CONDITION

Noma

Noma is a rapidly destructive infection that damages tissues of the mouth and face.

WHAT IT IS
Rapidly destructive infection of mouth and facial tissues

BODY SYSTEM
Mouth, skin, and face

MAIN SYMPTOMS
Bleeding gums, foul breath, facial swelling, tissue death

WHAT CAUSES IT
Mixed infection combined with severe physical vulnerability

HOW IT IS DIAGNOSED
Clinical mouth and facial examination

MAIN TREATMENT
Urgent antibiotics, nutrition, wound care, later reconstruction

CAN IT BE CURED?
Sometimes - early treatment can stop tissue destruction

IS IT AN EMERGENCY?
Yes - rapidly spreading mouth or facial tissue damage

LONG-TERM OUTLOOK
Early treatment improves survival; disability may remain

Overview

Noma is a severe condition in which tissue inside the mouth becomes infected and dies. The damage can spread through the cheek, lips, jaw, nose, or nearby parts of the face. Without prompt treatment, it can progress over days and become life-threatening.

Noma mainly affects young children living with severe malnutrition, recent illness, poor oral health, and limited access to medical care. Most reported cases occur in communities affected by extreme poverty, especially in parts of sub-Saharan Africa. Older children and adults can also develop it, particularly when their immune defences are seriously weakened.

The condition often begins with inflamed or bleeding gums. It may then develop into a destructive gum infection before spreading into deeper tissue. Early treatment can stop this process. Once tissue has been destroyed, however, it does not grow back on its own.

Noma is not believed to spread directly from person to person. It develops when bacteria normally found in the mouth take advantage of severe physical vulnerability. No single bacterium has been shown to cause every case.

Noma was added to the World Health Organization's list of neglected tropical diseases in 2023. This recognition reflects its close connection with poverty, malnutrition, limited health care, and preventable childhood illness.

Symptoms

The earliest changes may look like ordinary gum disease. The gums can become red, swollen, tender, or easy to bleed. There may be painful mouth ulcers, unusually bad breath, excessive saliva, fever, or difficulty eating.

As the condition progresses, symptoms may include:

The amount of pain does not always show how serious the damage is. Dead tissue may lose sensation, so a child can have extensive injury without reporting severe pain.

After the active infection has settled, scarring may tighten over months. This can pull facial features out of position or restrict jaw movement. Some survivors cannot open their mouths fully, close their lips, chew normally, or speak clearly.

- Rapidly increasing swelling of a cheek, lip, or jaw
- Grey, dark, or black areas of dead tissue inside the mouth
- A strong unpleasant smell from the mouth or wound
- Tissue breaking down to form a hole through the cheek or lip
- Difficulty opening the mouth, swallowing, drinking, or speaking
- Fever, weakness, dehydration, or reduced alertness

Causes and risk factors

Noma appears to result from a combination of mouth bacteria and severe weakness in the body's normal defences. Researchers have found several types of bacteria in affected tissue, but there is no single confirmed cause.

Severe malnutrition is an important risk factor. A child who lacks enough protein, energy, vitamins, or minerals may have a weakened immune response and poor healing. Dehydration and unsafe living conditions can add to this vulnerability.

Other factors linked with noma include:

These factors do not mean that someone will develop noma. Many people exposed to them never do. Noma is also not evidence that a parent or family has deliberately neglected a child. Families affected by it often face serious barriers to food, transport, dental care, and medical treatment.

Noma is not inherited. It is not caused by a person's ethnic background, and ordinary contact with someone who has it is not thought to transmit the condition.

- Untreated gum inflammation and poor access to oral care
- Recent infections such as measles or malaria
- Conditions that weaken the immune system
- Limited access to nutritious food, clean water, sanitation, and health care
- Crowded or difficult living conditions

Diagnosis

Noma is diagnosed mainly by examining the mouth and face and assessing how quickly the damage has developed. A health professional looks for severe gum infection, dead tissue, facial swelling, and destruction extending beyond the gums.

There is no single blood test or swab that confirms noma. Blood tests may be used to check for anaemia, dehydration, infection, malnutrition, or another condition that weakens immunity. A swab or tissue sample may help guide antibiotic treatment, but noma can involve several bacteria and treatment should not be delayed while awaiting results.

X-rays or scans may be needed to see whether the jawbone, sinuses, eye area, or other deeper structures are affected. These tests can also help plan later surgery.

Some other conditions can damage the mouth or face, including severe dental infections, certain fungal infections, cancers, and immune-related disorders. A biopsy, which means removing a small tissue sample for examination, may be considered if the diagnosis is uncertain.

Treatment and management

Active noma requires urgent treatment in a medical facility. The immediate aims are to control infection, replace fluids, improve nutrition, remove dead tissue when appropriate, and treat any

related illness.

Treatment commonly includes antibiotics like amoxicillin or doxycycline that cover the different bacteria found in mouth infections. The choice and route depend on the person's condition, local resources, and available test results. Antibiotic treatment is most effective before extensive tissue destruction has occurred.

Fluids and nutritional support are central parts of care. Someone who cannot drink or swallow safely may need fluids or nutrition through a tube or vein. Pain relief and careful mouth and wound cleaning are also important. Other infections, anaemia, and vitamin or mineral deficiencies may need treatment.

The care team may remove loose dead tissue, but major reconstructive surgery is usually considered after the active infection has stopped and the person's nutrition and general health have improved. Surgery may be used to release a stiff jaw, close facial openings, rebuild damaged lips or cheeks, and improve eating, speech, or appearance.

Reconstruction can require more than one operation. Dental care, physiotherapy, speech and swallowing support, nutritional care, and psychological support may all be part of recovery.

Complications

During the active stage, noma can lead to severe dehydration, bloodstream infection, worsening malnutrition, and death. Swelling or tissue damage can also interfere with breathing or swallowing.

Permanent tissue loss may affect the lips, cheek, nose, jaw, or eye area. Teeth can become loose or be lost. Damage to the jawbone can alter facial growth in children.

Scarring may cause trismus, which means the jaw cannot open normally. This can make eating, speaking, brushing the teeth, and receiving dental treatment difficult. Poor food intake can then worsen malnutrition.

Visible facial differences can lead to isolation, bullying, interrupted schooling, or difficulty finding work. Emotional distress is not simply a cosmetic concern. Support for mental health, education, communication, and social participation can be as important as physical reconstruction.

Prevention

Noma is not inherited, and there is no vaccine specifically against it. Many cases may be

prevented by addressing the conditions that allow it to develop.

Prevention includes reliable access to adequate nutrition, clean water, sanitation, routine childhood vaccination, and basic health and dental care. Vaccination does not directly prevent noma, but preventing illnesses such as measles can reduce physical stress and immune weakness.

Regular tooth and gum cleaning can reduce gum inflammation. Bleeding or ulcerated gums should be assessed early, especially in a child who is undernourished or recovering from another infection.

These measures are not equally available to every family. Wider prevention requires community nutrition programmes, accessible primary care, prompt treatment of childhood infections, and trained health workers who can recognise early mouth changes.

Living with it and what to expect

The course depends strongly on how early treatment begins and how much tissue has already been damaged. When noma is recognised during the early gum stage, antibiotics, nutrition, and supportive care may stop it before major facial destruction occurs.

Once tissue has died, the immediate infection may settle but leave lasting changes. Scars can tighten as they mature over the following months. Jaw stiffness may become more noticeable during this period, particularly without rehabilitation.

Survivors may need long-term dental care, exercises to maintain jaw movement, nutritional follow-up, and one or more reconstructive procedures. Children may need reassessment as their face and jaw grow. Further surgery can sometimes improve function, but it may not restore the face completely.

Many survivors attend school, work, form relationships, and take part in community life. Their needs differ according to the location and extent of the injury. Access to rehabilitation, social support, and protection from stigma can have a major effect on quality of life.

Routine follow-up is important after treatment. It allows the care team to monitor nutrition, wound healing, dental health, jaw movement, speech, swallowing, and childhood growth. New or worsening tissue damage is not part of routine recovery and needs urgent assessment.

When to get medical help

Seek emergency medical care for any rapidly spreading mouth or facial wound, especially if

tissue is turning grey or black or a hole is forming through the cheek or lip. Breathing difficulty, inability to swallow, severe weakness, reduced alertness, or signs of severe dehydration also require emergency help.

Arrange urgent same-day assessment for:

These symptoms can have causes other than noma, but they should not be watched at home while they worsen.

After active treatment, routine follow-up is needed for wound checks, nutrition, dental care, jaw exercises, and planning reconstruction. Contact the care team sooner if a wound starts spreading, fever returns, eating becomes harder, or jaw movement decreases.

- Rapid cheek, lip, or jaw swelling
- Bleeding gums with foul breath, fever, or mouth ulcers
- Dark or dead-looking tissue inside the mouth
- Difficulty eating, drinking, or opening the mouth
- Mouth changes in a severely undernourished or recently ill child

Common questions

Is noma contagious?

Noma is not thought to spread directly between people through ordinary contact. It involves bacteria from the mouth acting in someone whose health and immune defences are severely weakened. Normal hygiene around an open wound is still important.

Can noma be cured?

Early noma can sometimes be stopped with urgent antibiotics, nutritional support, fluids, and wound care. Tissue that has already died cannot be restored by medicine. Reconstructive surgery may later improve function and appearance.

How quickly does noma spread?

Active noma can progress over a few days. Gum inflammation may develop into deep tissue destruction and facial injury very quickly. Rapid change is one reason suspected noma needs emergency assessment.

Does noma only affect children?

Most affected people are young children, often between early childhood and school age. Older children and adults can also develop noma, especially when severe malnutrition or an immune-weakening condition is present.

Is noma caused by poor toothbrushing?

Poor oral hygiene can increase gum inflammation, but it does not explain noma by itself. The condition is linked with a combination of infection, malnutrition, recent illness, weakened immunity, and limited access to care. It should not be treated as a sign of personal blame.

Can surgery repair the damage?

Surgery can sometimes release a stiff jaw, close facial openings, and rebuild damaged areas. Results depend on the amount and location of tissue loss, general health, and available specialist care. More than one operation may be needed.

Sources

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