

A GUIDE TO TOXIC SYNOVITIS vs. SEPTIC ARTHRITIS

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Why is my child limping or refusing to walk?

The list of causes of limping or refusal to walk in a toddler is quite extensive. Some possible causes of limping in this age group include trauma, *infection in the joint or bone*, *toxic synovitis*, development dysplasia of the hip or a dislocation of the hip, leg length discrepancy, neurologic disorder, or tumor.

Your doctor will consider how long your child has been limping, or his or her age, and whether there is any focal pain or stiffness to direct the investigation.

What is toxic synovitis? Septic arthritis? Osteomyelitis?

Toxic synovitis is an inflammation of the joint lining caused by substances produced by your immune system to fight infection such as a cold or flu.

This condition most commonly affects the hip or knee joint in young children. *Septic arthritis* is a bacterial infection of the joint. Bacteria and substances released by your immune system can be damaging to the joint cartilage if not removed from the joint quickly.

Osteomyelitis is a bacterial infection of the bone. Osteomyelitis near a joint can mimic a septic arthritis or toxic synovitis by causing painful motion or limping.

What other information may my doctor need?

Some other questions your doctor may ask:

- Was there a fall or accident that occurred made you suspect a fracture?
- Is the pain or limp the same, better, or worse over the last day?
- Has the child had a cold, runny nose, or cough in the last 2 weeks?
- Has your child had any fevers?
- Is the child eating well? Has there been nausea, vomiting, or diarrhea?
- How has the child's general nature or health been lately?
- Has your child been on any medications recently?

A recent cold, flu, or diarrhea, absence of fever, improving symptoms, and mild irritation of the joint are characteristics of toxic synovitis. High fevers, malaise, poor appetite, worsening symptoms, or a very irritable joint are signs of infection in the bone or joint.

Why is it important to distinguish between toxic synovitis and septic arthritis?

Your doctor will try to distinguish between infection, which will require antibiotics and possible surgery, and synovitis, which will require anti-inflammatory medicine and rest. The bacteria can be damaging to the joint cartilage is not removed quickly from the joint. Untreated infection in the bone, osteomyelitis, can rapidly destroy the growth plate and lead to deformity.

What blood tests are needed?

Your doctor will order very specific blood tests to be drawn from your child. A *white blood cell count (WBC)* will be elevated in infection with a shift toward those types of cells that respond best to bacteria. A test for inflammation, *erythrocyte sedimentation rate (ESR)*, can be elevated in both toxic synovitis and septic arthritis. Infection usually causes the ESR to be very high. The final blood test is the *C reactive protein (CRP)*. This protein is elevated very early in the response to infection and falls rapidly after effective treatment is started. The CRP is an excellent tool to keep track of the response to treatment.

Are any special x-rays or imaging studies needed?

Often parents will recall a trivial fall prior to the onset of limping. It is important to exclude a fracture with plain *x-rays*. If your child is difficult to examine or the pain is difficult to localize, your doctor may request a *bone scan* to find the source of pain. The bone scan takes advantage of the selective uptake of radioactivity at the growth plates, site of fracture, infection, or tumor. Once a "hot spot" is located, further investigation of that area may include computed tomography (*CT*) or magnetic resonance imaging (*MRI*). These secondary studies allow better imaging of the issue and bone without surgery.

Why does the doctor need a sample of the joint fluid?

The best way to distinguish toxic synovitis from septic arthritis is to look at the joint fluid under the microscope and culture some of it for bacteria. A very high number of white blood cells in the joint indicate true infection. Often, the fluid is taken from the hip joint after the child is sedated in surgery.

How did the infection get there?

Children flush bacteria through their blood stream all the time. Usually, the immune system is quick to clear these organisms from tissue before they can start an infection. Children are particularly prone to infection in areas where blood flow is sluggish such as near the growth plates and joints.

What happens now?

If the sample of joint fluids shows obvious infection, the surgeon will recommend immediate drainage of the joint by making an incision and washing out the joint with sterile water.

Once the cause of infection is identified, your doctor will pick the right antibiotic that will kill the bacteria. By getting the antibiotic to the infected area through the blood stream, one can arrest the destructive process. The antibiotic must be delivered through a vein after surgery until your child is much better, then the antibiotics is given by mouth for several weeks.

For more information and links on the Internet visit our website at:
www.childrensorthohawaii.com