

## Open Fixation After Preperitoneal Pelvic Packing Is Associated with a High Surgical Site Infection Rate

Joshua A. Parry, MD, MS; Ye Joon Kim, MD; Bryan L. Scott; Fredric Pieracci; Ernest Moore; Cyril Mauffrey, MD; Joshua A. Parry, MD, MS

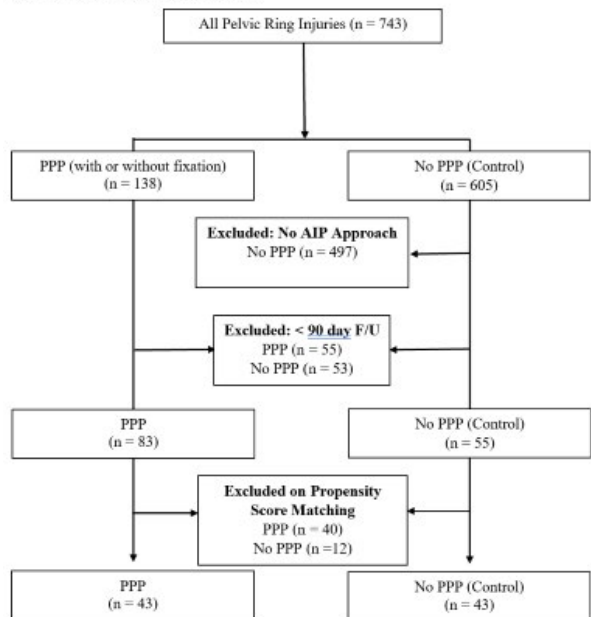
**Purpose:** The purpose of this study was to investigate the incidence of and variables associated with pelvic space surgical site infection (SSI) in patients receiving preperitoneal pelvic packing (PPP) for persistent hemodynamic instability (HDI).

**Methods:** A retrospective review of a prospectively gathered operative registry identified 743 severely injured (ISS >15) patients with pelvic ring injuries caused by blunt mechanisms. The final cohort included 138 patients with >90 days of follow-up: 83 patients who received PPP and 55 patients in the control group who received open reduction and internal fixation (ORIF) through an anterior intrapelvic approach (AIP) without PPP (Figure 1). The primary outcome was pelvic space SSI. Both univariate and multivariate analyses were performed to identify variables associated with postoperative pelvic space SSI. Propensity score matching using a 1:1 ratio was performed to adjust for differences in baseline ISS and American Society of Anesthesiologist (ASA) scores between the 2 cohorts. A logistic regression model was used to generate a propensity score with PPP as the response variable for each patient. Subsequently a nearest neighbor model match, using a caliper width of 0.20, was performed to identify patients for inclusion in our post-match analysis.

**Results:** The PPP group was more severely injured than the control group with higher ISS (mean difference 11.0, confidence interval [CI] 7.0 to 14.0) and higher ASA classifications ( $P < 0.01$ ). The SSI rate in the PPP group was 31.3% (26/83) compared to 10.9% (6/55) in the control group (proportional difference [PD] 20.4%, CI 6.4 to 32.5%,  $P = 0.007$ ). On multivariate analysis, PPP (odds ratio [OR] 3.52, CI 1.01 to 12.29;  $P = 0.04$ ) and anterior ORIF (OR 6.98, CI 1.91 to 25.52;  $P = 0.003$ ) were independently associated with pelvic space SSI. Patients in the PPP group ( $n = 43$ ) were then 1:1 propensity score matched with patients in the control group to account for differences in ISS and ASA score. In this matched cohort, the rate of pelvic space SSI remained higher in the PPP group compared to that in the control group (30.2% vs 9.3%; PD 20.9%, CI 3.7 to 36.3%;  $P = 0.02$ ).

**Conclusion:** Open fixation of the anterior pelvic ring and PPP were both independently associated with pelvic space SSI. The morbidity of SSI after PPP must be weighed against the risk of exsanguination.

Figure 1. Flow Chart of Patient Inclusion



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