

## Croup

Croup is an upper respiratory condition that often affects infants and young children. Typical symptoms include a barking cough and respiratory distress. Children with croup are usually diagnosed based on a clinical examination. Your doctor may also perform a neck or chest x-ray to help make the diagnosis.

Croup usually improves by itself. However, home treatments that introduce humidity or cold air into the environment are often used to help improve breathing.

### What is croup?

Croup—also known as acute laryngotracheobronchitis—is an upper respiratory condition that often affects infants and young children.

Typical symptoms in affected patients include a barking cough and respiratory distress. This condition is often triggered by a viral infection that causes swelling in the throat around the vocal cords and trachea, or windpipe. Symptoms tend to be worse at night and can last up to six days. Most cases occur in patients younger than one year, with peak incidence occurring in children three to six months of age.

### How is croup diagnosed and evaluated?

Children with croup are usually diagnosed based on a clinical examination. Your physician may listen to your child's breathing with a stethoscope for wheezing and decreased breath sounds. Visual examination of the throat may reveal redness in the upper airway and/or epiglottitis, the tissue flap in the throat that keeps food and liquid from entering the trachea and lungs.

X-rays of the neck or chest are the initial imaging choice for assisting in diagnosis and excluding other potential causes of similar symptoms such as a swallowed object that is blocking the airway.

X-rays of pediatric patients with croup often show a tapering or narrowing of the airway below the vocal cords. This pattern is known as "the steeple sign" because its inverted V shape is reminiscent of a church steeple.

### How is croup treated?

Croup usually improves by itself, and most cases can be safely managed at home.

Home treatments focus on improving breathing by introducing humidity or cold air into the environment. You might run hot water in your shower with the bathroom door and windows closed and bring your child into the steamy room for 10 minutes. In cooler months, taking your child outside for a few minutes may ease symptoms. Running a cool air vaporizer in the child's bedroom at night also can help improve breathing.

Acetaminophen or ibuprofen may be used to lower a fever and make your child more comfortable.

Steroids and medicated sprays are sometimes used to reduce upper airway swelling in children with croup who do not respond to conservative management.

Signs of a more serious condition include increasing or persistent breathing difficulty, fatigue, bluish coloration of the skin and



dehydration. If you observe any of these more severe symptoms, it should be considered an emergency as children may have a very low tolerance to decreased oxygen saturation due to breathing problems.

In rare cases, pediatric patients affected with croup require hospitalization. Doctors will treat obstruction of the airway with steroids, inhaled adrenaline and oxygen. Rarely, intubation or the placement of a tube through the nose or mouth and into the main air passage to the lungs may be required. Intravenous fluids may be given if the child is dehydrated.

## **Disclaimer**

This information is copied from the RadiologyInfo Web site (<http://www.radiologyinfo.org>) which is dedicated to providing the highest quality information. To ensure that, each section is reviewed by a physician with expertise in the area presented. All information contained in the Web site is further reviewed by an ACR (American College of Radiology) - RSNA (Radiological Society of North America) committee, comprising physicians with expertise in several radiologic areas.

However, it is not possible to assure that this Web site contains complete, up-to-date information on any particular subject. Therefore, ACR and RSNA make no representations or warranties about the suitability of this information for use for any particular purpose. All information is provided "as is" without express or implied warranty.

Please visit the RadiologyInfo Web site at <http://www.radiologyinfo.org> to view or download the latest information.

**Note:** Images may be shown for illustrative purposes. Do not attempt to draw conclusions or make diagnoses by comparing these images to other medical images, particularly your own. Only qualified physicians should interpret images; the radiologist is the physician expert trained in medical imaging.

## **Copyright**

This material is copyrighted by either the Radiological Society of North America (RSNA), 820 Jorie Boulevard, Oak Brook, IL 60523-2251 or the American College of Radiology (ACR), 1891 Preston White Drive, Reston, VA 20191-4397. Commercial reproduction or multiple distribution by any traditional or electronically based reproduction/publication method is prohibited.

Copyright © 2025 Radiological Society of North America, Inc.