CT Scanner Table Curvature Conceals Occult Contralateral Posterior Pelvic Ring Injury

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Purpose: We sought to determine the incidence of occult incomplete pelvic ring injuries masked by the curved gantry of a CT scanner, which may internally rotate the pelvis and reduce the sacroiliac (SI) joint.

Methods: All operative pelvic ring injuries from 2020-2023 at 2 centers were reviewed. Inclusion criteria were B- or C-type pelvic ring injury, pre- and postoperative CT, <18 years of age. We excluded prior pelvic instrumentation, or pelvic binder presence during CT. SI joint width was measured at the anterior and posterior SI joint at the first and second sacral vertebrae on pre- and postoperative CT for initial unilateral ring injuries. Contralateral SI joint widening >2 mm between pre- and postoperative CT scans was considered an occult injury. If occult injury was noticed on intraoperative fluoroscopy, these were also counted positive.

Results: 58 operative pelvic ring injuries were included, 19 with bilateral and 39 with unilateral posterior ring injuries. 6 of 39 patients (15%) had an occult contralateral SI injury not diagnosed on preoperative CT. The sensitivity, specificity, negative predictive value, and accuracy of screening pelvis CT for detecting contralateral incomplete SI injury were 76%, 100%, 85%, and 90%, respectively.

Conclusion: Surgeons should be aware that screening pelvis CT will miss 24% of contralateral incomplete SI injuries in patients without a binder. Additional preoperative plain films on a flat surface out of binder if safe, and careful attention to intraoperative fluoroscopy, are important.