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Correction of Coronal Tibiofemoral Subluxation After Unicompartmental Knee Arthroplasty Results in Long-Term Postoperative Functional Improvement

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Summary:
Correction of coronal tibiofemoral subluxation after UKA can be achieved in certain patients after surgery and may result in long term favorable clinical outcomes.

Abstract:

Objective

Coronal tibiofemoral subluxation is a common finding in knee osteoarthritis and is related to pain and poor function. The purpose of this study was to determine the amount of coronal tibiofemoral subluxation (CTFS) correction after unicompartmental knee arthroplasty (UKA) and analyze its long term functional effects.

Materials And Methods

This retrospective study included a total of 385 patients (knees) who received fixed bearing type UKA for medial compartment osteoarthritis (274 females, 72 males, mean age of 59 ± 4.1 years). We assessed CTFS preoperatively, immediately after operation, and during last follow up. Knee functional assessment was done with the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) and the Knee injury and Osteoarthritis Outcome Score (KOOS) scores preoperatively and at last follow up. Patient data was dichotomized according to CTFS values and statistical analysis was done using Mann-Whitney test.

Results

Mean follow-up period was 8.4 years (5.4–12.0). Amount of CTFS correction (Last CTFS - Preoperative CTFS) was >1mm in 93 cases (24.03%), 0.5mm-1mm in 63 cases(16.28%), -0.5mm-0.5mm in 142 cases (36.69%), -1.0mm - -0.5mm in 49cases (12.66%) and =-1mm in 40 cases (10.35%). CTFS change during postoperative follow up (last CTFS - immediate postoperative CTFS) were >1mm in 97 cases (25.20%), 0.5mm-1mm in 61 cases(15.84%), -0.5mm-0.5mm in 139 cases (36.10%), -1.0mm - -0.5mm in 49cases (12.73%) and =-1mm in 39 cases (10.13%), showing time dependent improvement of CTFS after surgery in 40.8% of cases (157cases, 0.3mm/yr increase in CTFS). Patients were dichotomized according to the amount of postoperative CTFS correction; Corrected Group (CTFS>0.5mm, 156cases, 40.5%) and Uncorrected Group (CTFS<0.5mm, 231, 59.5%). Difference between preoperative and postoperative functional scores assessed during last follow up for the Corrected Group and Uncorrected Group were 19.47 vs 10.44 respectively for KOOS (p=0.011), and 18.67vs 11.20, respectively for WOMAC (p=0.022). Range of

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motion during last follow up compared to preoperative values showed higher flexion angles in the Corrected Group(4.32o vs.1.04o, p=0.045).

Conclusion

Correction of coronal tibiofemoral subluxation after UKA can be achieved in certain patients after surgery and may result in long term favorable clinical outcomes.