selected cases but is not available everywhere.

Routine blood tests do not usually confirm leprosy. Because it is uncommon in many countries and can resemble eczema, fungal infections, vitiligo, or other nerve conditions, assessment by someone experienced in leprosy may be helpful.

- Definite loss of sensation in a pale or reddish skin patch
- A thickened peripheral nerve with numbness or muscle weakness
- Leprosy bacteria found in a slit-skin smear

Treatment and management

Leprosy is treated with several antibiotics taken together. This is called multidrug therapy. Using a combination helps clear the infection and prevents the bacteria from becoming resistant to one medicine.

Commonly used antibiotics include rifampicin, dapsone, and clofazimine. The exact combination and length of treatment are based on the number of affected areas, test results, national guidance, and individual health factors. Treatment commonly lasts for months. It is important to complete the planned course even if skin changes improve earlier.

Antibiotics kill the bacteria, but they do not immediately reverse nerve injury. Numbness, weakness, or changes in appearance may improve slowly, remain stable, or persist.

Immune reactions can occur before, during, or after antibiotic treatment. A type 1 reaction, sometimes called a reversal reaction, can cause swollen skin patches and inflamed nerves. Another reaction, erythema nodosum leprosum, can cause painful red lumps, fever, and inflammation elsewhere in the body. These reactions need prompt medical treatment because nerve or eye damage can develop quickly.

Anti-inflammatory medicines may be used for reactions and nerve inflammation. Some medicines used for severe reactions require specialist monitoring because they can have major risks, including risks during pregnancy.

Management may also include:

Do not stop antibiotics because a reaction develops unless the treating service advises this. Reactions often require added treatment rather than withdrawal of the antibiotics.

- Regular checks of sensation, muscle strength, and eye function
- Physiotherapy or occupational therapy for weakness and stiffness
- Protective footwear, splints, or other aids
- Wound care for areas injured without being felt
- Surgery in selected cases to improve function or protect damaged nerves
- Emotional and social support if stigma affects daily life

Complications

The main concern is permanent peripheral nerve damage. Loss of feeling makes it easy to miss burns, pressure, cuts, or infection. Repeated injuries can lead to ulcers, changes in the shape of

fingers or toes, and, in severe cases, loss of tissue.

Muscle weakness can cause a clawed hand, foot drop, or difficulty closing the eyelids. Eye involvement may damage the cornea, the clear surface at the front of the eye, and can threaten sight.

Inflammatory reactions may also affect joints, testes, kidneys, or other tissues. Prompt treatment lowers the risk of lasting harm.

Leprosy does not directly cause body parts to "fall off." Visible shortening or loss of fingers and toes results from repeated unnoticed injury, infection, and tissue damage after severe loss of sensation.

Prevention

There is no guaranteed way to prevent every case of leprosy. There is also no vaccine used worldwide specifically for leprosy. The BCG tuberculosis vaccine provides some protection in certain populations, but protection is incomplete.

Early diagnosis and antibiotic treatment are central to prevention because treatment reduces transmission. People who have had close, prolonged contact with someone diagnosed with leprosy may be offered a skin and nerve examination.

In some public health programs, eligible close contacts are offered preventive antibiotic treatment after leprosy and other medical concerns have been ruled out. This approach is not suitable for everyone and is managed through local public health or specialist services.

Avoiding direct contact with wild armadillos may reduce a small potential risk in regions where infected animals are found. Ordinary social contact with a person receiving effective treatment does not need to be avoided.

Living with it and what to expect

Antibiotic treatment is expected to cure the infection. Skin patches may fade or flatten over time, but changes in colour can remain. Numbness and weakness may recover partly, especially when nerve inflammation is treated early, but established nerve damage can be permanent.

Immune reactions may happen months or sometimes years after antibiotics are completed. Follow-up therefore includes checking for new redness, nerve pain, loss of feeling, weakness, or eye symptoms. These reactions do not automatically mean the infection has returned.

If sensation is reduced, daily protection becomes part of long-term care. Check numb areas for cuts, blisters, swelling, or burns. Well-fitting shoes, gloves for risky tasks, and testing bath water with an area that has normal sensation can help prevent injury.

Many people continue their usual relationships, education, and employment. Adjustments may be needed if weakness, reduced vision, chronic wounds, or social discrimination affect daily activities. Rehabilitation and practical aids can support independence.

Recurrence after a completed treatment course is uncommon but possible. A new skin patch or worsening nerve symptom years later should be assessed rather than assumed to be a recurrence.

When to get medical help

Arrange a routine medical appointment if you develop a skin patch with reduced feeling, unexplained numbness, persistent tingling, or gradual weakness. Mention any prolonged close contact with leprosy, residence in an area where it occurs, or contact with armadillos.

If you are being treated, attend planned follow-up appointments even when you feel well. Report new skin inflammation, nerve pain, or changes in sensation promptly.

Seek urgent medical assessment for:

Seek emergency help for sudden loss of vision, trouble breathing, fainting, or swelling of the face, lips, tongue, or throat after taking medicine. These can be signs of a serious eye problem or severe allergic reaction.

- New or rapidly worsening weakness
- A painful, red eye or difficulty closing an eyelid
- New blurred vision or increasing sensitivity to light
- A hot, swollen, draining, or spreading wound in a numb area
- Painful red lumps with fever or marked illness
- Sudden swelling and tenderness along a nerve

Common questions

Is leprosy contagious?

It can spread, but it is not highly contagious. Transmission usually requires prolonged close contact with someone whose infection has not been treated. It is not normally spread by brief

contact, handshakes, hugs, shared meals, or sitting nearby.

Can leprosy be cured completely?

Yes. A combination of antibiotics can clear the infection. However, antibiotics cannot always repair nerve damage that occurred before treatment. Ongoing care may be needed for numbness, weakness, wounds, or inflammatory reactions.

How do people get leprosy?

Most cases are thought to spread through repeated exposure to respiratory droplets from someone with untreated infection. The exact contact that caused an individual case is often impossible to identify because symptoms can take years to appear.

Do your fingers and toes fall off with leprosy?

No. Leprosy itself does not make body parts fall off. Severe loss of feeling can lead to repeated burns, pressure injuries, wounds, and infection. Over many years, this damage may shorten or destroy tissue if it is not prevented and treated.

Can leprosy come back after treatment?

It can recur, but this is uncommon after a full course of effective multidrug treatment. Immune reactions can also happen after treatment and may look like the infection has returned. New symptoms need assessment to tell the difference.

Can I live with someone who has leprosy?

Yes. Casual household and social contact is not usually enough to spread leprosy, especially after effective treatment has begun. Close household contacts may be offered an examination and, in some settings, preventive treatment.

Sources

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