

# IN BRIEF:

## Topics in Pediatric Orthopedics

### Slipped Capital Femoral Epiphysis

#### Overview

A slipped capital femoral epiphysis (SCFE) is a shearing phenomenon in which the growth plate at the top of the femur is overwhelmed. Subsequently, the femoral head “slips” relative to the shaft below.

- SCFE usually presents unilaterally, but can occur bilaterally.
- SCFE occurs in approximately two of every 100,000 adolescents. Males are affected approximately 2.5 times more often than females.
- Males first present at a mean age of 13.5 years; females, at 11.5 years.<sup>1</sup>
- Up to 60 percent of patients may experience an SCFE in the initially unaffected limb within one to two years of their initial presentation.<sup>2</sup>
- *Even a subtle SCFE may lead to hip dysfunction in adulthood.*

#### Signs and Symptoms

SCFE is characterized by a sudden or gradual onset of limping or altered gait. The foot of the affected hip is often externally rotated. The patient may or may not have hip, thigh or anterior knee pain. Patient size can be a key indicator:

- **Weight** - 49 percent of patients are above the 95th percentile for their age.
- **Height** - 73 percent of male and 52 percent of female patients are above the 90th percentile for their age.<sup>3</sup>

Growth hormone abnormalities, hypothyroidism, renal dysfunction, chromosomal changes (e.g., Down syndrome) and systemic inflammatory processes (e.g., autoimmune issues or synovitis) may also influence the stability of the growth plate.

#### Classifying SCFE

SCFE can be classified as *stable* (the patient is able to bear weight) or *unstable* (the patient cannot bear weight). Patients who have unstable slips initially have a 50-percent chance of developing avascular necrosis of the femoral head.

#### Diagnosis – Confirming SCFE During Clinical Exam

Supine obligate external rotation with flexion (relative to the unaffected hip) is a definitive indicator for SCFE. If SCFE is a part of the differential diagnosis:

- Do not perform a clinical gait observation.
- Obtain an AP pelvis view—a subtle unilateral slip may go undiagnosed without a comparative view.
- **Once SCFE is established, the patient should not bear weight.**
- Initiate N.P.O. immediately.
- Refer the patient to a pediatric orthopedic care center where he/she will have a surgical stabilization within 24 hours.

#### Treatment

The standard of care for any degree of slip is immediate pinning in situ. A severely displaced acute, unstable slip may require surgical hip dislocation and reduction with open pinning by an experienced pediatric orthopedist.

- The patient will likely be non-weightbearing for 4-6 weeks.
- Rigorous activity may be restricted for up to 1 year.

<sup>1</sup> The Epidemiology of Slipped Capital Femoral Epiphysis: An Update Lehmann, Charles L. BS; Arons, Raymond R. PhD; Loder, Randall T. MD; Vitale, Michael G. MD, MPH. Journal of Pediatric Orthopaedics: May/June 2006 - Volume 26 - Issue 3 - pp 286-290.

<sup>2</sup> Slipped capital femoral epiphysis. A quantitative analysis of motion, gait, and femoral remodeling after in situ fixation. Siegel DB, Kasser JR, Sponseller P, Gelberman RH. J Bone Joint Surg Am. 1991 Jun;73(5):659-66.

<sup>3</sup> Ibid.



**Elizabeth Weber, M.D.**, has considerable experience in the treatment of stable and unstable SCFE, including surgical hip dislocation. She is considered an expert in the field and has published on this topic for the American Academy of Orthopaedic Surgeons.

#### Key Insights

- Observation or watchful waiting is not appropriate for SCFE. Please refer immediately.
- Early detection and appropriate referral are crucial for optimizing long-term outcomes.
- Children presenting with vague groin, thigh or knee pain should be evaluated for SCFE.
- Very large children with characteristic pain and/or altered gait must be evaluated for SCFE.



*While the femoral head on the patient's right is normal, the left demonstrates a SCFE. The femoral head remains in the acetabulum, but the femoral shaft has “slipped” anteriorly and externally. The epiphysis appears relatively small and has a foreshortened neck.*

**INSIDE:**  
**Identifying Slipped Capital Femoral Epiphysis**

**CHANGE SERVICE REQUESTED**



To make a referral, call 651-325-2200 or 855-325-2200 (toll-free).

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*About In Brief*

*In Brief* has been developed by pediatric orthopedic specialists at Gillette Children's Specialty Healthcare as a resource for primary care providers. If you have comments or questions, please contact Jason Kelecic, program manager, Center for Pediatric Orthopedics, at [jkelecic@gillettechildrens.com](mailto:jkelecic@gillettechildrens.com). To unsubscribe, email [Publications@gillettechildrens.com](mailto:Publications@gillettechildrens.com).

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*On this mild slip, note the wide, irregular physis. Importantly, Klein's line (a line drawn along the lateral femoral neck) should intersect with some femoral head, but in this case, it does not.*