

## **Sulcus-Deepening Trochleoplasty with Medial Patellofemoral Ligament Reconstruction for Severe Trochlear Dysplasia: A Prospective Study with Minimum 2-Year Outcomes**

**Purpose:** To evaluate outcome data of patients undergoing DeJour sulcus-deepening trochleoplasty with medial patellofemoral ligament reconstruction (MPFLR) for high-grade trochlear dysplasia at a single institution in the United States.

**Methods:** A total of 67 patients (76 knees) with severe trochlear dysplasia and recurrent patellar instability were prospectively enrolled and underwent DeJour sulcus-deepening trochleoplasty with MPFLR from 2011-2019. Inclusion criteria included recurrent lateral patellar instability following failure of conservative treatment with radiographic evidence of trochlear dysplasia. Patients were excluded with less than 2-year follow-up. Radiographic analysis, physical examination, clinical follow-up, patient demographics, and patient reported outcome measures were obtained for all patients at each visit.

**Results:** Of the entire cohort, 40 patients (44 knees) had complete two-year or longer follow-up and were included. The majority of patients were female (81.8%) with a mean age of 19.2 years (SD 6.7; range 13.2-47.0). Follow-up ranged from 2.0 years to 6.8 years (mean 3.6, SD 1.35). At the time of enrollment, mean BMI was 27.2 kg/m<sup>2</sup> (SD 6.5). 45.5% had failed prior surgery for patellar instability. Eight knees developed arthrofibrosis. No patients had fixation failure, there were zero episodes of recurrent dislocation, and no further surgery was required for instability. Patient reported outcomes showed clinically significant improvement. The mean preoperative IKDC score of 50.8 improved to 79.1 ( $p < 0.001$ ) and the mean preoperative Kujala score of 56.4 improved to 86.5 ( $p < 0.001$ ). Patients reported high satisfaction rates (mean 9.1 out of 10, SD 1.9). When applicable, 100% of patients returned to work while 84.8% returned to sport. There was no significant radiographic progression of patellofemoral arthritis.

**Conclusions:** DeJour sulcus-deepening trochleoplasty with MPFLR is a reliable and effective treatment for recurrent patellar instability due to severe trochlear dysplasia, even in this group with many revisions of prior procedures. Two-year minimum follow-up demonstrated no recurrence of instability, improved radiographic parameters, and encouraging clinical outcomes.

**Level of Evidence:** IV