

## **The Utility of the AP Pelvis Radiograph in Diagnosing Traumatic Hip Dislocations**

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**INTRODUCTION:** Advanced Trauma Life Support protocol mandates pelvic radiography in trauma patients as part of the initial assessment. With the advent of readily accessible and rapid computed tomography (CT), many institutions, including our own, delay or eliminate the initial anteroposterior (AP) pelvis radiograph. The goal of our study was to determine how many patients obtained a CT scan prior to a closed hip dislocation reduction.

**METHODS:** After Institutional Review Board approval we reviewed all operatively treated acetabular fractures that presented to our Level-1 trauma center over a 12-year period (2008-2020). All included patients were over 18 years of age. Imaging was reviewed and patients who had a hip dislocation were selected for inclusion in the study. We then determined if the patient had a CT scan performed prior to closed reduction. Medical records were reviewed to determine if patients required urgent trauma surgical intervention. The time until the hip was reduced was also recorded.

### **RESULTS:**

We identified 470 patients with an acetabular fracture requiring repair. Nineteen patients were excluded due to insufficient data in the medical record. Of those 451 patients, 95 (21%) of them had a hip dislocation. Of those 95 patients, 63 of them (66%) had a CT scan completed prior to closed reduction.

Of those 63, patients 15 (23%) did not have a pelvic radiograph ordered until the hip was reduced. One of those patients required emergent trauma surgical intervention. The average time to reduction 308 minutes.

Of the 63 patients, 48 (76%) had a pelvic radiograph demonstrating a hip dislocation, but a CT was still obtained prior to reduction. Four of those patients required emergent trauma surgical intervention. The average time to reduction 296 minutes.

Thirty-two patients (33%) had pelvic radiographs ordered, then underwent reduction prior to obtaining a CT. The average time to post-reduction imaging was 174 minutes.

When excluding patients who had emergent trauma surgical intervention, patients who had a CT obtained prior to closed reduction had a significantly greater time to reduction ( $p = 0.03$ ).

### **DISCUSSION AND CONCLUSION:**

The shift toward an initial CT scan had led to delays in closed reductions of hip dislocations. Additionally, patients were exposed to unnecessary radiation from repeat CT scanning. We recommend that an AP pelvis should remain part of the initial trauma assessment, consistent with ATLS protocol.