CONDITION

Rheumatic fever

Rheumatic fever is an immune reaction after group A strep infection that can inflame the heart, joints, skin, and brain.

WHAT IT IS
Immune inflammation after group A strep infection

BODY SYSTEM
Heart and circulation, joints, skin, and nervous system

MAIN SYMPTOMS
Fever, moving joint pain, breathlessness, involuntary movements

WHAT CAUSES IT
Immune reaction after group A strep infection

HOW IT IS DIAGNOSED
Jones criteria plus evidence of recent strep infection

MAIN TREATMENT
Antibiotics, anti-inflammatory medicines, and treatment of complications

CAN IT BE CURED?
Sometimes - inflammation resolves, but valve damage may remain

IS IT AN EMERGENCY?
Sometimes - severe breathlessness, fainting, or stroke signs

LONG-TERM OUTLOOK
Most recover; heart valve damage can be lifelong

Overview

Rheumatic fever is an inflammatory condition that can develop after an infection with group A Streptococcus bacteria, often called group A strep. It usually follows strep throat or scarlet fever. In places where rheumatic fever is common, strep skin infections may also contribute.

The condition happens when the immune system, which normally fights infection, mistakenly attacks the body's own tissues. It can affect the heart, joints, brain and nervous system, or skin.

Rheumatic fever most often affects children and teenagers, but adults can also develop it. Symptoms usually begin several weeks after the original infection, when the sore throat or skin infection may already have cleared.

The main concern is inflammation of the heart, called carditis. This can damage one or more

heart valves. Lasting valve damage is known as rheumatic heart disease. Early assessment, treatment and prevention of repeat attacks can reduce the chance of further damage.

Rheumatic fever itself does not spread between people. However, the group A strep bacteria that can trigger it are contagious.

Symptoms

Symptoms differ from person to person. They may appear together or develop at different times.

Common features include:

Heart inflammation may cause breathlessness, chest discomfort, a racing heartbeat or swelling. It can sometimes be present without obvious symptoms or a noticeable heart murmur.

Uncontrolled movements are called Sydenham chorea. They usually affect the face, hands or feet and can make writing, dressing, eating or walking difficult. Emotional changes, poor concentration or muscle weakness may occur as well. Chorea can start months after the original strep infection and may be the only clear sign of rheumatic fever.

Joint inflammation can be very painful, but it usually settles without permanent joint damage. The skin rash and small lumps are less common.

- Fever
- Painful, swollen joints, especially the knees, ankles, elbows or wrists
- Joint pain that moves from one joint to another
- Tiredness, shortness of breath or chest discomfort
- Fast or irregular heartbeat
- Sudden, uncontrolled movements
- Changes in handwriting, coordination, mood or behaviour
- A pale or pink ring-shaped rash that is usually not itchy
- Small, painless lumps under the skin near joints

Causes and risk factors

Rheumatic fever is caused by an abnormal immune response to group A strep infection. The

immune system makes antibodies and other defences against the bacteria. In some people, these defences also react with tissues in the heart, joints, brain or skin.

It is not caused by the bacteria directly invading these tissues. It also does not mean that someone has a weak immune system.

Factors linked with a higher risk include:

Rheumatic fever is not inherited in a simple way. A person may inherit some susceptibility, but the condition still requires a triggering strep infection. Most people who have strep throat do not develop rheumatic fever.

- A recent untreated or inadequately treated group A strep infection
- A previous episode of rheumatic fever
- Living somewhere where group A strep infections and rheumatic fever are common
- Crowded living conditions that make strep infections easier to spread
- Delayed access to testing and antibiotic treatment
- A family tendency toward an abnormal immune response

Diagnosis

There is no single test that confirms rheumatic fever. A clinician considers your symptoms, examination findings, test results and evidence of a recent group A strep infection.

Diagnosis is based on a recognised set of findings called the Jones criteria. These criteria include major features, such as heart inflammation, moving joint inflammation or chorea, and minor features, such as fever and raised markers of inflammation.

Tests may include:

A throat test may be negative because rheumatic fever develops after the original infection has passed. Antibody blood tests can provide evidence of an earlier infection.

An echocardiogram is important because it can detect valve inflammation even when there is no murmur or obvious heart symptom. Other conditions can cause similar joint, heart or movement symptoms, so the assessment may also include tests to rule these out.

Chorea or slowly developing heart inflammation may appear long after the infection. In these situations, evidence of the earlier strep infection may be difficult to find.

- Blood tests for inflammation, such as C-reactive protein or erythrocyte sedimentation rate

- Antibody blood tests showing a recent strep infection, such as antistreptolysin O or anti-DNase B
- A throat swab or rapid strep test
- An electrocardiogram, or ECG, which records the heart's electrical activity
- An echocardiogram, which uses ultrasound to examine the heart and its valves

Treatment and management

Treatment aims to clear any remaining group A strep bacteria, control inflammation, manage complications and prevent another attack.

An antibiotic like amoxicillin or doxycycline is normally given even if the original sore throat has resolved or a current throat swab is negative. The choice of antibiotic depends on factors such as allergies and local guidance.

Anti-inflammatory medicines can reduce fever, joint pain and swelling. These medicines need medical supervision, particularly for children and teenagers. More intensive anti-inflammatory treatment may be considered when heart inflammation is severe.

If carditis affects how well the heart pumps, treatment may include medicines for heart failure and closer monitoring in hospital. Severe valve damage occasionally requires a procedure or surgery, either during the illness or later.

Mild chorea may improve with a calm environment, practical support and protection from injury. Medicine may be offered when the movements interfere with eating, walking, sleep, school or daily activities. Symptoms can take time to settle.

After rheumatic fever, regular preventive antibiotics are usually recommended to reduce the risk of another episode. This is called secondary prophylaxis. Treatment may involve regular injections or tablets over several years. How long it continues is based on age, heart involvement, valve damage and the risk of further exposure to strep.

Follow-up often includes heart examinations and repeat echocardiograms. It is important to keep these appointments even when you feel well, because valve changes may not cause early symptoms.

Complications

The most important complication is lasting damage to the heart valves. The mitral valve, which controls blood flow between the heart's upper and lower left chambers, is commonly affected.

A damaged valve may become too narrow or may leak.

Rheumatic heart disease can eventually cause:

Not everyone with rheumatic fever develops lasting heart damage. Risk is higher after severe carditis or repeated attacks. Each new episode can add to existing valve injury.

Chorea usually resolves, but it can last for months and may return. Joint inflammation generally does not cause permanent damage.

- Shortness of breath and reduced exercise tolerance
- Heart failure
- An abnormal heart rhythm, especially atrial fibrillation
- Blood clots and stroke
- A need for heart valve repair or replacement

Prevention

Rheumatic fever cannot always be prevented. There is no vaccine currently in routine use against group A strep.

Prompt diagnosis and appropriate antibiotic treatment of confirmed strep throat can prevent many cases. Not every sore throat is caused by strep, so testing and treatment should follow local medical guidance rather than using leftover antibiotics.

To reduce the spread of strep infection:

If you have previously had rheumatic fever, preventing another episode is especially important. Regular preventive antibiotics substantially reduce the risk of recurrence. Missed doses should be discussed with the service managing your follow-up rather than waiting for symptoms.

- Wash your hands regularly
- Cover coughs and sneezes
- Avoid sharing cups, utensils or food
- Take prescribed antibiotics exactly as directed

Living with it and what to expect

The fever and joint symptoms of an acute episode often improve over days to weeks with treatment. Chorea may last for several months and can affect school, work, sleep and

confidence while it is active. Recovery time is different for each person.

People without lasting heart damage can often return to their usual activities after the acute inflammation settles. Temporary limits on exercise may be advised when carditis is present. Return to sport, school or physical work should be guided by recovery and heart test results.

Heart valve damage can remain after other symptoms disappear. Mild damage may cause no symptoms for years but still needs routine monitoring. More serious damage may gradually affect breathing, exercise or heart rhythm and may require long-term care.

Regular preventive antibiotics can continue for years, sometimes into adulthood. Keeping a record of injections, tablets, heart scans and specialist visits can make long-term care easier.

Pregnancy places extra strain on the heart. Someone with rheumatic valve damage may need a heart assessment before pregnancy or early in pregnancy. This does not mean pregnancy is always unsafe, but planning helps identify whether extra monitoring is needed.

Most people can continue education, employment, relationships and daily activities. The amount of ongoing care is mainly determined by whether the heart valves were damaged and whether further strep infections can be prevented.

When to get medical help

Arrange prompt medical assessment if you or your child develops fever, moving joint pain, unusual uncontrolled movements, breathlessness or a racing heartbeat after a recent sore throat, scarlet fever or suspected strep infection. These symptoms have several possible causes and need proper assessment rather than self-diagnosis.

Seek urgent medical advice if someone with current or previous rheumatic fever develops worsening breathlessness, new swelling of the legs or abdomen, persistent palpitations, chest discomfort or a clear reduction in exercise ability.

Call emergency services for:

Routine follow-up is still important when there are no symptoms. Attend planned heart checks, echocardiograms and preventive antibiotic appointments.

- Severe difficulty breathing
- Fainting with chest symptoms or a very fast heartbeat
- Blue, grey or unusually pale lips or skin
- Sudden facial drooping, arm weakness or difficulty speaking
- Severe chest pain or signs of collapse

Common questions

Is rheumatic fever contagious?

No. You cannot catch rheumatic fever from another person. The group A strep infection that triggers it can spread through close contact, coughs, sneezes or contact with infected skin.

Can rheumatic fever come back?

Yes. A later group A strep infection can trigger another episode, especially during the first several years after the initial illness. Repeat attacks increase the risk of heart valve damage, which is why preventive antibiotics are often continued long term.

Can adults get rheumatic fever?

Yes, although a first episode is more common in children and teenagers. Adults who had rheumatic fever when younger can also have a recurrence or develop symptoms from earlier heart valve damage.

Does rheumatic fever go away completely?

The acute inflammation often settles with treatment. Joint symptoms usually resolve without permanent damage, and chorea generally improves over time. Heart valve damage may remain and can require lifelong monitoring.

What is the difference between rheumatic fever and rheumatic heart disease?

Rheumatic fever is the immune reaction that occurs after group A strep infection. Rheumatic heart disease is lasting heart valve damage caused by one or more episodes of rheumatic fever.

Can I exercise after rheumatic fever?

Activity may need to be reduced during acute heart inflammation or severe symptoms. Many people can gradually return to normal exercise after recovery. The safe timing is based on symptoms, heart function and follow-up test results.

Sources

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