Distal Femur Fragility Fractures: Protecting the Proximal Femur Reduces Risk of Peri-Implant Fracture

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INTRODUCTION:

The purposes of this study were to determine the rate of subsequent ipsilateral proximal femur fractures among patients who underwent fixation of distal femur fragility fractures, and to evaluate whether fixation spanning the proximal femur mitigates the risk of subsequent peri-implant fracture for these patients.

METHODS: Multi center retrospective cohort study at four Level 1 trauma centers of patients aged 50 years or older treated with open reduction internal fixation of a low energy distal femur fracture from 2005 to 2024. Patients were analyzed based on whether fixation of the distal femur fracture protected the proximal femur or did not. The two groups were compared by demographics, comorbidities, injuries, fixation type, and subsequent hip fracture.

RESULTS:

There were 650 patients median age 73, 81.6% women. Patients with proximal femur protection were older on average ($p < 0.001$). Peri-implant fracture was associated with lack of proximal femur protection with all 27 occurring among the 520 cases without proximal femur protection (5.2%) and none occurring among the 130 cases treated with proximal femur protection ($p < 0.001$). The cumulative incidence of peri-implant fracture in the absence of proximal femur protection at 1, 2, and 4 years postoperatively was 2.3%, 4.0%, and 7.1%, respectively, while the cumulative incidence remained at 0% throughout follow up in the setting of proximal femur protection (log-rank $p = 0.017$).

DISCUSSION AND CONCLUSION:

Patients with distal femur fragility 23 fractures have a clinically significant risk of subsequent proximal femur fracture that increases steadily with greater longevity. Fixation that protects the proximal femur during treatment of distal femur fractures is associated with a significantly reduced risk of subsequent fracture.