The effect of cortical button location on its post-operative migration in anatomical double-bundle anterior cruciate ligament reconstruction

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Note
The effect of cortical button location on its postoperative migration in anatomical double-bundle anterior cruciate ligament reconstruction.

To investigate the effect of EndoButton (Smith & Nephew Endoscopy, Andover, MA) location on postoperative migration in anatomical double bundle anterior cruciate ligament (ACL) reconstruction.

Seventy-seven patients underwent anatomic double-bundle ACL reconstruction using EndoButtons. Two-plane radiographs were taken immediately postoperatively and at 1 year. Comparing patient radiographs at those time points, EndoButtons were considered to migrate if they moved more than 1 mm or rotated over 5 degrees. Initial location of EndoButtons was evaluated on radiographs immediately postoperatively. On lateral radiographs, distance from the EndoButton to the posterior edge of the femur was measured; distance ratio was calculated by dividing the distance by the longest anteroposterior femoral diameter. On anteroposterior radiographs, distance from the EndoButton to the lateral edge of the femur was measured; distance ratio was calculated by dividing the distance by the largest femoral width. These distances and ratios were compared between the migrated and non-migrated groups. We classified the initial location of an EndoButton into anterior or posterior area, divided by the lateral supracondylar line and investigated the ratio of migration in each area.

Only the distance and ratio of EndoButton for posterolateral grafts on lateral radiographs in the migrated group was significantly lower than those in the non-migrated group. (6.8 ± 7.0 mm vs. 13.3 ± 9.0 mm, P = 0.0021; 10.7 ± 10.0% vs. 20.3 ± 12.9%, P = 0.0019) Ratio of migration in the area posterior to the supracondylar line was significantly higher than that in the anterior area. (64.3% vs. 14.0%, P < 0.0001)

Posteriorly located EndoButtons migrate more frequently. Particularly, an EndoButton in the area posterior to the lateral supracondylar line has a significantly higher rate of migration than one in the anterior area. The anatomical structures on the posterolateral area of the femur may affect the migration.
論文審査の結果の要旨及び担当者

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論文審査の結果の要旨

解剖学的二重束前十字靱帯再建術後患者のレントゲン画像を用いて、移植腱を大腿骨側に固定するインプラントの一種であるEndoButtonの回転や求心性移動といった術後転位と、EndoButtonの初期固定位置及び術後一年での臨床成績との関連について検討した。初期固定位置が大腿骨後方、特に大腿骨外側頸上頸より後方では転位しやすい傾向にあり、転位と臨床成績との関連はなかったものの、術後の移植腱の状態に影響を与えていることが十分に考えられるため、転位を避けるような工夫が必要である。本論文ではハムストリング腱などの移植腱を用いた膝前十字靱帯再建術に役立つかつ簡便であるという理由で非常によく使われているEndoButtonの固定力の限界を示したと同時に、原因の一つを説明しただけでなく、対処法を提示した初めての論文であり、学会の授与に値すると考えられる。