

## **Subacute Re-Fracture Rates are High after Revision Hip Surgery for Initial Periprosthetic Fracture**

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### **INTRODUCTION:**

Periprosthetic fractures (PPFx) are debilitating complications following total hip arthroplasty (THA) with many patients requiring a revision surgery. Although a rare complication, the incidence of PPFx has been rising. Revision surgery for PPFx is associated with high failure rates and there is a paucity of literature reporting on the incidence and risk factors of sustaining subsequent PPFx in these patients. Therefore, the aim of this study is to determine the re-fracture rate and compare outcomes by surgical approach in patients undergoing revision for an initial PPFx.

### **METHODS:**

The retrospective study identified patients that underwent revision hip surgery for the indication of femoral PPFx at our institution between 2017-2023. Patient demographics, comorbidities, and medication history was collected. Operative notes were reviewed to determine surgical approach. The primary outcome of the study was the re-fracture rate within 90 postoperative days. Secondary outcomes compared surgical approach and identified patient risk factors for subsequent PPFx.

### **RESULTS:**

184 patients were included in the final analyses, of which 70 underwent the Direct Lateral approach (DL), 84 the Posterior approach (PA), and 30 the Direct Anterior approach (DA). Four patients sustained a re-fracture of the femur, with a re-fracture rate of 2.17%. Among surgical approaches, the rate of re-fractures was 1.43%, 3.57%, and 0.00% for DL, PA, and DA, respectively, which was not statistically significant ( $P=0.660$ ). Patient age over 70, type II diabetes, and BMI under 25.0 was associated with a higher likelihood of re-fractures.

### **DISCUSSION AND CONCLUSION:**

In the present study, we found that patients who underwent revision hip surgery for an initial PPFx had nearly a 2% chance of re-fracturing the femur. The re-fracture rate in the revision population is greater than that of primary THA and patients should be educated on the heightened risk. Surgeons should use any approach to treat PPFx.