CONDITION

Croup

Croup is a viral illness that causes a barking cough and noisy breathing in young children.

WHAT IT IS
Viral swelling of the voice box and windpipe

BODY SYSTEM
Breathing system

MAIN SYMPTOMS
Barking cough, hoarse voice, noisy breathing, fever

WHAT CAUSES IT
Usually a viral infection

HOW IT IS DIAGNOSED
Symptoms and breathing examination; tests rarely needed

MAIN TREATMENT
Corticosteroid medicine; nebulized epinephrine for more severe symptoms

CAN IT BE CURED?
Yes - most episodes resolve fully within days

IS IT AN EMERGENCY?
Sometimes - noisy breathing at rest or severe breathing difficulty

LONG-TERM OUTLOOK
Complete recovery is usual; repeat episodes may occur

Overview

Croup is a common breathing condition in young children. It happens when an infection causes swelling around the voice box and upper windpipe. Because a child's airway is narrow, even mild swelling can make breathing noisy.

The typical cough sounds harsh and barking, sometimes like a seal. A child may also have a hoarse voice and a high-pitched sound when breathing in, called stridor .

Most croup is mild and improves within a few days. Symptoms are often worse at night or when a child cries. Corticosteroid medicine can reduce airway swelling, while more serious breathing symptoms need urgent assessment.

Croup mainly affects children between about 6 months and 3 years old. Older children can develop it, but their wider airways make significant symptoms less likely.

Symptoms

Croup often begins like a cold, with a runny nose, mild fever or sore throat before the barking cough starts.

Typical symptoms include:

Stridor is different from wheezing. Stridor is usually a harsh, high-pitched noise while breathing in and comes from the upper airway. Wheezing is more often a musical sound while breathing out and comes from smaller airways in the lungs.

Symptoms often peak during the first few nights. They may settle during the day and return at night. Crying can temporarily worsen the cough, stridor and breathing effort.

Signs of increased breathing effort include skin pulling in between or below the ribs, the hollow at the base of the neck drawing inward, or the nostrils widening. Stridor that continues while a child is calm is more concerning than stridor only while crying.

- A harsh, barking cough
- A hoarse or raspy voice
- Stridor, especially when crying or active
- Mild fever and cold symptoms
- Faster or more difficult breathing

Causes and risk factors

Most croup is caused by a virus. Parainfluenza viruses are common causes, but influenza, respiratory syncytial virus, adenovirus and other respiratory viruses can cause the same airway swelling.

Infection spreads through droplets from coughing or sneezing, or when a child touches a contaminated surface and then touches their nose, mouth or eyes.

Young children are most at risk because the area below their vocal cords is naturally narrow. Swelling that might cause only hoarseness in an adult can restrict airflow in a small child.

Some children have repeated episodes. Recurrent or unusual croup can sometimes be linked to a narrow airway, previous airway procedures or another throat condition, although often no structural cause is found.

A barking cough is not always viral croup. Allergic swelling, an inhaled object, bacterial airway infection and inflammation above the voice box can cause more serious symptoms. Sudden

symptoms without a cold, drooling or difficulty swallowing require prompt medical assessment.

Diagnosis

Croup is usually diagnosed from the cough, voice, breathing noises and breathing effort. A clinician will also consider the child's age, fever, alertness and ability to drink.

There is no routine test for ordinary viral croup. Blood tests, throat swabs and chest or neck X-rays are generally unnecessary when symptoms are typical. These procedures may upset a child and temporarily make breathing harder.

A clinician may measure the blood oxygen level if breathing is difficult. Imaging or other tests may be considered when symptoms are unusual, very severe, not improving as expected or suggest another cause.

During assessment, keep the child calm and close to a parent or caregiver. A detailed throat examination is not usually needed when typical croup is suspected.

Treatment and management

Keeping a child calm is important because crying can make stridor louder. Hold or sit the child upright in a comfortable position, offer reassurance and do not force them to lie down.

Encourage regular drinks. Small, frequent amounts may be easier if coughing or a sore throat makes drinking uncomfortable. Treat fever or discomfort with an age-appropriate medicine according to its label or professional advice.

Steam is not recommended. It has not been shown to reduce airway swelling and can cause burns. Cough and cold medicines do not treat the swelling and may be unsuitable for young children.

A corticosteroid like prednisone or hydrocortisone , most commonly dexamethasone, is often used to reduce airway swelling in mild, moderate or severe croup. A clinician selects the medicine and route; it may be given by mouth, injection or sometimes as an inhaled medicine.

Children with moderate or severe symptoms may receive nebulized epinephrine, also called adrenaline. It can reduce swelling quickly, but the effect may wear off after a few hours. The child is therefore observed to ensure symptoms do not return before going home.

Oxygen may be given if the blood oxygen level is low. Very rarely, severe airway narrowing requires breathing support in hospital.

Antibiotics like amoxicillin or doxycycline do not treat uncomplicated croup because it is usually viral. They are used only when a bacterial infection is identified or strongly suspected.

Complications

Most children recover without complications. The main concern is airway narrowing that makes it difficult to move enough air.

A child working hard to breathe may become tired, and severe obstruction can lower blood oxygen. Respiratory failure is uncommon but requires emergency treatment.

Coughing, fever or breathing effort can make drinking difficult and lead to dehydration. Signs include a dry mouth, fewer wet nappies or toilet visits, and unusual sleepiness.

Occasionally, an illness that appears to be croup is a more serious bacterial infection, such as bacterial tracheitis. A high fever, a child who looks very unwell, or symptoms that worsen despite treatment may prompt investigation for another diagnosis.

Prevention

There is no vaccine against every cause of croup. Routine vaccines, including influenza vaccination where recommended, can reduce illness from some viruses that cause it.

Steps that may reduce the spread of respiratory infections include:

Croup is not inherited, although some children have repeated episodes. It cannot always be prevented after exposure to a respiratory virus.

Avoiding tobacco smoke and vaping aerosols protects children's airways from irritation, but does not guarantee that croup will not occur.

- Washing hands regularly
- Covering coughs and sneezes
- Cleaning frequently touched surfaces
- Avoiding shared cups and eating utensils
- Keeping a child away from close contact with others while feverish or unwell

Living with it and what to expect

Croup is usually a short illness. The barking cough and noisy breathing often worsen over the

first one to three nights and then improve. A milder cough or hoarse voice may continue for several more days.

Sleep can be disrupted because symptoms tend to worsen at night. Keeping the child nearby makes it easier to notice breathing changes. Check that they remain comfortable, responsive and able to drink.

Most children recover fully. Croup does not normally damage the lungs or cause lasting breathing problems.

Some children have croup more than once with separate viral infections. Episodes usually become less common as the airway grows wider. Frequent episodes, episodes outside the usual age range, or symptoms that do not respond as expected may require further airway assessment.

A child can return to childcare or school when well enough to participate, when their fever has settled under local rules, and when they no longer need more care than staff can provide. Follow local infection-control guidance even if a cough remains.

When to get medical help

Contact a healthcare service promptly if your child has a barking cough and you are uncertain about their breathing, especially during a first episode. Seek advice if symptoms are worsening, drinking is reduced, fever continues, or the illness is not improving over the expected few days.

Seek urgent same-day assessment if your child has stridor while resting calmly, is breathing faster than usual, or has visible pulling in around the ribs or neck. A baby younger than 6 months with possible croup should also be assessed because croup is less typical at that age.

Call emergency services now if your child:

While waiting for help, keep the child upright and as calm as possible. Do not force them to lie down or try to inspect the back of their throat.

Arrange a non-emergency appointment if croup keeps returning, occurs outside the usual preschool years, or leaves persistent noisy breathing or voice changes between infections.

- Is struggling to breathe or becoming exhausted
- Has blue, grey or unusually pale lips or skin
- Has pauses in breathing
- Is unusually drowsy, floppy, confused or difficult to wake

- Is drooling or unable to swallow
- Cannot speak, cry or drink because of breathing difficulty
- Develops symptoms suddenly after choking or a possible allergic reaction

Common questions

Is croup contagious?

The airway swelling itself is not passed between people, but the virus causing it usually is. Another child who catches the virus may develop croup, cold symptoms or no symptoms.

How long does croup last?

The most noticeable symptoms often last a few days and may be worst during the first few nights. A cough or hoarse voice can last longer. Symptoms that continue worsening or do not begin to settle should be medically reviewed.

Why is croup worse at night?

Airway swelling and coughing can become more noticeable at night. Lying down and normal overnight changes in the body may contribute, while tiredness and distress can make breathing sound louder.

Can adults get croup?

The viruses that cause croup can infect adults, but adults rarely develop classic airway narrowing because their airways are wider. They are more likely to have cold symptoms, a sore throat or hoarseness.

Does cold air help croup?

Some families notice brief improvement in cool air, but evidence is limited and it does not replace treatment. Do not delay urgent care to try cold air if a child has stridor at rest or is struggling to breathe.

Can my child get croup again?

Yes. Different viral infections can cause separate episodes, especially during the preschool years. Episodes often decrease as the child grows, but frequent or unusual episodes may need further assessment.

Sources

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