Masked by Relief: A Diagnosis of Femoral Head Avascular Necrosis After Hip Injection - A Case Report

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INTRO

Early pain relief after an intra-articular corticosteroid injection can mask an evolving destructive process, making recognition of worsening symptoms essential. We present a case of progressive right hip dysfunction and subsequent avascular necrosis (AVN) diagnosis following fluoroscopy-guided intra-articular corticosteroid injection.

METHODS

- This is a single, retrospective case report

RESULTS

- 70-year-old male with right hip pain radiating from the lateral thigh to the groin, and right leg muscle spasms
- Managed with baclofen 10 mg TID
- He underwent an uncomplicated fluoroscopy-guided intra-articular corticosteroid injection of the right hip.
- At 2-month follow-up, he reported significant improvement in hip pain and function.
- 10 days after post-procedural follow-up, he presented with shortened right step length, hip locking while seated, severe right groin pain and severe anterolateral thigh tightness, partially managed with pregabalin 50 mg BID and physical therapy
- MRI confirmed avascular necrosis of the right femoral head
- Referred to orthopedic surgery follow-up and later underwent surgical evaluation for right total hip arthroplasty

After an uncomplicated intra-articular corticosteroid injection of the right hip, the patient presented with shortened right step length, hip locking while seated, severe right groin pain and severe anterolateral thigh tightness. MRI confirmed avascular necrosis of the right femoral head. Patient was promptly referred to orthopedic surgery and later underwent surgical evaluation for right total hip arthroplasty.



Figure 1. Coronal MRI of the pelvis/bilateral hips (T1 weighted). Coronal image through the femoral heads and acetabula, with normally hyperintense (bright) fatty marrow throughout the visualized pelvis and proximal femurs. The green arrow indicates the superior/subchondral region of the right femoral head, where a serpiginous low-signal line demarcates the necrotic segment from viable marrow, the characteristic MRI finding of avascular necrosis.



Figure 2. Anteroposterior (AP) x-ray of the pelvis. The green arrow points to the right femoral head/superior articular surface. The right femoral head shows subtle mixed sclerosis and altered subchondral architecture relative to the left, without frank collapse or a definite crescent lucency. The joint space appears preserved. Findings are consistent with early-stage avascular necrosis of the right femoral head.



DISCUSSION

This case raises concern for AVN following intra-articular hip corticosteroid injection, with symptoms emerging approximately 70 days post-injection.

- Causation cannot be definitively established
- The temporal progression suggests an injection-related complication.
- Proposed mechanisms include vasoconstriction, fat embolism, hypercoagulability, and accelerated osteocyte apoptosis.
- Clinicians should remain aware of rare adverse outcomes, including AVN, subchondral insufficiency fracture, and femoral head collapse.
- Progressive pain or gait deterioration after injection warrants re-evaluation with advanced imaging rather than attribution to baseline degenerative disease.

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