Double-Bundle PCL Reconstruction: A Prospective Study of Patient-Reported Outcomes with Stress Radiographs

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Objectives

Background
Reconstruction of grade-III posterior cruciate ligament (PCL) ruptures is associated with technical complexity and has historically been compromised by graft elongation and residual laxity.

Purpose
Report prospectively collected minimum two-year outcomes of double-bundle PCL reconstruction in a consecutive patient series with patient reported outcomes and quantitative stress radiographs.

Methods
All patients who underwent an endoscopic double-bundle PCL reconstruction for grade-III isolated or combined PCL tears between May 2010 and March 2015 were reviewed. Patients were evaluated with patient reported outcome scores; Tegner, Lysholm, WOMAC, SF-12, and objective preoperative and postoperative posterior stress radiographs.

Results
One hundred patients who underwent DB PCLR were included in this study. Of these, 31 had an isolated PCL injury, and 69 had combined ligament injuries that included a PCL tear requiring surgery. The mean follow-up was 3 years (range, 2-6 years). From preoperative to postoperative status, the Tegner activity score improved from 2.5 to 5.1 (p<0.001), Lysholm from 49.1 to 79.8 (p<0.001), WOMAC from 38.7 to 9.9 (p<0.001), and SF-12 PCS from 37.6 to 50.3 (p<0.001). There was no significant difference in postoperative outcome scores between acute and chronic PCL reconstructions (p=0.062). No differences in Lysholm score (p=0.187), WOMAC score (p=0.246), SF-12 PCS score (p=0.378) and patient satisfaction (p=0.096) were found between isolated PCL reconstructions and isolated ACL reconstructions. The mean side-to-side difference (SSD) in posterior tibial translation on stress radiographs was 11.04 ± 3.5 mm at preoperative status, and 1.6 ± 2.0 mm at postoperative status (p<0.001).

Conclusions
Significantly improved functional and objective outcomes were observed after anatomic-based DB PCLR at a mean 3 years’ follow-up, with low complication rates, regardless of concomitant ligamentous pathology or timing to surgery.

References