

A 6-year-old boy is brought to the physician with pain in his left hip and left knee. The pain has been present for 2 months and the parents initially attributed it to growing pains. His parents have noticed the child limping for the past day. Three weeks ago, he had a low-grade fever, runny nose, and nasal congestion that resolved after a few days. His temperature is 37.1 C (98.6 F), blood pressure is 90/60 mm Hg, pulse is 80/min, and respirations are 16/min. His body mass index is 16.5 kg/m² (75th percentile for age/sex). Examination shows a well-appearing and alert child. Internal rotation and abduction of the left hip are markedly limited. The remainder of the examination, including the knees, is normal. Which of the following is the most likely diagnosis?

- ☐ A. Bacterial arthritis
- ☐ B. Developmental dysplasia of the hip
- ☐ C. Hematogenous osteomyelitis
- ☐ D. Legg-Calvé-Perthes disease
- ☐ E. Slipped capital femoral epiphysis
- ☐ F. Transient synovitis

A 6-year-old boy is brought to the physician with pain in his left hip and left knee. The pain has been present for 2 months and the parents initially attributed it to growing pains. His parents have noticed the child limping for the past day. Three weeks ago, he had a low-grade fever, runny nose, and nasal congestion that resolved after a few days. His temperature is 37.1 C (98.6 F), blood pressure is 90/60 mm Hg, pulse is 80/min, and respirations are 16/min. His body mass index is 16.5 kg/m² (75th percentile for age/sex). Examination shows a well-appearing and alert child. Internal rotation and abduction of the left hip are markedly limited. The remainder of the examination, including the knees, is normal. Which of the following is the most likely diagnosis?

- ☐ A. Bacterial arthritis [2%]
- ☐ B. Developmental dysplasia of the hip [3%]
- ☐ C. Hematogenous osteomyelitis [3%]
- ☒ D. Legg-Calvé-Perthes disease [54%]
- ☐ E. Slipped capital femoral epiphysis [18%]
- ☐ F. Transient synovitis [20%]

[Proceed to Next Item](#)

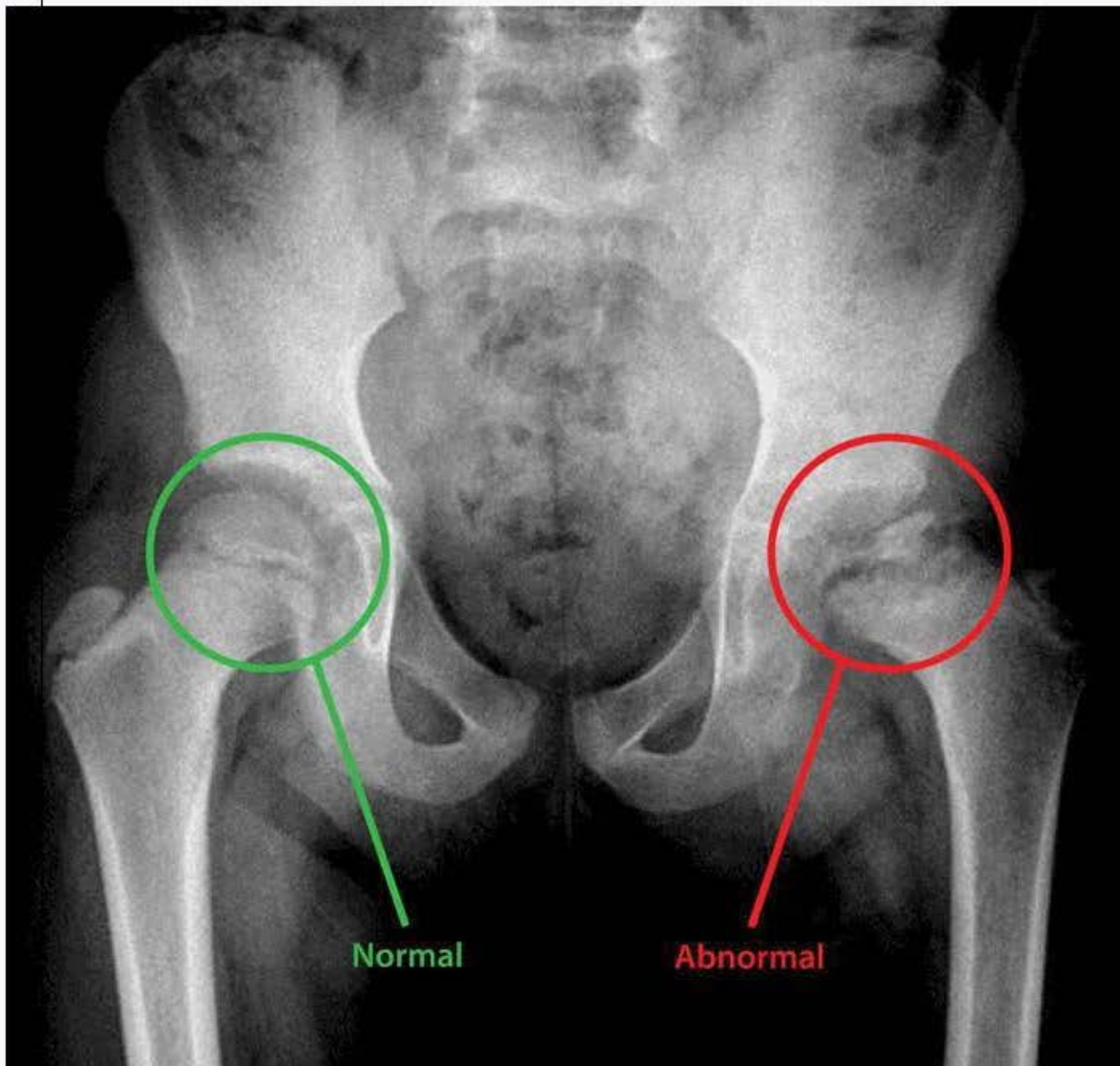
Explanation:

User Id: 

This patient most likely has Legg-Calvé-Perthes disease (LCP), a syndrome of idiopathic **osteonecrosis** (avascular necrosis) of the femoral head. It classically affects **boys age 4-10 years**, with peak incidence at age 7 years. The etiology for LCP is unclear, but in some patients underlying thrombophilia may be a predisposing factor.

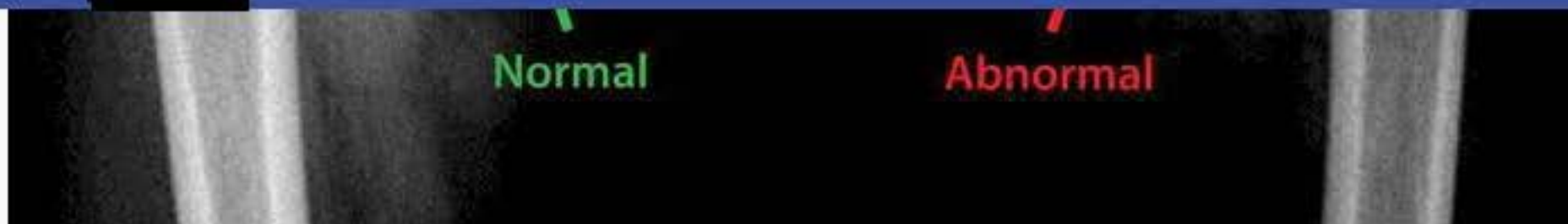
Patients generally present with mild chronic hip or knee **pain of insidious onset** as well as an **antalgic gait** (shorter time weight bearing on the affected side due to pain). Diagnosis requires a high index of suspicion as initial x-rays may be negative, resulting in an initial diagnosis of transient synovitis (**Choice F**). Although transient synovitis typically follows a viral infection, symptoms should resolve within 1-4 weeks. This patient has had **pain for >1 month**. Persistent symptoms should prompt clinicians to repeat imaging as it can take months for concerning changes to appear on x-ray. As the disease progresses, internal rotation and abduction at the hip joint can become markedly limited. Proximal thigh atrophy may also be present.

disease progresses, internal rotation and abduction at the hip joint can become markedly limited. Proximal thigh atrophy may also be present.



The x-ray above shows a flattened and fragmented left femoral head. Magnetic resonance imaging and bone scans can show subtle femoral head necrosis weeks to months earlier than x-rays and may be helpful to aid in early diagnosis. Treatment is aimed at maintaining the femoral head within the acetabulum via splinting or surgery. Patients should refrain from weight-bearing activities.

(Choice A) Septic arthritis most commonly presents with acute fever and inability to bear weight as well as pain, swelling, erythema, and warmth of a single joint, making this



The x-ray above shows a flattened and fragmented left femoral head. Magnetic resonance imaging and bone scans can show subtle femoral head necrosis weeks to months earlier than x-rays and may be helpful to aid in early diagnosis. Treatment is aimed at maintaining the femoral head within the acetabulum via splinting or surgery. Patients should refrain from weight-bearing activities.

(Choice A) Septic arthritis most commonly presents with acute fever and inability to bear weight as well as pain, swelling, erythema, and warmth of a single joint, making this diagnosis unlikely.

(Choice B) Developmental dysplasia of the hip is a disorder of hip instability that is usually diagnosed in infancy. Untreated dysplasia can lead to limping when a toddler learns to walk. Over time, this can progress to painful degenerative joint disease. This diagnosis is unlikely because the patient does not have a chronic history of limping.

(Choice C) In children, hematogenous osteomyelitis most commonly affects the metaphysis of long bones such as the humerus, tibia, and femur. Patients are usually ill with fever and systemic symptoms, making this diagnosis unlikely.

(Choice E) **Slipped capital femoral epiphysis** also presents with limp and insidious hip pain. However, this classically occurs in **obese adolescents**. The mean age of presentation is 12 years in girls and 13.5 years in boys.

Educational objective:

Legg-Calvé-Perthes disease is characterized by osteonecrosis of the femoral head. It typically presents in boys age 4-10 years with insidious-onset hip or knee pain and an antalgic gait.

References:

1. **A brief history of Legg-Calvé-Perthes disease.**
2. **Validation of a clinical prediction rule for the differentiation between septic arthritis and transient synovitis of the hip in children.**
3. **Legg-Calvé-Perthes disease in the evolutionary period: comparison of magnetic resonance imaging with bone scintigraphy.**

Media Exhibit

capital femoral epiphysis

