

Transient Synovitis and Reactive Arthritis in Children — Symptoms and Treatment

[See online here](#)

Transient Synovitis is an acute inflammatory condition that involves the hip. It is considered as the most common cause of hip pain in children and is usually a self-limited disease that does not need any specific treatment. The main goal of the diagnostic workup for transient synovitis is to exclude septic arthritis (a bacterial or fungal infection that results in joint inflammation and can lead to permanent joint damage if left untreated), another cause of single joint arthritis that can cause severe joint damage.



Background and Definitions of Transient Synovitis and Reactive Arthritis

Transient synovitis is recognized as the **most common cause of acute hip pain in children aged between 3 and 10 years** (but similar conditions have been reported in 3-month-old infants). It is the most common cause of sudden hip pain and limps in young children. Transient synovitis, as the name implies, is an acute temporary inflammation of the synovium that is characterized by joint pain. Children with transient synovitis might also develop arthritis. The exact cause of the condition remains unknown.

Reactive arthritis, also known as post-infectious arthritis, is a form of **arthritis that**

occurs during or shortly after an extra-articular infection. Children with reactive arthritis should not have an identifiable pathogen on their joint aspirate examination for them to meet the diagnostic criteria.

Reactive arthritis usually follows an acute gastrointestinal or genitourinary infection. Yersiniosis has been recognized as the most common cause of classical reactive arthritis, known as Reiter's syndrome.

GU	GI	Others
Chlamydia	<ul style="list-style-type: none">• Yersinia• Salmonella• Shigella• Campylobacter	Group A strep (rheumatic fever)

Epidemiology of Transient Synovitis and Reactive Arthritis in Children

Transient synovitis is the most common cause of arthralgia of the hip in young children. The incidence of transient synovitis in the United States is unknown; however, the incidence in the United Kingdom is reported to be around 25 per 100,000 in children younger than 14 years of age. Another epidemiological study of transient synovitis in the Netherlands reported an estimated incidence of 76.2 per 100,000 in children.

Transient synovitis has been linked to an increased risk of Legg-Calve-Perthes disease (a condition marked by insufficient blood flow to the hip joint, which leads to the collapse of the joint as the bone dies), a form of avascular necrosis of the femoral head. This is hypothesized to happen because of the increased intra-articular pressure due to fluid accumulation in the hip joint space. Up to **1.5% of children who develop transient synovitis are at risk of developing recurrent arthritis** of the hip joint.

Note: Transient synovitis is more common in boys with a male to female ratio of 3 to 1. Like transient synovitis, **information about the incidence and prevalence of reactive arthritis is limited** because of the lack of a clear definition of the condition. The most common infections that have been associated with reactive arthritis in children are:

- Urethritis
- Enteric infections
- Viral infections

Up to one-quarter of children who are HLA-B27 positive and who develop a bacterial enteric infection are expected to develop reactive arthritis. **Reactive arthritis is very uncommon in children**, but, when it occurs, it most commonly follows an enteric infection rather than a genitourinary infection. On the other hand, urethritis is a common preceding event for reactive arthritis in young men in their thirties.

Pathophysiology of Transient Synovitis and Reactive Arthritis

The **exact etiology of transient synovitis is unknown.** Histopathological studies of the affected joints revealed non-specific features of inflammation and showed hypertrophy of the synovium. The effusion in transient synovitis tends to be massive which explains the correlation between transient synovitis and the increased risk of

avascular necrosis of the femoral head of the affected joint.

Reactive arthritis **usually happens during an enteric infection or immediately after a recent gastrointestinal infection** in children. Genitourinary tract infections have been also linked to reactive arthritis in adults, but this is rarely seen in children. The most common enteric organisms associated with reactive arthritis in children include:

- Salmonella
- Yersinia enterocolitica
- Shigella flexnerii
- Campylobacter jejuni

Reactive arthritis is an inflammatory condition that is characterized by an acute, non-suppurative inflammation of the joints. The most likely pathogenic mechanism behind this inflammation is an autoimmune response that is mediated by T lymphocytes.

Recent studies show that **bacterial DNA might be detected in the synovial fluid of the inflamed joints** in patients with reactive arthritis. This finding is in favor of a cell-mediated immune response, rather than a humeral mediated immune response as the main pathology behind reactive arthritis. The increased risk of reactive arthritis after enteric infections in children who are HLA-B27 positive also supports the autoimmune hypothesis.

Clinical Presentation of Transient Synovitis and Reactive Arthritis in Children

Children with **transient synovitis present with unilateral hip pain**. The pain might be also felt in the groin, thigh, or knees. Children who are too young to communicate might present with crying all night and an inability to sleep. There may be a limp or abnormal crawling in infants, and the pain can range from mild to severe.

Half of the cases of transient synovitis report a history of a recent flu-like illness. The most **common preceding symptoms of transient synovitis include vomiting, diarrhea, and a runny nose**.

Children with transient synovitis are usually not feverish. A physical examination of the affected side shows mild restriction of the range of motion. **Abduction and internal rotation are usually restricted on the affected side**. Tenderness to palpation is also a common finding. The log roll sign is positive in patients with transient synovitis.

Reactive arthritis usually happens within 2 to 4 weeks after a gastrointestinal tract infection. Sometimes, arthritis can happen immediately or during acute infectious illness. Patients most commonly describe diarrhea, and sometimes dysentery one week before the onset of the classical triad of reactive arthritis: urethritis, arthritis and conjunctivitis.

Reactive arthritis is an acute illness that is often accompanied by fever and fatigue. The arthritis is usually of the lower extremities and of oligoarticular asymmetric distribution. The **most commonly affected joints are the knees, ankles and feet**. Low back pain is also a common finding.

Complications

Complications may arise due to transient synovitis. Common complications include Coxa magna, which is an overgrowth of the femoral head and broadening of the femoral neck, accompanied by changes in the acetabulum, which may lead to subluxation of the femur. There was also some controversy about whether continuous high intra-articular pressure in transient synovitis could cause avascular necrosis of the femoral head (Legg-Calvé-Perthes disease), but further studies did not confirm any link between the two conditions.

Diagnostic Workup for Transient Synovitis and Reactive Arthritis in Children

A complete blood count in a child with transient synovitis might reveal mild leukocytosis. The erythrocyte sedimentation rate is slightly elevated in this condition. A high-grade fever, when combined with a markedly elevated erythrocyte sedimentation rate, is suggestive of septic arthritis. 99.6% of acute single joint arthritis patients with the following symptoms have septic arthritis:

- Inability to walk
- High-grade fever
- Marked leukocytosis
- Markedly elevated erythrocyte sedimentation rate

An **elevated C-reactive protein is suggestive of septic arthritis rather than transient synovitis**. A urine analysis should be performed in these patients and it should be normal. Plain radiography of the affected joint typically shows normal anatomy without any signs suggestive of arthritis.

Two-thirds of children with transient synovitis might have an accentuated pericapsular shadow on their X-ray and the teardrop distance between the medial acetabulum and the ossified part of the femoral head is usually elongated on the affected side. Magnetic resonance imaging is also helpful in the differentiation between septic arthritis and transient synovitis.

On the other hand, patients with reactive arthritis typically have a markedly elevated erythrocyte sedimentation rate and a c-reactive protein level. Complement factors C1 and C2 levels might be elevated. **Leukocytosis is rarely seen, just like transient synovitis**. A stool culture can reveal salmonella, Shigella or Yersinia species. Unfortunately, most cases of reactive arthritis present too late that the stool culture becomes negative.

HLA-B27 testing is usually performed in a patient with reactive arthritis as it can provide prognostic information about the natural history of the disease. **Myocarditis, axial disease, and uveitis after reactive arthritis are more common in patients who are HLA-B27 positive.**

Reactive arthritis is more likely to be associated with the periosteal reaction, Achilles tendinitis, marginal bony erosions, and osteopenia or bony cysts on plain radiography compared to transient synovitis.

To differentiate between enthesitis juvenile idiopathic arthritis and reactive arthritis, a positron emission tomography scan is indicated. Magnetic resonance imaging studies can reveal synovial and joint changes long before the X-rays show any aberrant

abnormalities.

In **both conditions, joint aspiration might be indicated to exclude septic arthritis.**

Management of Transient Synovitis and Reactive Arthritis in Children

The **main treatment of transient synovitis is the application of heat to the affected joint**, instructing the patient or the caregiver to limit the use of that joint for a while and to prescribe ibuprofen to be used only when needed. No other specific treatments are needed for transient synovitis.

If you suspect a more serious condition such as septic arthritis, avascular necrosis of the femoral head, or osteomyelitis, you should admit the patient for observation.

Reactive arthritis is a non-curable disease; therefore, treatment is mainly symptomatic. Physiotherapy, non-steroidal anti-inflammatory drugs, and the injection of corticosteroids in the affected joints are the mainstay treatments. Admission to hospital is generally not needed.

Children, who do not respond to this regimen, should be started on sulfasalazine. Methotrexate, systemic corticosteroids, and cyclophosphamide are reserved for children who do not show any significant response after the last measures. Fortunately, **most patients achieve full remission within six months.**

References

<http://emedicine.medscape.com/article/331347>

PLESCA DA, LUMINOS M, SPATARIU L, STEFANESCU M, CINTEZA E, BALGRADEAN M. Postinfectious Arthritis in Pediatric Practice. *Mædica*. 2013;8(2):164-169.

<http://emedicine.medscape.com/article/1007186>

https://en.wikipedia.org/wiki/Transient_synovitis

Legal Note: Unless otherwise stated, all rights reserved by Lecturio GmbH. For further legal regulations see our [legal information page](#).

Notes