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

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INTRODUCTION:

Periprosthetic femur fractures (PFF) are increasingly common and challenging to treat. Open reduction with cerclage wires may facilitate fixation, but concerns remain about negative effects on fracture vascularity. The purpose of the present study was to compare outcomes and complications between PFF repaired with and without using 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 1 trauma centers between 2010-2023. Demographics, injury characteristics, surgical data, and complications were collected. Primary outcomes were unplanned reoperation, nonunion, deep infection, and time to weightbearing. Non-parametric bivariate analyses were used to compare baseline characteristics and outcomes according to reduction strategy (cerclage vs no cerclage) for both Vancouver B1 (V-B) and Vancouver C (V-C) fractures. RESULTS:

1,141 patients were reviewed and116 met inclusion criteria (median age 78, 79% female, 96% low energy falls). There were 39 (34%) V-B and 77 (66%) V-C fractures. 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 and without cerclage there was no difference in reoperation (22% vs 17%, P>0.99), nonunion (3.7% v 17%, p = 0.22), deep infection (11% vs 0%, P=0.54), and time to weightbearing (14wk vs 12wk, P=0.56). V-C patients with or without cerclage also had similar rates of reoperation (0% vs 12%, P=0.18), nonunion (0% v 5.3%, p = 0.56), deep infection (0% vs 3.5%, P>0.99), and time to weightbearing (9wk vs 13wk, P=0.085). 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).

DISCUSSION AND CONCLUSION:

In this cohort of V-B and V-C periprosthetic fractures repaired with lateral locked plating, there was no significant difference in outcomes between patients treated with and 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.