

International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine

10th Biennial ISAKOS Congress • June 7-11, 2015 • Lyon, France

Paper #52

Femoral Tunnel Drilling Angles for Posteromedial Corner Reconstructions of the Knee. Computed Tomography Evaluation in a Cadaveric Model

Pablo E. Gelber, MD, PhD, SPAIN **Àngel Masferrer-Pino, MD, SPAIN** Ferran Abat, MD, PhD, SPAIN Juan Ignacio Erquicia, MD, SPAIN Xavier Pelfort, MD, SPAIN Joan Carles Monllau, MD, PhD, Prof, SPAIN

Hospital de la Santa Creu i Sant Pau, Universitat Autònoma de Barcelona Barcelona, Barcelona, SPAIN

Summary:

When performing posteromedial reconstructions in combination with PCL, medial collateral and posterior oblique ligaments femoral tunnels should be drilled at 30° axial and coronal angulations. The POL femoral tunnel may also be angled 0° on the coronal plane. Tunnels at 0° axial angulations showed a shorter distance to the intercondylar notch and a higher risk of collision with PCL tunnels.

Abstract:

PURPOSE

To determine the best angle to drill the femoral tunnels of the superficial medial collateral ligament (sMCL) and posterior oblique ligament (POL) in concomitant posterior cruciate ligament (PCL) reconstructions to avoid either short tunnels or tunnel collisions

METHODS

Eight cadaveric knees were studied. Double bundle PCL femoral tunnels were arthroscopically drilled. sMCL and POL tunnels were performed at 0° and 30° axial and coronal angulations. Specimens were scanned with computed tomography to document the relationships of the sMCL and POL tunnels to the intercondylar notch and PCL tunnels. A minimum tunnel length of 25mm was required.

RESULTS

When an sMCL femoral tunnel was drilled at 0° axial and 30° coronal angulation or 30° axial and 0° coronal angulation, the risk of tunnel collision with the anterolateral bundle tunnel of the PCL increased (p<.001). None POL tunnels collided with either PCL tunnel bundle with the exception of tunnels drilled at 0° axial and 30° coronal angulations, which did so with the AL bundle tunnel of the PCL in 3 out of eight cases (p<.001). The minimum required tunnel length (p<.001 and 0.02 respectively) was obtained in all the sMCL and POL tunnels. However, some of those angled at 0° on the axial plane violated the intercondylar notch.

CONCLUSIONS

When performing posteromedial reconstructions in combination with concomitant PCL procedures, sMCL and POL femoral tunnels should be drilled at both 30° axial and coronal angulations. The POL femoral tunnel may also be angled 0° on the coronal plane. Tunnels at 0° axial angulations showed a shorter distance to the intercondylar notch and a higher risk of a collision with PCL tunnels.

CLINICAL RELEVANCE

Specific drilling angles are necessary to avoid short tunnels or collisions between the drilled tunnels when sMCL and



International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine

 $10^{\rm th}$ Biennial ISAKOS Congress • June 7-11, 2015 • Lyon, France

Paper #52

POL femoral tunnels are performed with concomitant PCL reconstructions.