

Clinical outcomes of rectangular tunnel technique in posterior cruciate ligament reconstruction were comparable to the results of conventional round tunnel technique.

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INTRODUCTION: To compare clinical outcomes between the conventional round and rectangular tunnel techniques in single-bundle posterior cruciate ligament (PCL) reconstruction.

METHODS: Twenty-seven and 108 patients who underwent PCL reconstructions using a rectangular dilator (Group 1) and rounded tunnel reamer (Group 2), respectively, were included. (Fig 1) The exclusion criteria were having a concomitant fracture, osteotomy, subtotal or total meniscectomy, and no remnant PCL tissue. A 4:1 propensity score matching was performed. The knee laxity on stress radiography, International Knee Documentation Committee Subjective Knee Evaluation score, Tegner activity score, and Orthopädische Arbeitsgruppe Knie score were evaluated. (Fig 2)

RESULTS: No significant differences were found between the groups in terms of clinical scores. (n.s.) The mean posterior translations were also not significantly different between the Group 1 and 2 (3.6 ± 2.8 and 3.8 ± 3.1 mm, respectively; n.s.) However, 3 patients (11.1%) in Group 1 and 15 patients (13.8%) in Group 2 showed posterior translation of >5 mm. The combined posterolateral corner sling technique was performed for 27 patients (100%) in Group 1 and for 96 patients (88.9%) in Group 2. We found no significant difference in rotational stability at the final follow-up. One patient was found to have a femoral condyle fracture during rectangular femoral tunnel establishment, which was healed after screw fixation, without laxity, during follow-up. The intra- and inter-observer reliabilities of the radiological measurements ranged from 0.81 to 0.89.

DISCUSSION AND CONCLUSION: Arthroscopic anatomical remnant-preserving PCL reconstruction using a rectangular dilator showed satisfactory clinical results and stability as compared with PCL reconstruction using a conventional rounded reamer. Rectangular tunnel technique in PCL reconstruction could be a good treatment option with theoretical advantage to be anatomic.

