



The Benign Cause of Sudden Hip Pain in Childhood: Transient Synovitis

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Introduction

Sudden onset of hip pain and limping in childhood causes significant concern among both families and clinicians. These symptoms may be indicative of a benign and transient condition, such as transient synovitis (TS), but they can also be associated with serious pathologies, such as septic arthritis, Perthes disease, or osteomyelitis. Therefore, transient synovitis is a clinically important condition that requires careful differential diagnosis in cases of acute hip pain in children. Accurate diagnosis not only prevents unnecessary antibiotic use and invasive interventions but also prevents overlooking serious conditions.

Pathophysiology

Transient synovitis is characterized by a transient inflammatory reaction in the hip joint. Viral infections are often implicated in its etiology. Specifically, adenovirus, parvovirus B19, Epstein-Barr virus (EBV), and enteroviruses are thought to be responsible (1,2). The immune response to these infections causes a nonspecific inflammation in the synovium. The resulting inflammation in the synovium leads to an increase in synovial fluid, which stretches the joint capsule, causing pain and limited mobility. It is usually unilateral and most commonly affects the hip joint.

Clinical Findings and Diagnosis

TS, which is frequently seen in children aged 3-8 years, typically presents with unilateral hip pain, limping, and mild fever. Knee pain may also accompany the symptoms. Fever is generally absent or mild. Children often have difficulty walking, but their general condition remains good.

Differential diagnosis with septic arthritis must be made. Septic arthritis presents with fever, severe pain, malaise, and significant inflammation in laboratory parameters. The four criteria described by Kocher have high predictive value in differentiating septic arthritis. These are: (1) Fever (>38.5 °C), (2) leukocytosis ($>12000/$

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mm^3), (3) erythrocyte sedimentation rate (ESR) >40 mm/h, and (4) difficulty walking. The presence of three or more of these criteria provides strong evidence in favor of septic arthritis (3).

Imaging and Laboratory

Ultrasonography is the most commonly used, fast, and reliable method for detecting increased fluid in the hip joint. However, distinguishing septic arthritis can be challenging. MRI is particularly valuable in excluding pathologies such as Perthes disease and osteomyelitis (5). In laboratory analysis, CRP and ESR in TS are either normal or mildly elevated. In septic arthritis, these values increase significantly.

Joint Aspiration and Fluid Analysis

In cases where differential diagnosis is difficult, joint aspiration (arthrocentesis) should be performed for diagnostic purposes. This procedure, done with or without ultrasound guidance, allows for the evaluation of the synovial fluid's appearance, cell count, Gram stain, and culture (4) (Table 1).

A positive culture result confirms septic arthritis and necessitates prompt antibiotic treatment.

Treatment and Follow-Up

The treatment of TS is typically supportive. Bed rest and



Table 1. Comparison of Synovial Fluid Characteristics in Septic Arthritis and Transient Synovitis

Parameter	Transient Synovitis	Septic Arthritis
Appearance	Clear, yellow	Cloudy, purulent
Leukocytes	<15 000/mm ³	>50 000/mm ³ (usually >100 000)
PMN ratio	<25%	>75%
Gram stain	Negative	May be positive
Culture	Negative	Generally positive

NSAID therapy are the first steps. Symptoms are expected to resolve within 7-10 days. If symptoms persist for more than three weeks or worsen, further investigation is recommended. Conditions such as Perthes disease or juvenile idiopathic arthritis (JIA) should be considered.

Prognosis and Complications

TS is a self-limiting and benign condition. Most patients recover completely (1,5). The recurrence rate is between 4%-17%. A delay in diagnosis can lead to late treatment in septic arthritis, resulting in permanent joint damage, avascular necrosis, and even sepsis (4,6). Therefore, cases with symptoms lasting more than two weeks or worsening should be closely monitored.

Conclusion

In conclusion, transient synovitis is a common, benign hip pathology observed in childhood. However, because it shares similar symptoms with morbid conditions such as

septic arthritis, early and accurate diagnosis is crucial. A multidisciplinary approach, including clinical evaluation, laboratory data, and imaging techniques, is necessary for proper diagnosis.

Competing Interests

None declared.

Ethical Issues

Not applicable.

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