Case Review - Single Bundle PCL Reconstructions: Are they the Way to Go or has their time passed?

I. PCL Anatomy – Two Bundles
   A. Anterolateral: Large major bundle along the top of the notch and distal medial femoral condyle.
      1. 11mm bundle attached from the trochlear point to the medial arch point.
   B. Posteromedial: Smaller minor bundle along the posterior distal aspect of the medial femoral condyle.
      1. 7mm bundle adjacent to the anterior and posterior MF ligaments

II. PCL Function -
   A. Anterolateral: Posterior Translation Stabilizer at 90 degrees
   B. Posteromedial: Rotational Stabilizer to external rotation

III. PCL Reconstruction:
   A. Biomechanics:
      1. Biomechanically, Superior results are shown with the double bundle:
         a) Better Posterior translation and rotational stability
         2. The flexion angle matters:
            a) Many studies have shown improvement in knee stability with tensioning at 90 degrees (75-120).
            b) Greater laxity has been seen when the graft is fixed in full extension.
   B. Clinical
      1. Single Bundle:
         a) Main function is to restore the AL bundle. Many authors have shown restoration of function but many have some persistent posterior laxity
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ISAKOS – 2015


2. Double Bundle


IV. Which Should we do?

A. Some studies have shown equivalent clinical results:

B. Dependant on experience and knowledge of PCL reconstructions
   1. If you have experience with double bundle then this will provide better biomechanical AP and rotational stability with minimal risk.
   2. If you are inexperienced with the PCL anatomy or a double bundle reconstruction then a single bundle will likely correct 1-2 grades of AP laxity of the knee.

V. Conclusion:

A. PCL reconstructions are successful operations.
B. The key to rotational stable knee is a functioning posterolateral corner.
   1. In the setting of an intact posterolateral corner
      a) Single bundle reconstruction is probably fine.
   2. In the setting of a partial injury or reconstruction of the PLC
      a) Double bundle reconstruction will provide better knee rotational stability
VI. Excellent review article on the current understanding of PCL injuries:

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Scott C. Faucett, MD, MS
Hip and Knee Sports Medicine Surgeon
George Washington University Medical Faculty Associates
Department of Orthopaedics

Assistant Professor
George Washington University School of Medicine and Health Science
Department of Orthopaedics

2150 Pennsylvania Avenue NW
Suite 7-408
Washington, D.C. 20037
+1-202-677-6069 (Appointment & Surgery Scheduling)
+1-202-741-3313 (Fax)
+1-202-360-5547 (Cell)
http://www.drfaucett.com/