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Secondary Reconstruction After Traumatic Knee Dislocation: Results of an Algorithm-Based Approach

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Summary:
A systematic approach to chronic posterolateral instability of the knee combining bony axial correction, collateral and central ligament reconstruction can result in significant amelioration of function and positive outcomes for ADL and low level athletic activities.

Abstract:
We developed an algorithm leading to a systemic approach in patients with chronic posterolateral instabilty of the knee joint after traumatic knee dislocation. In a consecutive cohort series 23 patients, 16 men and 7 women, average age 33 year, were followed prospectively and reviewed after a follow-up period of 4,7 years.

Methods:
All patients underwent physical examination, including standing monopodal X-ray, objective and subjective IKDC score, and Tegner score.

Algorythm to Define the Choice of Reconstruction:
We measured axial bony deformity, joint degeneration and dynamic varus thrust on standing monopdal X-rays, PCL insufficiency and ACL insufficency by phydical examination: lachman, pivot shift and reversed pivot shift, and insufficiency of the collateral ligaments by varus stress and external rotation test (dial sign). Then the consequent line of interventions was decided:
In varus deformity or varus thrust, posterolateral reconstruction was combined with a high tibial opening wedge osteotomy. (N=6). In cases of insufficiency of both cruciate ligaments, an isolated PCL reconstruction was performed (N=3), or a combination of PCL reconstruction with posterolateral reconstruction and tibial osteotomy (N=4) In case of PCL insufficiency, posterolateral reconstruction was combined with a BTB PCLreconstruction (N=7). In cases with an intact PCL and ACL insufficiency, ACL reconstruction was performed, combined with posterolateral reconstruction (n=3). PCL reconstructions were performed with autograft BTB patellar tendon, or autograft quadriceps tendon. ACL reconstructions were performed with BTB patellar tendon, posterolateral reconstruction was performed a.m. Wulf-Jakobsen with gracilis and semitendinosus grafts. All tibal osteotomies were medial open wedgetechnique.

Results:
The average varus thrust, measured by monopdal standing x-ray changed from 16.5 to 0.5 degrees, and was completely relieved in in 16 patients (70%). External rotation test (dial test) was normal in 22 patients (95%) . Average Tegner score rose from 5.3 to 6.9, IKDC subjective score changed from 24 to 58. Posterior drawer sign showed a significant decrease: Preoperative score was B for 5 patients, 14 patients scored C or D. Postoperatively 12 patients scored scored A , 7 B. Recurrent reversible peroneal nerve palsy was a complication in 1 patient

Conclusions:
A systematic approach to chronic posterolateral instability of the knee combining bony axial correction, collateral and central ligament reconstruction can result in significant amelioration of function and positive outcomes for ADL and low level athletic activities. Treatment should be patient-tailored.