Combined Meniscus Allograft Transplant and High Tibial Osteotomy Using Patient Specific Instrumentation

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Background:
Meniscal allograft transplant replaces a deficient meniscus in the knee with donor tissue to restore knee function, alleviate pain, and preserve native articular cartilage in patients who have sustained a significant meniscal injury or undergone prior meniscectomy. Correction of any pre-existing deformity is essential when performing a meniscus allograft transplant. A high tibial osteotomy involves cutting and realigning the upper portion of the tibia to relieve pressure on the knee joint and can restore coronal or sagittal alignment.

Purpose:
This video overview and case presentation demonstrates a combined meniscus allograft transplant and high tibial osteotomy using patient specific instrumentation guides.

Methods:
The anatomy, pathogenesis, biomechanics, and treatment options are reviewed. A case of a 38-year-old male with varus malalignment and multiple prior meniscectomies with persistent medial sided knee pain is reviewed. After a thorough discussion of risks, benefits and prognosis, the patient elected to proceed with a medial meniscus allograft transplant and medial opening wedge high tibial osteotomy to improve his functional status.

Results:
The medial meniscus allograft was transplanted into his knee and a medial opening wedge high tibial osteotomy was performed to offload the medial compartment of the knee joint and restore more normal coronal alignment. Patient specific instrumentation was used which allowed for accurate planning of the osteotomy that accommodated the bone tunnels for the meniscus transplant. Post-operatively, his pain improved significantly and he was back to the gym by 4 months postoperatively.

Conclusion:
Meniscus allograft transplant with high tibial osteotomy is a viable surgical option for young patients with meniscal insufficiency and concomitant coronal malalignment. Using patient specific instrumentation to perform the osteotomy improves surgical accuracy and increases the likelihood of a successful outcome.