TIBIAL VALGUS AND DEFLEXING OSTEOTOMY AS A TREATMENT FOR PATIENTS WITH GENU VARUM AND INCREASED TIBIAL SLOPE WITH RE-RUPTURE OF THE LCA.

Juan Bautista Luco Alduncin[1], Pablo Dardanelli[2], Juan Pablo Zicaro, Matias Costa-Paz[3], Carlos Heraldo Yacuzzi[4]
[1]Institute of Orthopaedics "Carlos E. Ottolenghi", Hospital Italiano Buenos Aires, Argentina, [2]Knee department, [3]Hospital Italiano De Buenos Aires, [4]Italian Hospital Of Buenos Aires

INTRODUCTION: The treatment of chronically unstable knee ligaments requires addressing coronal and sagittal plane alignments to ensure knee stability. The tibial slope, critical in this context, averages 10 ± 3° on lateral radiographs. Genu varum increases medial mechanical axis deviation, heightening medial compartment stress. Proximal tibial osteotomy effectively corrects deformities, reduces pain, and slows osteoarthritis progression while maintaining knee stability. This study outlines the surgical techniques of tibial deflector and valgus osteotomy to enhance stability in cases of re-ruptured anterior cruciate ligament and during second-stage ACL reconstruction.

METHODS: High Tibial Osteotomy (HTO) and Anterior Cruciate Ligament Reconstruction (ACL-R) address malalignment and osteoarthritis, enhancing knee stability and reducing ACL load. These procedures are beneficial for patients with ACL instability, particularly when combined with malalignment or medial osteoarthritis.

A one-stage procedure, combining HTO and ACL-R, is indicated for young patients with medial osteoarthritis, varus malalignment, and ACL issues. A two-stage procedure, starting with HTO and potentially followed by ACL-R, is recommended for older patients with chronic ACL deficiency and symptomatic osteoarthritis.

Isolated HTO can stabilize the knee and relieve pain but is contraindicated in cases of severe articular damage, advanced age, tricompartmental arthritis, inflammatory disease, severe osteoporosis, and limited range of motion. Ideal BMI for these procedures is 25-27.5 kg/m².

Surgical Technique :

In the first stage of surgery, regional anesthesia was administered, and an anterolateral approach was used to access the knee joint. An 8mm valgus deviation was corrected using a biplanar osteotomy of the lateral tibia, guided by an image intensifier. A specific plate was affixed with screws, achieving the desired alignment. Arthroscopy revealed an ACL injury, which was treated with cleaning and grafting. The knee was immobilized post-surgery, with restricted weight-bearing and regular kinesiology sessions.

In the second stage, six months later, after confirming osteotomy consolidation, the patient underwent ACL reconstruction with a cadaveric graft. A femoral and tibial tunnel were created, and the graft was secured using a loop system and a Peek screw. Post-surgery, the knee was immobilized with a splint to facilitate healing.

RESULTS: Combining high tibial osteotomy (HTO) with anterior cruciate ligament reconstruction (ACL-R) generally yields favorable outcomes at midterm follow-up (average 5.2 years). However, complication rates vary from 0% to 30%, including stiffness, reduced range of motion, deep vein thrombosis, and plate removal. While most patients return to sports, few regain their pre-injury competitive level.

DISCUSSION AND CONCLUSION: The biplanar closing wedge osteotomy technique of the proximal tibia allows for the correction of both angular deformities in a single surgical procedure. This technique aims to reduce the risk of ACL rupture in cases with a high tibial slope associated with genu varum.