

The Value of “Binder-Off” Imaging for Identifying Occult and Unexpected Pelvic Ring Injuries

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Background/Purpose: Pelvic fractures occur in 5% to 16% of patients with blunt trauma and can cause life-threatening hemorrhage. Pelvic binders are becoming a routine part of the initial management of trauma patients with suspected pelvic fractures, being placed by paramedics on the scene. Anecdotal reports have suggested serious pelvic injuries may be missed or not fully appreciated in the presence of a pelvic binder that has been applied and has anatomically reduced the pelvic ring. For this reason our departments now perform additional pelvic imaging following removal of the pelvic binder where there is still suspicion of a pelvic injury, unless hemodynamic instability precludes it.

Methods: A retrospective review of all patients presenting to our tertiary referral unit over a 2-year period with significant pelvic ring injuries was conducted. Images (CT and radiographs) of the pelvis with the binder on and off were assessed to identify the frequency at which further imaging changed patient management.

Results: 97 patients were identified from our prospective database. 71 patients had initial imaging with a pelvic binder in situ and 54 of these patients had “binder-off” radiographs. We identified 2 patients with occult anteroposterior compression injuries not seen on imaging in binder, and 2 in whom images in binder were classified as lateral compression type I injuries, but binder-off images revealed unexpected symphysis diastases.

Conclusion: Trauma imaging of pelvic injuries performed with a pelvic binder in situ is inadequate at fully assessing the pelvic ring. In 7% of significant pelvic trauma cases the pelvic ring injury is masked or underestimated with imaging in binder alone. We recommend in those patients with either distracting injury or unable to assess, further imaging should be undertaken with the pelvic binder removed.