

Custom Biplanar High Tibial Osteotomy After a Failed Multiligament Reconstruction

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Background

Multiligament knee injuries commonly are associated with deficiency of the posterolateral corner, resulting in varus malalignment that may lead to chronic overloading of the medial compartment and eventual unicompartmental arthrosis. A medial opening wedge high tibial osteotomy (HTO) can address varus malalignment by redistributing forces throughout the knee joint. In patients who have undergone prior multiligament reconstruction, HTO may help offload strain on the reconstructed ligaments, thereby improving graft survival. Patient-specific cutting guides have been developed for HTO procedures and may improve the accuracy of tibial realignment.

Purpose

This video provides an overview and case presentation and demonstrates biplanar HTO with the use of a custom implant in a patient in whom prior multiligament reconstruction failed.

Methods

The diagnosis and treatment options for failed multiligament reconstruction and the advantages and risks of HTO are reviewed. The case presentation of a 35-year-old man with chronic left knee pain and instability after four-ligament reconstruction for the management of a trampoline injury is discussed. The patient's symptoms had a negative effect on his gait and physical performance at work. After a physical examination was performed and imaging studies were obtained, the patient was noted to have varus thrust on weight bearing and deficiency of cruciate ligament and posterolateral corner reconstructions. The decision was made to perform HTO with the use of a custom system.

Results

Diagnostic arthroscopy and débridement of the incompetent anterior cruciate ligament and posterior cruciate ligament was performed before the open procedures. A medial opening wedge HTO was performed, with an opening gap of 13.1 mm created with the use of a custom cutting guide. Postoperatively, the patient was instructed to remain non-weight bearing for 6 weeks in a hinged knee brace. At 3-month follow-up, the patient reported minimal pain and had improved gait, decreased varus thrust, and decreased laxity on physical examination.

Conclusion

HTO may help correct varus malalignment and instability after failed multiligament reconstruction. Outcomes data on HTO in patients with a multiligament knee injury are sparse; however, the available evidence suggests HTO has a positive effect on instability and patient-reported outcomes. The use of custom guides and the insertion of bone graft into the osteotomy site may improve the quality of realignment and bone union.