Revision Total Knee Arthroplasty for Arthrofibrosis and Flexion Instability Compared to Isolated Flexion Instability

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INTRODUCTION: Flexion instability is a leading cause of early revision total knee arthroplasty (TKA), with most symptomatic patients demonstrating rapid postoperative flexion with persistent pain and instability. However, there is a subset of patients with symptomatic flexion instability and arthrofibrosis. This study compared patient outcomes in revision TKA cases performed for traditional isolated flexion instability (FI) to those performed for flexion instability with arthrofibrosis (FI+A).

METHODS: A total of 669 consecutive revision TKA cases were retrospectively reviewed to identify those with traditional isolated FI and FI+A. Surgical technique emphasized the established principles of tibial slope reduction, optimizing posterior femoral condylar offset, and modest joint line elevation using varus-valgus stabilizing implants. Demographic, radiographic, and patient-reported outcomes (PROs) were prospectively recorded and analyzed.

RESULTS: One-hundred-fifteen patients with FI were compared to 20 FI+A patients. The two groups did not differ by demographics ($p \geq 0.207$), follow up ($p=0.462$), or covariates ($p \geq 0.073$); however, the FI group had a higher prevalence of uncontrolled depression (27.8% vs. 5.0%, $p=0.026$), although it did not influence outcomes ($p \geq 0.434$). The two groups did not differ by preoperative, postoperative, or the change in radiographic metrics or minimum 1-year PROMs with numbers available ($p \geq 0.126$). The FI+A group had a significantly greater increase in range of motion (ROM) from preoperative baseline compared to the FI only group (26.1 vs. 1.7°, $p=0.008$). However, the isolated FI group obtained a significantly higher postoperative ROM (116 vs. 103°, $p=0.016$).

DISCUSSION AND CONCLUSION: This study indicates that patients with FI+A obtain comparable outcomes after revision TKA compared to those with FI only. Furthermore, patients with arthrofibrosis potentially caused by flexion instability gained significant postoperative ROM and benefit from revision TKA. Further study is warranted to understand whether FI is causative or merely correlative in patients with concomitant arthrofibrosis.