

## Classic Slipped Capital Femoral Epiphysis: A Case Report

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### ABSTRACT:

Every emergency physician should be familiar with the problem of slipped capital femoral epiphysis (SCFE). The classic problem of adolescent hip/thigh pain is explored in this case and a subtle example of SCFE is presented. Radiologic findings are discussed that allow an astute clinician to make the diagnosis early in the disease course which allows the best patient outcomes possible.

A stable SCFE (one in which the patient can bear weight) has a much better prognosis than an unstable SCFE (one in which the patient cannot bear weight). The emergency physician should make the diagnosis as early in the disease process as possible, preferably while the SCFE is still stable. Once the diagnosis is made, the patient should be made non-weightbearing, and consultation with an orthopedic surgeon is necessary. Very frequently the patient is admitted to the hospital and meets the orthopedic surgeon to effectuate a definitive plan. Knowing the subtle history, age group, early X-ray findings, and making an early diagnosis will go a long way toward helping a patient with SCFE.

### Topics:

Slipped capital femoral epiphysis, adolescent hip problem, orthopedics, Klein's line.



**Introduction:** The classic problem of adolescent hip/thigh pain is explored in this case and a subtle example of SCFE is presented.

**Presenting concerns and clinical findings:** A 13-year-old obese boy presented with several weeks of right groin pain that was slowly worsening. Examination of the right lower extremity was normal except for a slight limp with ambulation. X-rays of the hip were obtained and they revealed a slipped capital femoral epiphysis.

**Significant findings:** The pelvis X-ray demonstrates a widened right capital femoral epiphysis (more than 2 mm) that is typical of a slipped capital femoral epiphysis (SCFE).<sup>1</sup> The yellow highlight outlines this area of widening.

The classic Klein's line (orange lines) is often inaccurate and even difficult to draw with certainty.<sup>1</sup> Nevertheless, in this X-ray, one has a sense that the right capital femoral epiphysis does not align with the femoral neck in the same way as it does on the left side, suggesting slippage.

**Patient course:** Prompt consultation with an orthopedic surgeon resulted in the patient's admission to the hospital with no weight bearing. Surgery with a cannulated screw was performed the next day, and the patient was discharged a few days later. Follow up visits in the orthopedic clinic were uneventful and the patient returned to pre-SCFE activities. No evidence of avascular necrosis or femoroacetabular impingement was evident at 3-year follow-up.

**Discussion:** Slipped capital femoral epiphysis occurs during the rapid adolescent growth spurt. It is most frequent in girls around age 11 and boys at the later age of 13 due to their delayed growth spurt.<sup>1</sup> Consideration of body habitus in this age group is appropriate since obesity is a very important risk factor for SCFE.<sup>2,3,4,5,6</sup>

The pain of SCFE may be related to a particular incident and acute in onset (15%),<sup>7,8</sup> but careful questioning often reveals a much more protracted pain course. The pain is felt in the hip or thigh in 85% of the cases.<sup>9,10</sup> Unfortunately, knee pain is the presenting complaint in 15% of cases, making it far more likely to be missed in this smaller group of adolescents.<sup>9</sup>

Good outcomes occur in 90% of patients with a stable SCFE, defined as those who can bear weight.<sup>11,12</sup> Among unstable SCFE, those who cannot bear weight, only 50% have a good outcome.<sup>12</sup> Weight-bearing may convert a stable SCFE into an unstable one with the increased risk of a poor outcome. Regrettably, delay in making the diagnosis of SCFE remains common and frequently results in poor outcomes. X-ray abnormalities of SCFE are usually detected earliest in the frog-leg lateral view and they remain the cornerstone for establishing the diagnosis.<sup>13,14</sup> Plain films have a sensitivity above 90% and a specificity of about 80% when pediatric radiologists and orthopedists are interpreting the films.<sup>14</sup> Although MRI still has limited use in making the diagnosis of SCFE, small studies indicate MRI may be useful in determining if an occult or pre-slip is present in the contralateral hip with a sensitivity of 80% and a specificity of 92%.<sup>15,16</sup> Thus, once the diagnosis of SCFE is made, the patient should not bear any

weight and consultation with an orthopedic surgeon about disposition is essential. In general, patients with newly diagnosed SCFE are admitted to the hospital to ensure no weight bearing and surgery follows.

**Conclusion:** Twenty five percent of SCFE are bilateral.<sup>13,14,15,16</sup> Suspect SCFE in an obese, adolescent boy during the rapid growth spurt that has hip, thigh, or knee pain.

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