Avoiding the Frog Leg Lateral Projection for Traumatic Hip Fractures

Andrew Meyers, DO, R.T.(R)

Hip fractures from low-energy traumatic events, such as ground-level falls in older adults, are commonly encountered in the emergency department, with more than 300 000 hip fractures occurring annually in the United States.[1-4] Radiologic technologists must position patients precisely when imaging hip fractures to obtain adequate diagnostic information.[5,6] Incorrect positioning when setting a hip fracture could lead to a more severe injury, larger surgical procedure, and possibly a worse outcome.

Femoral Neck Fractures

Orthopedic surgeons rely heavily on classification systems and related measurements that can be obtained from radiographs. Radiographs are imperative to the orthopedic surgeon because they guide a decision on operative or nonoperative management and help determine which surgical procedure is most reliable.[7-9] Hip fractures are categorized and classified based on specific anatomical region and pattern of fracture. The anatomical regions of the hip are subdivided into the femoral neck, intertrochanteric, and subtrochanteric area.

Femoral neck fractures of the hip joint are unique in that disruption of the surrounding blood supply can lead to nonunion and avascular necrosis.[7,10] These complications dramatically increase if the fracture becomes displaced, and the involved bone shifts away from itself.[11] When a 2-projection hip radiograph is ordered, radiologic technologists often obtain an anterior-posterior projection and a cross-table lateral projection.[12] Radiologic technologists should understand the importance of using a cross-table lateral projection and avoiding a frog leg lateral projection for traumatic hip injuries. Using a frog leg lateral projection for a traumatic hip injury can lead to displacement of the femoral neck and affect blood loss, surgical time, hospital stay, and infection rate.[13] Even if the patient can maneuver their leg into a flexed and externally rotated position, a frog leg lateral hip projection should not be used to avoid causing additional pain to the patient and to prevent a nondisplaced femur fracture from becoming displaced.

A nondisplaced femoral neck fracture can be treated with in situ screw fixation, using sliding hip screw fixation or percutaneous cannulated screw fixation.[7] If the fracture is considered displaced, the orthopedic surgeon must consider the patient's baseline function when deciding whether to perform a hemiarthroplasty, which replaces the entire head of the femur, or a total hip arthroplasty, which involves additional work to the acetabulum.[7] Compared with older adults who undergo hemiarthroplasty or total arthroplasty, older adults who undergo in situ screw placement of nondisplaced femoral neck fractures have less blood loss, shorter surgical times, shorter hospital stays, lower infection rates, and little to no risk of dislocation.[14]

Conclusion

For patients with a traumatic hip fracture, radiologic technologists should obtain a cross-lateral projection

and avoid the frog leg lateral hip projection. Although there are no known studies directly correlating frog leg lateral hip projections to the displacement of femoral neck fractures, a flexion and external rotation motion of the hip in the frog leg lateral position could be enough to cause displacement of a previously nondisplaced injury. This motion can be avoided with the use of a cross-table lateral projection. Although the frog leg lateral projection is the quickest route, which often is taken in traumatic situations for optimum patient care and prevention of displacement, the cross-lateral projection should be obtained for suspected traumatic hip fractures.

Andrew Meyers, DO, R.T.(R), works for Community Memorial Health System in Ventura, California.

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