

Is the Use of Cerclage Wires Associated With Increased Complications Following ORIF of Periprosthetic Femur Fractures?

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Purpose: Periprosthetic femur fractures (PFF) are increasingly common and are challenging to treat. Open reduction with cerclage wires may facilitate fixation, but concerns remain about negative effects on fracture vascularity. The objective of this study was to compare outcomes and complications between PFFs repaired with and those repaired without cerclage wires for fracture reduction.

Methods: This was a retrospective study of patients with a PFF around a hip prosthesis treated with a single lateral locked plate (LLP) at two Level I trauma centers between 2010 and 2023. Demographics, injury characteristics, surgical data, and complications were collected. Primary outcomes were unplanned reoperation, nonunion, deep infection, and time to weightbearing. Baseline characteristics and outcomes were compared according to reduction strategy (cerclage vs no cerclage) for both Vancouver B1 (V-B) and Vancouver C (V-C) fractures.

Results: In total, 1141 patients were reviewed, and 116 met inclusion criteria (median age 78 years, 79% female, 96% low-energy falls). There were 39 (34%) V-B and 77 (66%) V-C fractures. There were no differences in baseline demographic characteristics. Patients treated with cerclage were less likely to have a total knee or supracondylar fracture ($p < 0.05$). Cerclage wires were used for reduction in 30 (71%) of the V-B and 22 (26%) of the V-C fractures. Among V-B fractures treated with or without cerclage, there was no difference in reoperation (22% vs 17%, $P > 0.99$), nonunion (3.7% vs 17%, $p = 0.22$), deep infection (11% vs 0%, $P = 0.54$), and time to weightbearing (14 weeks vs 12 weeks, $p = 0.56$). Patients with V-C fractures with or without cerclage also had similar rates of reoperation (0% vs 12%, $P = 0.18$), nonunion (0% vs 5.3%, $P = 0.56$), deep infection (0% vs 3.5%, $P > 0.99$), and time to weightbearing (9 weeks vs 13 weeks, $P = 0.085$).

Conclusion: In this cohort of V-B and V-C PFFs repaired with LLP, there was no significant difference in outcomes between patients treated with and those treated without cerclage wiring for fracture reduction. Surgeons may consider cerclage wiring for reduction, understanding that randomized prospective studies are needed to characterize potential biologic tradeoffs associated with open reduction and circumferential wiring.