

# Rheumatic Fever and Rheumatic Heart Disease

Rheumatic fever results from infection with bacteria called group A streptococci, usually “strep throat.” Illness begins 2 to 3 weeks after strep throat and can involve the heart (carditis), joints (arthritis), skin, and brain (uncontrolled movements called chorea). If carditis is present, it can cause later damage to the heart valves; this is called rheumatic heart disease. Your child may need antibiotics to keep rheumatic fever from coming back.

This is a potentially serious condition requiring close medical follow-up.



## What are rheumatic fever and rheumatic heart disease?

Rheumatic fever is much less frequent in the United States than it once was, although outbreaks can still occur. It remains a common problem in poor countries.

*Rheumatic fever* is not an infection but the body’s response to the group A streptococci bacteria that cause strep throat. By the time rheumatic fever develops, the infection is usually no longer present. However, antibodies to the bacteria can still be found in your child’s blood. It’s not clear exactly how the reaction to strep bacteria causes problems with the heart, joints, and other organs. It may result from some toxic effect of the bacteria, or from the way your child’s immune system reacts to the bacteria.

Rheumatic fever can cause inflammation of the heart (carditis), inflammation of the joints (arthritis), small lumps under the skin (subcutaneous nodules), a skin rash (erythema marginatum), and uncontrolled body movements, especially of the arms (chorea). Inflammation of the heart can cause permanent damage to the heart valves, called *rheumatic heart disease*. This damage shows up fairly long after the initial attack of rheumatic fever. Not everyone who gets rheumatic fever has heart involvement or rheumatic heart disease.

Antibiotic treatment for strep throat greatly reduces the risk of rheumatic fever. With close medical follow-up, most children recover completely. Your child may need to continue taking antibiotics indefinitely to prevent future attacks of rheumatic fever.

## What does rheumatic fever look like?

The symptoms of rheumatic fever vary a lot. Rheumatic fever *always* occurs a few weeks after an episode of strep infection, usually strep throat. However, the infection may have been a mild one.

A few weeks after the infection, symptoms of acute rheumatic fever develop. Symptoms usually include fever—102°F (39°C) or higher—along with one or more of the following:

- **Carditis.** Occurs in at least half of patients. Inflammation of the heart valves (valvulitis) or the inside lining of the heart (endocarditis) is usually present. Inflammation can cause damage to the heart valves, which shows up years later. This later damage to the heart valves is rheumatic heart disease. Symptoms of carditis include:
  - Chest pain; difficulty with activity.
  - Heart rate may seem fast. The doctor will listen for abnormal heart sounds and murmurs (extra sounds the heart makes; sometimes normal, sometimes not), which may reflect heart involvement.
  - Heart involvement ranges from a mild, temporary problem to severe heart failure.
- **Arthritis.** Occurs in most children with rheumatic fever. Not just joint pain, but painful, swollen joints. Pain is worse with movement.
  - Usually affects large joints, such as knees, ankles, wrists, and elbows.
  - Joints are hot, red, swollen, and very tender.
  - Pain and swelling tend to move from one joint to another. This is called *migratory polyarthritis*, and it is a major symptom of rheumatic fever.
- **Chorea** (pronounced “korea”). Nervous system involvement causing uncontrolled movements of the arms and other parts of the body. Behavior changes may be present as well.
- **Rash.** Children with rheumatic fever have a typical red, “squiggly” skin rash, called *erythema marginatum*.
- **Bumps under the skin**, called subcutaneous nodules.

## What are some possible complications of rheumatic fever?

- **Rheumatic heart disease** is the main complication of rheumatic fever. Damage to the heart valves typically shows up years after the attack of rheumatic fever and can be a lifelong problem. Antibiotics and other treatment reduce this risk.
- Other symptoms, like arthritis and chorea, generally get better and cause no further problems.

- After recovery, there is a risk that rheumatic fever will occur again. Your child will receive antibiotics to prevent repeated strep infection that could lead to recurrences of rheumatic fever.

### What puts your child at risk of rheumatic fever?

- Rheumatic fever, and therefore rheumatic heart disease, is uncommon in the United States. The main risk factor is getting strep throat. The group A strep bacteria are usually passed from person to person. The risk of rheumatic fever is very low if strep infection is treated with appropriate antibiotics. Even without treatment, most cases of strep throat don't lead to rheumatic fever.
- Rheumatic fever occurs most commonly between early school age and the teen years. Although strep infections may occur at any time of year, they are most common in winter and spring.

### Can rheumatic fever be prevented?

Most of the time, there is no practical way to prevent strep infection. If your child has strep throat, antibiotic treatment is essential to reduce the risk of rheumatic fever. Be sure to continue taking antibiotics for the total time prescribed—usually 10 days. Amoxicillin and penicillin are the most commonly used antibiotics.

After an episode of rheumatic fever, your child will need to take antibiotics to prevent strep infections from occurring again. The length of treatment depends on whether the heart was involved, among other factors. Preventive antibiotic treatment will continue for at least 5 years, probably into adulthood, and possibly for the rest of your child's life.

### How is rheumatic fever treated?

Once rheumatic fever is recognized, treatment starts immediately. Depending on your child's situation, we may recommend visits to a heart specialist (a cardiologist) or a specialist in rheumatic diseases (a rheumatologist).

#### *Immediate treatment.*

- *Antibiotics* against strep infection are given even if the bacteria are no longer present. Antibiotics may be given as a shot or orally for 10 days. Your child needs

to continue taking antibiotics for a prolonged period of time to prevent future episodes of rheumatic fever (see under "Can rheumatic fever be prevented?").

#### ● *Anti-inflammatory drugs:*

- If your child has mild carditis or arthritis, he or she will likely be started on aspirin. Treatment will continue for 1 month.
- If your child has more severe carditis, he or she will be started on steroid drugs, such as prednisone. Treatment usually continues for several weeks, with the dose gradually being reduced.
- After your child finishes anti-inflammatory treatment, the symptoms may return. This reaction is usually mild and temporary.
- *Call your doctor's office if symptoms are severe.* 
- If chorea is present, your child may be treated with sedatives or other drugs, if necessary.

#### *Follow-up treatment.*

- Arthritis, chorea, skin rash, and bumps under the skin usually clear up completely, with no complications.
- Even when carditis is present, most children recover completely.
- Rheumatic heart disease can be a chronic problem. The more severe your child's initial heart involvement, the higher the risk of permanent damage.
- As mentioned previously, your child will need long-term antibiotic treatment to prevent future strep infections. If rheumatic heart disease was present, antibiotics may also be needed before surgery or certain dental procedures.
- If your child has permanent damage to the heart valves, he or she will need close follow-up care by a heart specialist (cardiologist). Valve damage can get worse over time and may eventually require valve replacement surgery.

### When should I call your office?

Rheumatic fever is a serious medical condition, requiring treatment to prevent complications. Your child should receive close medical follow-up until he or she has recovered completely. After recovery, the doctor will discuss the need for long-term preventive antibiotics.