CONDITION

Scleroma

Scleroma is a long-lasting bacterial infection that causes inflamed tissue and scarring in the nose and upper airway.

WHAT IT IS
Chronic bacterial inflammation of the nose and upper airway

BODY SYSTEM
Nose, throat, and breathing passages

MAIN SYMPTOMS
Nasal blockage, discharge, nosebleeds, hoarseness

WHAT CAUSES IT
Infection with Klebsiella rhinoscleromatis bacteria

HOW IT IS DIAGNOSED
Tissue biopsy, bacterial culture, and airway examination

MAIN TREATMENT
Prolonged antibiotics, sometimes airway or reconstructive surgery

CAN IT BE CURED?
Sometimes - infection clears, but scarring or relapse may remain

IS IT AN EMERGENCY?
Sometimes - difficult or noisy breathing needs emergency care

LONG-TERM OUTLOOK
Often controllable, with follow-up for recurrence and scarring

Overview

Scleroma, usually called rhinoscleroma , is a rare, long-lasting bacterial condition. It most often begins inside the nose. It can also affect the sinuses, back of the throat, voice box, windpipe, or larger breathing tubes.

The infection causes ongoing inflammation. Over time, this can produce swollen masses of tissue and then firm scar tissue. The swelling and scarring may narrow the nose or airway.

Scleroma is most often reported in parts of Africa, Central and South America, the Middle East, South and Southeast Asia, and Central or Eastern Europe. It can occur elsewhere, including in people who previously lived in or travelled to an affected region.

The condition usually develops slowly over months or years. Early symptoms can resemble

sinusitis or other common nasal problems, so diagnosis may be delayed. It matters because untreated inflammation or scarring can interfere with breathing, speech, swallowing, hearing, or the shape of the nose.

Symptoms

Scleroma most commonly affects both sides of the nose. Symptoms can change as inflammation develops and later turns into scar tissue.

Early symptoms may include:

As inflamed tissue becomes thicker, you may develop worsening blockage, visible swelling inside the nose, or changes in the shape of the nose or upper lip. Some people have facial pressure or discomfort, but severe pain is not typical.

Symptoms outside the nose reflect the area involved. They may include a muffled voice, hoarseness, difficulty swallowing, reduced hearing, cough, or shortness of breath. A high-pitched noise when breathing in, called stridor , can mean that the upper airway has become dangerously narrow.

Clinicians sometimes describe three stages: an early catarrhal stage with discharge and crusting, a granulomatous stage with soft inflamed tissue, and a sclerotic stage dominated by scarring. These stages can overlap, and different areas may be at different stages.

- Persistent runny nose or thick nasal discharge
- Nasal stuffiness or blockage
- Crusting inside the nose
- Repeated nosebleeds
- Reduced sense of smell
- An unpleasant smell from nasal discharge

Causes and risk factors

Scleroma is caused by Klebsiella rhinoscleromatis . This bacterium may also be classified as a subspecies of Klebsiella pneumoniae . It is not the same as the more common causes of short-term sinus infections.

The bacterium is thought to spread through respiratory droplets or contact with infected nasal secretions. Transmission appears to require prolonged or repeated close contact. Even among

household members, most exposed people do not develop the condition.

Factors linked with higher risk include:

These are risk factors rather than proof of how any one person acquired the infection. Scleroma is not inherited, and it is not caused by an allergy or by poor personal choices.

- Living in or coming from a region where scleroma occurs
- Long-term close contact with someone who has untreated infection
- Crowded living conditions
- Limited access to clean water, sanitation, or medical care

Diagnosis

Symptoms and an examination can raise suspicion, but they cannot confirm scleroma by themselves. Other infections, inflammatory conditions, and some cancers can produce similar nasal swelling or scarring.

An ear, nose, and throat specialist may examine the nasal passages and throat with a thin flexible or rigid camera. This is called endoscopy . If the voice box or windpipe may be involved, those areas also need to be examined.

A biopsy is central to diagnosis. During a biopsy, a small sample of affected tissue is removed and studied under a microscope. Typical findings include large immune cells called Mikulicz cells , which may contain bacteria, and rounded collections of proteins called Russell bodies .

The tissue or nasal material may also be sent for bacterial culture. Culture can identify the bacterium and help determine which antibiotics like amoxicillin or doxycycline are likely to work. A negative culture does not always exclude scleroma, especially after antibiotic treatment or during a heavily scarred stage.

CT or MRI scans may be used to map the affected area and look for narrowing or extension into nearby structures. Imaging supports treatment planning but does not replace a biopsy.

Depending on the findings, tests may also be needed to exclude tuberculosis, fungal infection, leprosy, granulomatosis with polyangiitis, lymphoma, or another type of growth.

Treatment and management

Treatment has two main aims: clear the bacterial infection and manage any blockage or damage caused by inflamed or scarred tissue.

Antibiotics are usually needed for a prolonged period. The specific medicine and duration are chosen according to culture results, local resistance patterns, treatment response, and the areas involved. Because scleroma is rare, there is no single treatment plan suitable for everyone.

Symptoms may improve before the infection has completely cleared. Stopping treatment early can increase the chance that it will return. Follow-up examinations, cultures, or repeat biopsies may be used to decide whether active infection remains.

Surgery or an airway procedure may be needed when tissue or scarring causes significant narrowing. Procedures can remove obstructing tissue, widen a narrowed airway, or repair changes to the nose. Surgery does not replace antibiotics when active bacterial infection is present.

A narrowed area can sometimes tighten again after treatment. Further procedures may therefore be needed. Reconstructive surgery is often considered after the active inflammation has been controlled.

Management may involve several specialists, such as an ear, nose, and throat surgeon, infectious diseases specialist, respiratory specialist, or speech and swallowing therapist. If the windpipe is severely narrowed, protecting the airway becomes the immediate priority.

Complications

The main complications come from progressive narrowing, tissue damage, and scarring. They can include:

Serious airway obstruction is uncommon but can be life-threatening. Scleroma does not usually spread through the bloodstream like an acute severe bacterial infection. Its effects are more often local and slowly progressive.

- Persistent blockage of the nose
- Changes in the shape of the nose or face
- Narrowing of the voice box or windpipe
- Voice changes or difficulty swallowing
- Hearing problems if nearby drainage passages are blocked
- Reduced sense of smell
- Return of infection after treatment
- Recurrent narrowing after surgery

Prevention

There is no vaccine against scleroma, and there is no proven way to prevent every case.

Because the infection is believed to spread through long-term contact with respiratory secretions, basic respiratory and hand hygiene may reduce exposure. Avoid sharing items contaminated with nasal discharge, and dispose of used tissues safely.

Prompt diagnosis and completion of treatment can reduce persistent infection. Household contacts do not usually need preventive antibiotics, but anyone with ongoing nasal blockage, discharge, bleeding, or hoarseness should seek an assessment.

Broader improvements in housing, sanitation, and access to medical care are associated with lower transmission at a community level.

Living with it and what to expect

Scleroma often develops slowly, and treatment may continue for months. Regular follow-up is important even after symptoms improve. Follow-up may include nasal or airway examinations, cultures, imaging, or occasional repeat biopsy.

Antibiotics can clear active infection in many people, but established scar tissue may not disappear. Some people continue to have nasal blockage, voice changes, altered appearance, or breathing limitations after the bacteria have been treated. Procedures or rehabilitation may help with these lasting effects.

Recurrence can happen, especially when infection has affected several parts of the airway or treatment was stopped before clearance. New symptoms may appear months or years later. This is why follow-up often continues beyond the initial course of treatment.

Most day-to-day activities can continue when breathing is stable. If symptoms affect sleep, exercise, speech, eating, or work, tell your care team rather than waiting for the next routine visit. These changes may show that narrowing needs reassessment.

Travelling with a summary of your diagnosis, biopsy results, cultures, and previous treatments can be useful because many healthcare professionals will have little experience with this rare condition.

When to get medical help

Arrange a routine medical assessment if you have persistent nasal blockage, crusting,

discharge, repeated nosebleeds, or hoarseness. These symptoms have many possible causes and do not by themselves mean that you have scleroma.

If you have already been diagnosed, contact your care team promptly if symptoms return or gradually worsen. New swallowing problems, increasing hoarseness, worsening nasal blockage, fever, facial swelling, or reduced exercise tolerance should be assessed rather than left until a distant follow-up visit.

Seek emergency help for:

Do not drive yourself if you are struggling to breathe.

- Severe or rapidly worsening difficulty breathing
- Stridor or another new, harsh noise during breathing
- Blue or grey lips
- Inability to speak normally because of breathlessness
- Heavy bleeding that does not stop
- Fainting, confusion, or extreme drowsiness with breathing problems

Common questions

Is scleroma the same as scleroderma?

No. Scleroma is a chronic bacterial infection, usually affecting the nose and airway. Scleroderma is an autoimmune condition that causes hardening of the skin and sometimes affects internal organs. The names sound similar, but the conditions are unrelated.

Is scleroma contagious?

It may spread through prolonged close contact with infected respiratory secretions. It does not appear to spread easily through brief everyday contact. Most people who are exposed do not develop it.

Is scleroma cancer?

No. It is an infection that causes inflammation and scarring. However, swollen tissue may resemble a tumour, so a biopsy is needed to tell the difference and confirm the diagnosis.

Can scleroma be completely cured?

Antibiotics can sometimes clear the infection completely. However, relapse can occur, and scar tissue may remain after the bacteria are gone. Long-term follow-up helps detect recurrence or worsening narrowing.

Why does treatment take so long?

Scleroma is a slow, persistent infection within inflamed tissue. Symptoms may settle before all active infection has cleared. Treatment length is based on response, examination findings, cultures, and sometimes repeat biopsy rather than symptoms alone.

Can scleroma come back after surgery?

Yes. Surgery can open a narrowed passage or repair damage, but it does not always remove active infection. Scar tissue can also form again. Antibiotic treatment and continued monitoring are important alongside any procedure.

Sources

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