

Patients With a Large Preoperative Flexion Contracture Demonstrate Inferior Outcomes Following Unicompartmental Knee Arthroplasty Compared to Total Knee Arthroplasty

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INTRODUCTION:

The traditional Scott and Kozinn criteria for unicompartmental knee arthroplasty (UKA) excluded patients with a flexion contracture > 5°. However, the outcomes of patients undergoing UKA with a flexion contracture remains poorly studied.

METHODS: Patients undergoing primary UKA and total knee arthroplasty (TKA) between 2010-2022 at a single academic medical center with a minimum of 2-year follow-up were retrospectively identified. Patients undergoing primary UKA with a flexion contracture ³ 10° were matched in a 1:1 fashion based on age, sex, body mass index (BMI), smoking status, Charlson Comorbidity Index (CCI), and diabetes prevalence to patients undergoing TKA with a flexion contracture ³ 10° and UKA without a flexion contracture. Changes in range of motion (ROM) as well as Knee Society Score (KSS) were compared. A total of 138 patients were included in the final analysis (n=46 per cohort).

RESULTS: There were comparable changes in ROM and KSS values for UKA patients with and without a flexion contracture. Patients undergoing UKA with a pre-operative flexion contracture had a smaller change in their contracture post-operatively relative to TKA controls (8.39° vs. 12.02°; p<0.001). Despite similar preoperative KSS scores, patients undergoing UKA with a flexion contracture had lower KSS Objective scores at final follow up relative to TKA patients with a flexion contracture (88.52 vs. 94.87; p=0.004). UKA patients with a flexion contracture were significantly more likely to undergo revision relative to matched controls (10.87% vs. 0.0% vs. 0.0%; p=0.022). These patients underwent revision for infection (n=1), unexplained pain (n=2), and aseptic loosening (n=2).

DISCUSSION AND CONCLUSION:

Patients undergoing UKA with a flexion contracture experienced significantly less improvement in their flexion contracture, inferior patient reported outcomes, and higher revision rates relative to matched counterparts undergoing TKA with a flexion contracture. These findings support the historical contraindication for performing UKA procedures in this patient population.

Figure 1. Kaplan-Meier Survival Analysis of UKA in Patients with Flexion Contracture vs. Controls Cohorts

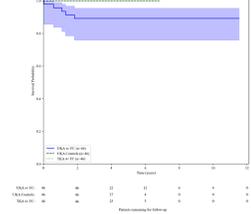


Table 1. Patient Demographics

Variable	UKA Cohort with Flexion Contracture (n=46)	UKA Cohort Without Flexion Contracture (n=46)	P Value*	TKA Cohort with Flexion Contracture (n=46)	P Value†
Female (%)	78.3	78.3	0.998	78.3	0.998
Age (Mean)	67.5	67.5	0.998	67.5	0.998
BMI	28.5	28.5	0.998	28.5	0.998
CCI	0.5	0.5	0.998	0.5	0.998
Diabetes (%)	10.4	10.4	0.998	10.4	0.998
Revision (%)	10.87	0.0	0.022	0.0	0.022

* - comparison of UKA Cohort with Flexion Contracture ³ 10° vs UKA Cohort Without Flexion Contracture

† - comparison of UKA Cohort with Flexion Contracture ³ 10° vs TKA Cohort with Flexion Contracture ³ 10°

Table 2. Comparison in Range of Motion

Variable	UKA Cohort with Flexion Contracture (n=46)	UKA Cohort Without Flexion Contracture (n=46)	P Value*	TKA Cohort with Flexion Contracture (n=46)	P Value†
Pre-Op Flexion	10.2	10.2	0.998	10.2	0.998
Post-Op Flexion	18.6	22.2	0.001	22.2	0.001
Change in Flexion	8.4	12.0	0.001	12.0	0.001
Pre-Op ROM	115.8	115.8	0.998	115.8	0.998
Post-Op ROM	127.4	133.8	0.001	133.8	0.001
Change in ROM	11.6	18.0	0.001	18.0	0.001

* - comparison of UKA Cohort with Flexion Contracture ³ 10° vs UKA Cohort Without Flexion Contracture

† - comparison of UKA Cohort with Flexion Contracture ³ 10° vs TKA Cohort with Flexion Contracture ³ 10°

Table 3. Comparison of Revision Rates and Knee Society Scores

Variable	UKA Cohort with Flexion Contracture (n=46)	UKA Cohort Without Flexion Contracture (n=46)	P Value*	TKA Cohort with Flexion Contracture (n=46)	P Value†
Revision (%)	10.87	0.0	0.022	0.0	0.022
Pre-Op KSS	88.5	88.5	0.998	88.5	0.998
Post-Op KSS	94.9	94.9	0.998	94.9	0.998
Change in KSS	6.4	6.4	0.998	6.4	0.998
Pre-Op ROM	10.2	10.2	0.998	10.2	0.998
Post-Op ROM	18.6	22.2	0.001	22.2	0.001
Change in ROM	8.4	12.0	0.001	12.0	0.001

* - comparison of UKA Cohort with Flexion Contracture ³ 10° vs UKA Cohort Without Flexion Contracture

† - comparison of UKA Cohort with Flexion Contracture ³ 10° vs TKA Cohort with Flexion Contracture ³ 10°