Limp and Leg Pain Taking a 10 Year-old Out of the Game

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Case History

10 year-old male, multi-sport athlete, presents with 1 year history of right leg pain and weakness that started shortly after being diagnosed with and treated for lyme disease. Pain variable, involving right calf, shin, and knee at times, usually beginning half-way through a practice and resolving after a period of rest. No history of trauma. Symptoms progressively worsening, now with limp during running and atrophy noted by grandmother. No longer able to participate in sports. Previously evaluated by another physician shortly after onset of symptoms and xrays of hips reportedly normal.

Physical Examination

Slightly antalgic and Trendelenburg gait, more prominent with running. Right leg externally rotates with running. Atrophy of right gluteal muscles, quadriceps and hamstrings. Right hip with almost 0 degrees internal rotation, 60 degrees of external rotation. Left hip with 30 degrees internal rotation and 60 degrees of external rotation. Remainder of hip range of motion within normal and symmetric bilaterally. Groin pain elicited with flexion, abduction and external rotation of right hip. Normal knee exam without tenderness. Strength 5/5, reflexes 2+, sensation intact. Pulses normal.

Differential Diagnosis

- Legg-Calve-Perthes Disease
- Slipped capital femoral epiphysis
- Femoral neck fracture
- Juvenile idiopathic arthritis
- Osteoid osteoma
- Gaucher disease
- Femoral Acetabular Impingement
- Developmental dysplasia of the hip

Tests and Results

Xray, AP and frog-leg bilateral hips: Avascular necrosis of the proximal right femoral epiphysis with subchondral cystic change and moderate flattening. Mostly central pillar involvement, minimal lateral epiphyseal flattening, no uncovering.

Labs:

- LD 181
- CK 145
- CRP 0.5
- ESR6
- ANA negative

Final Working Diagnosis

Legg-Calve-Perthes Disease.

Discussion

Legg-Calve-Perthes Disease, or idiopathic avascular necrosis of the proximal femoral epiphysis, is a condition of unknown etiology that most commonly affects children ages 5-8 years-old and is more common in males than females. It occurs as a result of a disruption in the vascular supply to the femoral head and subsequently osteonecrosis occurs followed by revascularization and new bone ossification. Deformities to the femoral head and epiphyseal growth plate can occur, contributing to long term morbidity.

Prognosis depends upon age of patient at presentation, sphericity of the femoral head, congruency at skeletal maturity, and lateral pillar height. Those with bone age > 6 at presentation, female sex, decreased hip range of motion with abduction, or decreased lateral pillar height have a poorer prognosis.

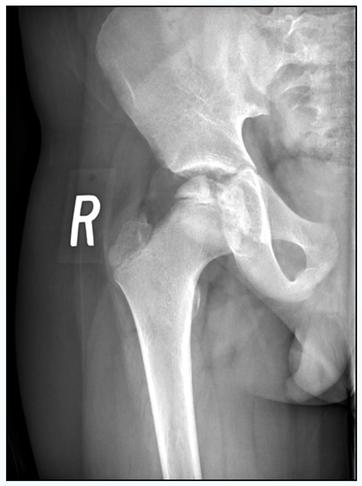

Figure 1: AP view right hip showing AVN.

Figure 2: AP view left hip.

Figure 3: Frog-leg view right hip showing AVN.

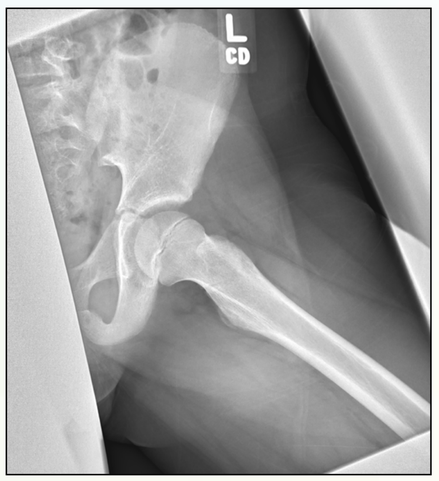

Figure 4: Frog-leg view left hip.

Outcome

Given the minimal lateral pillar flattening on xray, ortho opted for non-operative management of this patient with activity restriction.

Return to Activity and Follow-up

At follow-up 5 months from diagnosis, repeat xrays were stable and he was cleared to play baseball this upcoming season with subsequent follow-up and repeat xrays scheduled for 4 months time.