



Visual Case Discussion

Atraumatic hip pain in a 3 year old

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A 3 year old male with a history of eczema presented to the emergency department for evaluation of atraumatic left hip pain. He endorsed dull left hip pain for the past six months with frequent episodes of unexpected falling while running. His mother reported a recent "cold-like" illness consisting of rhinorrhea and nasal congestion that has since resolved. On examination, the vital signs were stable and the patient was well appearing. There was no obvious lower extremity deformity and no appreciated tenderness to palpation. There was full range of motion of both lower extremities without pain to active or passive range of motion testing. Gait testing was unremarkable and no limb length discrepancy was appreciated. X-ray of the left femur demonstrated significant asymmetric flattening, sclerosis, and irregularity of the left femoral head and neck without joint dislocation, suggestive of the coxa magna deformity (Figs. 1 & 2). These findings were consistent with a diagnosis of Perthes (Legg-Calve-Perthes) disease. The disease, which largely affects children between 3 and 12 years of age, is due to vascular compromise of the femoral capital epiphysis leading to avascular necrosis of the femoral head.¹ The disease can present bilaterally in 10 to 20% of patients and carries a male to female predominance of 4:1. Prognosis is best in children less than six years of age as the dead bone can revascularize.² Management typically centers around pain control, non weight-bearing status, and close orthopedic follow up.³



Fig. 1. Bilateral hip and pelvis x-ray. Green Arrow: Normal right femoral head and neck (unaffected right leg). Red Arrow: Coxa magna deformity to left femoral head and neck

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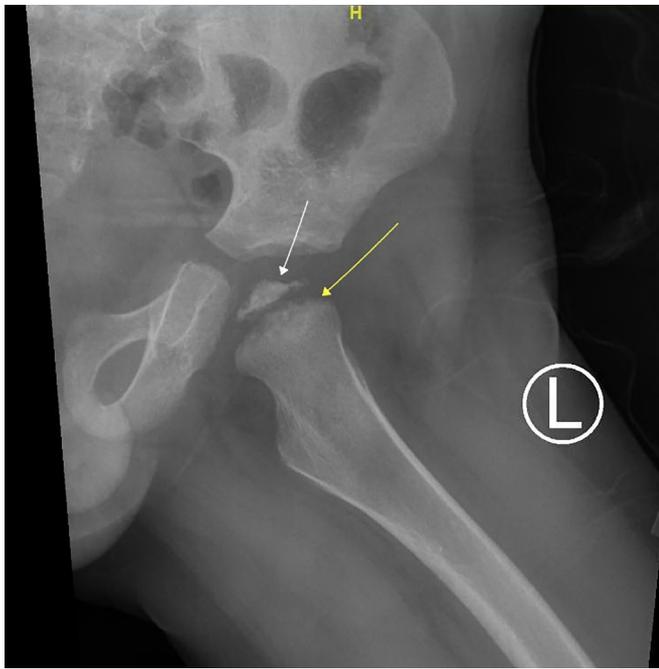


Fig. 2. Left Femur X-ray. White arrow: Sclerotic femoral head with significant flattening. Yellow arrow: Sclerotic and irregular femoral neck

Supplementary material

Supplementary material associated with this article can be found, in the online version, at doi:[10.1016/j.visj.2019.100560](https://doi.org/10.1016/j.visj.2019.100560).

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Questions

1. The mechanism for Perthes disease involves which of the following?
 - a. Idiopathic avascular necrosis of the femoral head
 - b. Infection of the bone from hematogenous source
 - c. Traumatic injury to the long bones
 - d. Bony infiltrate of cancerous cells
2. True or False: Prognosis for Perthes disease is generally favorable, particularly in patients diagnosed under the age of six.
 - a. True
 - b. False

Answers

1. Idiopathic avascular necrosis of the femoral head. Explanation: Disruption in the blood supply to the femoral epiphysis results in the bony deformity seen on plain film imaging.
2. True. Explanation: Regeneration of blood supply allows for remodeling and regrowth of dead bone. Prognosis is largely favorable the younger the patient is at the age of diagnosis.