

TITLE (capital letters)	DOES INTRAARTICULAR INVOLVEMENT INCREASE THE RISK OF COMPLICATIONS AFTER FRACTURE REPAIR SURGERY?
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Abstract (do not indent; must include: OBJECTIVES, METHODS, RESULTS, CONCLUSION Maximum: 300 words).	OBJECTIVES: Fractures that involve joints are believed to increase the surgical complexity compared to those without joint involvement. This study aims to investigate whether joint involvement increases the risk of surgical complications following fracture repair surgery. METHODS: Through a data partnership with Mercy Technology Services, a retrospective database analysis of Mercy electronic health records was conducted. Adult patients who underwent fracture repair surgery between 2011-2018 Mercy were identified. Postoperative outcomes assessed included: (1) 3-months infection after surgery, (2) all-cause 3-months readmissions, (3) extended LOS (≥ 3days) and (4) 3-months cardiac/renal/respiratory complications. Propensity score matching was used to maximize similarity between patients with and without joint involvement fracture using the following covariates: age, ASA score, BMI, Insurance, Elixhauser comorbidity score (ECS), gender, procedure year, New Injury Severity Score (NISS) and provider volume. The propensity score matching involved nearest neighbor technique with calipers of width equal to 0.2 of the pooled standard deviation of the logit of the propensity score. Matching ratio was 3:1. RESULTS: Before matching, this study included 14,044 fracture repaired patients, of which 766 were with intraarticular fracture. The mean (SD) of age, ASA, NISS, and ECS for non-intraarticular fracture vs <u>intraarticular fracture</u> were 63$\pm$21 vs <u>51$\pm$18</u>, 2.6$\pm$0.8 vs <u>2.5$\pm$0.8</u>, 8.9$\pm$5.5 vs <u>12.1$\pm$8.5</u>, and 2.8$\pm$2.5 vs <u>2.1$\pm$2.1</u>, respectively. After matching, the OR time increased by 52 mins on average (158 vs 106) for patients with intraarticular fracture. Intraarticular fracture was associated with longer length of stay (OR 1.62, 95% CI 1.35-1.93), infection (1.28, 95% CI 1.005-1.64), all cause readmission (1.44, 95% CI 1.15-1.80) and respiratory complications (1.42, 95% CI 1.02-1.98). We did not observe significant association between cardiac and renal complications and intraarticular fracture after PS matching. CONCLUSION: Joint involvement is associated with higher risk of surgical complications after fracture repair.