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ESTUDIO DE LOS TÚNELES FEMORAL Y TIBIAL PARA LA LIGAMENTOPLASTIA DE L.C.A. MEDIANTE T.A.C. Y SU REPERCUSIÓN CLÍNICA A LARGO PLAZO

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SUMMARY

Background

ACL lesion is a major epidemiology problem. In the U.S.A. one of 3000 people sustain an ACL rupture per year. In other words, in the U.S.A. 100.000 A.C.L. reconstruction procedures are performed every year, with good results ranging from 75% to 90%. In 2001 in Spain 16821 A.C.L. reconstructions have been performed, with a 4/1000 prevalence ratio.

A great variety of surgical techniques have been designed when using hamstring tendon grafts and many results have been published in the last years. However few of them are long term studies.

Because of mentioned above, we describe our late clinical and radiographic results with the S.A.C. technique (cortical anchoring system) for A.C.L. reconstruction as well as the correlation between widening and position of the tunnels with clinical and radiologic final follow up. We also determine the usefulness of x-ray and CT scan to assess the results of the surgical technique.

Methodology

This observational historical cohort study includes 30 patients operated between April 1993 and November 1997, with a mean follow up of 12.5 years (range 10-15 years), 28 were males and 2 females with a mean age of 36 years (range 19-59 years). Mean time elapsed until surgery was 81 days (range 16-240 days). 16 rigth and 14 left knees were included.

Exclusion criteria:

a) Leeds Keio artifitial grafts

b) Other ligamentous lesions

c) Chondral pathology grade II o greater (Outerbridge classification) when mosaicplasty is not indicated

d) Joint infection in any postoperative period

e) Malaligment of affected lower limb that requires osteotomy

f) Previous A.C.L. reconstruction

S.A.C. surgical technique was described in detail as well as rehabilitation postoperative protocol.

Clinical assessment methods: Lachman test, anterior drawer test, Jerk test, pivot shift test and KT 2000 (15L, 20L, 30L, MMF, QA and Segawa scale). Also IKDC, Lysholm, Tegner, WOMAC scales were applied.

Radiological assessment methods: Fairbank criteria and radiological IKDC scale.

CT scan was performed in inmediate postoperative (15 days before surgery), intermediate (6-12 months after surgery) and final follow up (at least 10 years after surgery).

CT scan assessment measurements: frontal tibial tunnel (ā angle, M2 index), sagittal tibial tunnel (đ angle, M4 index and congruence grade), frontal femoral tunnel (clock zones, ƀ angle), sagittal femoral tunnel (Aglietti method, ē angle). Tunnel divergence angle (ĉ angle). Tunnel widening (Nebelung criteria).

Conclusions

➢ Greater incidence of tibial tunnel widening.

➢ Tibial tunnel continues dilation increase until final follow up.

➢ Tibial tunnel expansion is related with increase of frontal tibial angle and decrease of bone plug length, tunnel divergence angle and congruence grade.

➢ Tibial tunnel widening is not a valid parameter to assess long term instability of the knee.

➢ Tibial tunnel widening in the sagittal plane is related with long term degenerative changes.

➢ Femoral tunnel location is the most important factor for KT 2000 results.

➢ Femoral tunnel close to 90º in frontal plane, is related with poor results in both anterior and rotational stability of the knee.

➢ Increase of frontal femoral angle is related with a higher incidence of degenerative changes in Fairbank scale.

➢ Increase of frontal tibial angle is related with poor results in Segawa scale.

➢ A malposition of a femoral tunnel cannot be corrected with a appropriate fixation system.

➢ S.A.C. technique is suitable to perform femoral tunnel in a correct position in order to avoid anterior and rotational knee instability.

➢ More long term studies are needed to assess A.C.L. reconstruction techniques.