

Traumatic Abdominal Wall Injuries in Pelvic Fractures: A CT-Based Pilot Study Utilizing the Dennis Classification

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Purpose: Although underreported, traumatic abdominal wall injuries (AWI) may significantly impact outcomes in pelvic fractures. This pilot study evaluates the prevalence, severity, and distribution of AWIs in surgically managed pelvic fractures using preoperative CT imaging and the Dennis classification system.

Methods: A retrospective analysis of 20 consecutive patients undergoing pelvic fracture fixation at a Level I trauma center was conducted. Inclusion required preoperative CT imaging and surgical management; nonoperative cases were excluded. AWIs were classified by a musculoskeletal radiologist using the Dennis system (Grades I–VI). Pelvic fractures were categorized via AO/OTA criteria (types A/B/C). Demographics, injury mechanisms, AWI characteristics, and associated injuries were analyzed.

Results: AWIs were identified in 65% (13 of 20) of patients, predominantly Grade I subcutaneous contusions (8 of 13). Unstable C-type fractures exhibited the highest AWI prevalence (80%, 4 of 5), including severe injuries: two Grade V (complete muscle disruption with herniation), one Grade III (single muscle disruption), and one Grade II (muscle hematoma). B-type fractures demonstrated a 60% AWI prevalence (9 of 15), primarily Grade I (8 of 9) with one Grade II.

Conclusion: This pilot study highlights a high prevalence of AWIs in pelvic fractures, with severe injuries (Grades II–V) strongly associated with unstable C-type fractures. The Dennis classification effectively characterizes AWIs on preoperative CT, underscoring its utility in guiding clinical evaluation to enhance detection and prevent delayed complications. These findings advocate for routine CT assessment of AWIs in pelvic trauma. Larger prospective studies are needed to validate these results and refine management protocols.