

Knee-Lock Reduction: A safer and more controlled reduction technique for posterior hip dislocations

Benjamin Price, Zachary L Littlefield, Adam Davidson, William Fray McCormick¹, Robert M Harris

¹Division of Orthopaedic Surgery

Posterior hip dislocations are a common injury presenting to the Emergency Department. Emergent reduction is crucial in native hips to minimize the risk of vascular insult and complications such as avascular necrosis of the femoral head. However, due to the vast musculature and difficult positioning, hip reductions are often difficult even with proper sedation. The Knee-Lock Reduction technique allows the performing physician to remain standing firmly on the ground, with a straight back and bent knees, providing optimal leverage for a safe and ergonomic reduction for both the patient and the provider. To our knowledge this technique has not been previously described in medical literature.

After a proper timeout, the patient's pelvis is positioned near the edge of the bed. An assistant applies anterior-to-posterior pressure on the anterior superior iliac spine to stabilize the pelvis. With the patient's affected hip and knee flexed, the physician places one arm posterior to the patient's knee so that the popliteal fossa rests in the provider's antecubital fossa, then grips their opposite forearm with that hand. The opposite hand grasps the patient's supracondylar femur. The patient's shin should rest comfortably in the physician's axilla. This position facilitates controlled hip flexion and internal rotation through smooth, continuous motion. In-line traction is achieved using proper lifting biomechanics from the physician's grounded position. Once a palpable reduction is obtained, leg lengths and neurovascular status are reassessed.

The Knee-Lock Reduction technique is a safe and effective maneuver for reducing posterior hip dislocations. As a novel technique not previously described in the literature, it offers ergonomic advantages for the provider while maintaining control and safety for the patient.