The Utility of Obtaining Post-Mobilization Imaging in Nonoperative Pelvic Injuries

Benjamin A. Winston, MD[1]*; Paxton Gehling, BS; Minhaz Sarker, BS; Connor Eagleton, BS; Darin Friess*

[1]*Oregon Health Science University, Portland, Oregon, USA*

Purpose: Pelvic fractures represent a wide spectrum of injury from high-energy, unstable patterns to low-energy, stable patterns that require minimal intervention. It can be difficult to determine where along this spectrum an injury pattern lies, and a missed unstable injury can be catastrophic. There exist protocols to determine stability intraoperatively, but this is resource-intensive and requires a general anesthetic. Another method is to obtain post-mobilization films (AP, inlet, and outlet views) to assess for early displacement. The purpose of this study was to investigate how often these radiographs diagnose occult instability and how many patients convert from nonsurgical to operative treatment.

Methods: Records at our single institution from 2007-2014 were retrospectively reviewed as identified by CPT and ICD-9 codes for pelvic fractures. Demographic data for 1057 patients were collected including age, gender, injury mechanism, and trauma activation status. 655 patients were treated operatively and 402 were planned for nonoperative treatment. For the 402 patients with an initial nonoperative treatment plan, a chart review was performed to identify those patients that had post-mobilization imaging obtained. Chart review after the post-mobilization imaging was completed to determine if treatment had changed based on the imaging.

Results: Of the 1057 patients identified, the average age was 50 years (±20 years), ranging from 18 to 103. 61% were male. The most prevalent mechanisms of injury were motor vehicle crash (40%) and fall from height (21%). 50% of patients presented as trauma activations. Of the 402 patients planned for nonoperative treatment, 192 (48%) had post-mobilization imaging. Zero patients demonstrated radiographic occult pelvic instability, demonstrating that post-mobilization films are not useful. Three of these 192 patients had significant difficulty with mobilization, and underwent surgical stabilization. In all 3 of these cases the post-mobilization films were read as minimal or no displacement and chart notes specifically indicated the reason for surgery was based on the patient's pain.

Conclusion: Routine post-mobilization imaging for patients with predicted stable pelvic injuries is not necessary. Of 1057 patients, we found zero with radiographic occult pelvic instability. Eliminating this radiographic step would result in lower cost and decreased patient exposure to radiation. Instead, orthopaedic surgeons should base the need for further diagnostic imaging on uncontrolled pain with mobilization.