CONDITION

Kawasaki disease

Kawasaki disease is a childhood condition that causes inflammation in blood vessels and can affect the heart.

WHAT IT IS
Short-term inflammation of blood vessels, mainly in young children

BODY SYSTEM
Heart and circulation, immune system

MAIN SYMPTOMS
Prolonged fever, red eyes, mouth changes, rash

WHAT CAUSES IT
Unknown immune response after a possible trigger

HOW IT IS DIAGNOSED
Clinical criteria; blood tests and heart ultrasound support diagnosis

MAIN TREATMENT
Immunoglobulin, aspirin, and sometimes corticosteroids

CAN IT BE CURED?
Sometimes - inflammation resolves, but heart damage may persist

IS IT AN EMERGENCY?
Sometimes - collapse, chest pain, breathing trouble, or extreme drowsiness

LONG-TERM OUTLOOK
Most recover fully; coronary artery damage needs long-term care

Overview

Kawasaki disease is an uncommon condition that causes inflammation in blood vessels throughout the body. It mainly affects children younger than 5, although older children and, rarely, adults can develop it.

The inflammation can affect the coronary arteries. These are the blood vessels that supply the heart muscle. Without prompt treatment, some children develop widening or bulging of a coronary artery, called an aneurysm.

Most children recover well, especially when treatment starts early. The condition is not passed from one person to another. It is also not caused by anything a parent or child has done.

Kawasaki disease can resemble several common childhood infections. There is no single test

that confirms it, so assessment by an experienced medical team is important.

Symptoms

A persistent fever is the main symptom. It usually lasts at least five days without treatment and may not respond fully to usual fever medicines. Doctors can sometimes diagnose the condition earlier when the other features are clear.

Other common symptoms include:

Children may also be unusually irritable. Some develop stomach pain, vomiting, diarrhoea, joint pain, headache, or poor feeding.

Symptoms do not always begin at the same time. Some may have disappeared before others develop, so the medical team may ask how the illness has changed from day to day. Photographs of a rash, red eyes, or swollen hands can sometimes help document those changes.

Some children have incomplete Kawasaki disease . This means they have prolonged fever and inflammation but fewer of the usual outward signs. It is more common in young babies, who may show only fever, irritability, or poor feeding. Incomplete cases can still affect the coronary arteries.

- Red eyes, usually without sticky discharge
- Red, dry, or cracked lips and a very red tongue
- A rash that may appear in different forms
- Red or swollen hands and feet
- Peeling skin around the fingers or toes, often later
- A swollen lymph node on one side of the neck

Causes and risk factors

The exact cause is unknown. The condition appears to involve an unusual immune response, possibly after exposure to an infection or another environmental trigger. No specific germ has been shown to cause every case.

Kawasaki disease is not considered contagious. Children who have it do not need to be isolated from family members because of the condition itself. However, a separate infection may sometimes be present at the same time.

Factors linked with a greater chance of developing the condition include:

Genes may influence susceptibility, but Kawasaki disease is not inherited in a simple or predictable way. Most children who develop it have no family history.

- Being younger than 5
- Being male
- Having East Asian ancestry, particularly Japanese or Korean ancestry
- Having a sibling who has had the condition

Diagnosis

There is no single blood test, scan, or swab that confirms Kawasaki disease. Diagnosis is based on the pattern of fever and other symptoms, examination findings, and tests that support the diagnosis or rule out other causes.

Blood tests may show inflammation. They can also detect changes in blood cells, liver function, or salt and protein levels. A urine sample may show inflammation even when there is no urine infection.

An echocardiogram is an ultrasound scan of the heart. It checks the coronary arteries and looks at how well the heart is working. A normal early echocardiogram does not always rule out the condition because coronary changes can develop later. Scans are therefore usually repeated during follow-up.

An electrocardiogram, or ECG, may also be used to check the heart's electrical activity.

Other conditions can cause similar symptoms, including viral or bacterial infections, reactions to medicines, scarlet fever, toxic shock syndrome, and multisystem inflammatory syndrome in children. Test results must be considered together with the child's symptoms and examination.

Treatment and management

Children with suspected Kawasaki disease are usually assessed and treated in hospital. The aim is to settle the inflammation quickly and reduce the chance of coronary artery damage.

The main treatment is intravenous immunoglobulin, often shortened to IVIG. It is a concentrated preparation of antibodies given through a vein. Most children receive it as one infusion and improve after treatment, although some need further therapy because their fever or inflammation continues.

Aspirin is also used to reduce inflammation and help prevent blood clots. Aspirin is generally avoided in children with ordinary viral illnesses, but Kawasaki disease is a specific situation in which specialists may recommend it. Do not give a child aspirin unless their medical team has instructed you to do so.

Children thought to have a higher risk of coronary complications may also receive a corticosteroid like prednisone or hydrocortisone , which is a medicine that reduces immune activity. Further immune treatments may be considered if the first treatment does not control the inflammation.

If coronary artery changes develop, treatment depends on their size and whether blood flow is affected. Some children need longer-term medicines to reduce clotting. A small number with severe artery damage need more detailed heart imaging or procedures to restore blood flow.

IVIG can affect how well some live vaccines work. The hospital or vaccination team will advise when vaccinations should be given. Children taking aspirin may also need specific advice if they are exposed to chickenpox or develop influenza-like symptoms.

Complications

The main concern is inflammation of the coronary arteries. An affected artery may become enlarged or develop an aneurysm. Blood clots can form within larger aneurysms and may reduce blood flow to the heart muscle.

Other possible heart complications include:

Heart attacks are rare in children but can occur if a coronary artery becomes blocked. The risk is greatest when there are large or persistent aneurysms.

Kawasaki disease can also temporarily affect the joints, liver, lungs, digestive system, or nervous system. These problems often improve as the inflammation settles.

- Inflammation of the heart muscle, called myocarditis
- Inflammation of the lining around the heart, called pericarditis
- Heart valve problems
- Abnormal heart rhythms
- Reduced heart function

Prevention

There is no known way to prevent Kawasaki disease because its exact cause is unknown. It is not linked to poor hygiene, diet, parenting, or a missed routine vaccination.

Having had the condition once does not guarantee lifelong protection. It can return, although recurrence is uncommon. Seek medical assessment again if a child with a previous history develops a persistent unexplained fever.

Living with it and what to expect

Many children improve within a few days of treatment. Fever that returns or continues after IVIG needs reassessment because more treatment may be required.

Tiredness, irritability, reduced appetite, and skin peeling can continue for several weeks. Recovery may be gradual even when heart tests are normal. Children can usually return to nursery, school, and normal activities as their energy returns, following advice from their medical team.

Repeat echocardiograms are used to watch the coronary arteries over the following weeks. Children whose scans remain normal may eventually be discharged from specialist heart follow-up. Their care team may still recommend routine attention to heart health as they grow.

Small coronary changes may improve over time, but an artery that looks normal later may not be identical to an artery that was never affected. Larger aneurysms can persist and require long-term, sometimes lifelong, cardiology care. This may include medicines, imaging, exercise advice, and monitoring for reduced blood flow.

Most children go on to live active lives. What follow-up is needed over months and years is mainly determined by whether the coronary arteries were affected and how they change.

When to get medical help

Arrange urgent, same-day medical assessment if a child has a fever lasting five days or longer, especially with red eyes, a rash, red or cracked lips, swollen hands or feet, or a swollen neck gland. Seek help sooner for a young baby or a child who is becoming more unwell. Do not wait for every typical symptom to appear.

A child already treated for Kawasaki disease needs prompt reassessment if the fever returns, continues, or new symptoms develop.

Call emergency services if a child has:

Routine follow-up appointments and heart scans remain important even when the child

appears fully recovered. Contact the follow-up team if an appointment is missed or if there are questions about medicines, vaccination timing, or returning to physical activity.

- Difficulty breathing
- Chest pain
- Fainting or collapse
- Blue, grey, or unusually pale skin
- Extreme drowsiness or difficulty waking
- Severe weakness or signs of poor circulation

Common questions

Is Kawasaki disease contagious?

No. It is not known to spread between people. Researchers suspect that an infection or environmental exposure may trigger the immune response in susceptible children, but no single contagious cause has been identified.

Can my child get Kawasaki disease twice?

Yes, it can recur, but this is uncommon. A previous diagnosis should not be assumed to explain every later fever. A new persistent fever still needs medical assessment.

Why is aspirin given when children usually should not take it?

Aspirin is normally avoided in children because of the risk of serious side effects, particularly during certain viral infections. In Kawasaki disease, specialists use it because its anti-inflammatory and anti-clotting effects may be helpful. It should only be given under medical supervision.

Will my child have permanent heart damage?

Most treated children do not develop lasting coronary artery damage. Some develop artery changes that improve, while others have persistent aneurysms requiring long-term care. Follow-up echocardiograms help determine an individual child's outlook.

How long does recovery take?

Fever and obvious inflammation often improve soon after treatment, but tiredness, irritability, reduced appetite, or peeling skin may continue for several weeks. Heart monitoring may continue for weeks, months, or longer, depending on the coronary artery findings.

Can my child exercise after Kawasaki disease?

Children with normal heart tests can often return gradually to usual play after recovery. Children with coronary artery changes may need individual activity guidance from their cardiology team, especially if they take anti-clotting medicine.

Sources

- McCrindle BW, Rowley AH, Newburger JW, et al. "Diagnosis, Treatment, and Long-Term Management of Kawasaki Disease." Circulation . 2017;135:e927-e999. American Heart Association scientific statement.
- Gorelik M, Chung SA, Ardalan K, et al. "2021 American College of Rheumatology/Vasculitis Foundation Guideline for the Management of Kawasaki Disease." Arthritis & Rheumatology . 2022;74:586-596.
- Centers for Disease Control and Prevention. "Clinical Overview of Kawasaki Disease." CDC.
- NHS. "Kawasaki disease." National Health Service.
- Royal Children's Hospital Melbourne. "Clinical Practice Guideline: Kawasaki disease."