

## Increased Incidence of Infection and Complications Following Internal Fixation of Diastasis Pubis in Patients with Traumatic Urologic Injury

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**Purpose:** High-energy pelvic ring injuries with symphysis pubis disruption can be associated with urologic injury that can complicate definitive orthopaedic management. The purpose of this study is to compare wound infection and complication rates in patients undergoing open reduction and internal fixation of unstable diastasis pubis with and without concomitant urologic injury.

**Methods:** A multicenter surgical registry of consecutive patients from 2005 to 2018 who underwent primary open reduction and internal fixation of the pubic symphysis to treat pubic symphyseal ligamentous rupture and diastasis (OTA/AO 61-B and 61-C) was retrospectively reviewed. Urologic injury was identified using CT scans and retrograde cystourethrograms verified by attending urologist consultation. Treatment of the urologic injuries was determined from urology operative reports and medical record review. Complications were defined as: superficial infection, deep infection requiring surgical debridement, loss of fixation requiring revision, distal neurologic injury, and erectile dysfunction. Patients were classified based on presence or absence of urologic injury.

**Results:** A total of 219 patients were included for analysis. Patient age, sex, smoking status, body mass index, and number of comorbidities did not vary among treatment groups. Mean postoperative follow-up was 5 months. 48 patients (22%) sustained an associated urologic injury. 4.6% of patients demonstrated a lower extremity neurologic deficit following treatment, and 1.8% demonstrated erectile dysfunction. Bladder rupture was the most common associated urologic injury (37.5%), followed by renal laceration (33.3%), urethral transection (18.8%), combined bladder and urethral injury (6.3%), and combined bladder rupture and renal laceration (4.2%). 21 patients (43.8%) underwent surgical treatment of their respective urologic injury. 13 patients (27.1%) in the urologic injury group sustained a major complication during their course of treatment, compared to 13 patients (7.6%) in the group without urologic injury ( $P < 0.001$ ). Rates of blood transfusion ( $P = 0.002$ ) and length of hospital stay ( $15.2 \pm 16.4$  vs  $10.9 \pm 11.2$ ,  $P = 0.037$ ) were significantly higher in the urologic injury group. 14.6% of patients with urologic injury developed deep infection requiring surgical intervention, compared to 3.5% in the group without urologic injury ( $P = 0.010$ ).

**Conclusion:** The presence of concomitant urologic injury resulted in higher rates of blood transfusion, length of hospital stay, deep infection necessitating surgical treatment, and overall complications in patients undergoing open reduction and internal fixation of the symphysis pubis in treatment of an unstable pelvic ring injury. Further investigation is indicated to determine the optimal surgical management of patients with symphysis pubis disruption and associated urologic injury.