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Visual Case Discussion

Pain in prosthetic hip

Sarah E. Johnson (MD)

Emergency Medicine Resident, Vanderbilt University, Nashville, TN, USA

A 90 year old female presented to our emergency department with left hip pain. She was taken to an outside hospital initially, where she was diagnosed with a left prosthetic hip dislocation via x-ray and transferred to our facility for further management. On arrival, she was hemodynamically stable and afebrile. She reported sudden onset of pain in the left hip after a fall from ground level that had occurred earlier on the same day as presentation. Her exam was notable for a fully mobile left hip with only mild pain during range of motion, though with tenderness to palpation over ecchymosis on her lateral hip and thigh. Patient was able to bear weight and ambulate, though with discomfort. X-ray below; identical to initial x-ray obtained at outside hospital.



Fig. 1. Left hip AP view.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.visj.2018.10.009](https://doi.org/10.1016/j.visj.2018.10.009).

E-mail address: sarah.e.johnson@vumc.org.

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Questions

1. What is the diagnosis?
 - a. Anterior hip dislocation
 - b. Polyethylene wear of acetabular cup liner
 - c. Post-operative migration of acetabular cup
 - d. Peri-prosthetic femoral fracture
2. What is the management of this condition?
 - a. Emergent orthopedics consult
 - b. Conscious sedation and manipulation of the affected joint
 - c. Weight-bearing as tolerated, pain control, and outpatient follow up with orthopedics
 - d. Immobilization, pain control, and outpatient follow up with orthopedics

Answers

1. Polyethylene wear of acetabular cup liner. Explanation: Unlike in a dislocation, the ball is located appropriately within the acetabular

cup. However, it appears to not articulate with the cup due to wear of the polyethylene liner. This wear causes the increased lucency on radiograph. Over time following hip replacement, hardware changes and eventual failure can occur. This includes wear of the polyethylene cup liner with resulting migration of the femoral head within the liner. As further destruction of the liner occurs, complete failure of the acetabular cup and complications resulting from metal-on-metal articulation such as metal debris both within and external to the joint follow. The time it takes to cause wear of the liner varies significantly, with some patients showing minimal wear and some with wear greater than 0.2mm/year, based on the activity level of the patient, the angle of articulation, the other types of material in the prosthetic, and the type of polyethylene itself.

2. Weight-bearing as tolerated, pain control, and outpatient follow up with orthopedics. Explanation: As the patient's prosthesis is appropriately located and she is able to ambulate, outpatient follow up is appropriate with no emergent intervention needed. Since she does have some discomfort associated with her fall and with ambulation, pain control, including prescriptions at discharge, is warranted.