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Mary – *Herndon*
ACL Reconstruction and
Meniscus Transport

Complex Knee Surgeries Restore High-Velocity Lifestyle

Hurtling down the most difficult double black diamond ski slopes doesn't faze Mary, but when she faced a series of technically demanding knee surgeries, she was grateful to have one of the most experienced orthopaedic surgeons to perform them.

Mary, who is in her late 40s, had injured her knee in a freak accident at an exercise boot camp near her Herndon home. Subsequent diagnostic tests and procedures revealed a host of problems: an acute ACL tear, a complete radial split of her medial meniscus, and a large area of cartilage damage.

She was referred to orthopaedic surgeon Keith Lawhorn, MD, who determined she needed ACL reconstruction, a meniscus transplant, and cartilage regeneration surgery – a technique known as autologous chondrocyte implantation (ACI). This two-part procedure involves harvesting the patient's own cartilage, growing the cells in a laboratory, and injecting them back into the damaged area.

"Mary had a large, traumatic isolated defect of her articular cartilage, the connective tissue that covers the knee joint," Dr. Lawhorn explains. "To undergo ACI, it was imperative she have an intact ACL and stable knee, reasonable remaining meniscus function to minimize the compressive forces on her articular cartilage, and normal alignment of the knee and leg."

First, Dr. Lawhorn performed an ACL reconstruction to strengthen her knee and harvest the cells for her cartilage regeneration surgery. He later performed the medial meniscus transplant and ACI – two lengthy, complicated procedures – at the same time.

In a meniscus transplant, meniscal tissue from a donor cadaver is size-matched and transplanted into the knee using an arthroscopic-assisted, mini-open approach. Because the operation is technically challenging and requires months of post-operative rehabilitation, meticulous and appropriate patient selection is critical for success. "This procedure

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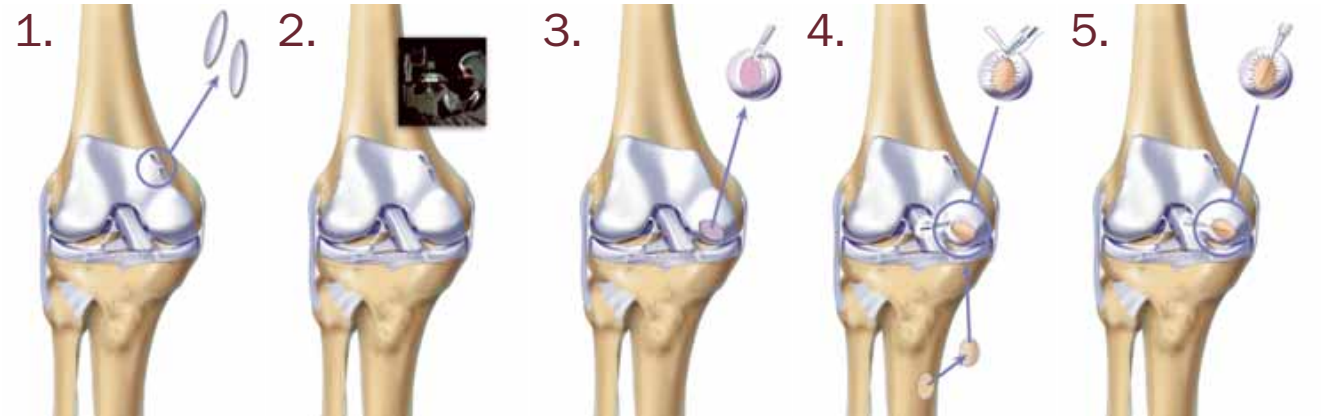
Five Steps of Carticel



1. An initial biopsy of normal joint surface is removed from the non–weight-bearing portion of the knee. **2.** The biopsy is sent to a Genzyme lab, where it is cultured and grown into a solution of the patient's cartilage cells. **3.** During the second procedure, the surgeon makes an incision in the knee and removes any damaged cartilage. **4.** A piece of lining is then removed from the adjacent upper tibia bone and sewn over the defect. **5.** This creates a water-tight membrane to contain the cultured cartilage cells. The patient's cells are then injected into the defect. Images courtesy of Genzyme Corporation.

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is typically reserved for patients under 40, but can be considered in patients up to 50 if they are highly active and have minimal arthritic changes," says Christopher Annunziata, MD, who performs these complex surgeries at Commonwealth Orthopaedics. "It should be used only after exhausting all nonsurgical measures, except in cases where there is concomitant ACL and medial meniscus deficiency with significant rotational instability that may compromise success of ACL reconstruction alone."

With the right patient, meniscus transplant and ACI performed together rather than separately can significantly improve outcomes in the most difficult cases.

Following her surgeries, Mary spent two days in the hospital and returned home for an intensive, year-long rehabilitation. During the first two months, she used crutches and built up her strength on a continuous passive motion (CPM) machine. She began walking again at 10 weeks and spent another 10 months in physical therapy at Commonwealth Orthopaedics. One month later she went hiking in the Great Smoky Mountains, and a few months after that she was finally back on the black diamond ski slopes she loves so much.

"I was very motivated to get back to my previous activities and lifestyle – and keep up with my 10-year-old son – and I couldn't have done it without Dr. Lawhorn," she says. "He went above and beyond and did an amazing job. He is so technically gifted. My pain is gone and my scar is so small you can barely see it; everything looks fabulous. Now I recommend him to others all the time."

In Memoriam

Charles R. Ubelhart, MD
Caring, Expert Orthopaedic Physician
Commonwealth Orthopaedics
1999-2011

***Christopher C. Annunziata, MD**, earned a BS from Boston College before graduating with his medical degree from Georgetown University. He completed an orthopaedic surgery residency at Georgetown University Medical Center and went on to complete a fellowship in Sports Medicine/Knee and Shoulder Surgery at the University of Pittsburgh Sports Medicine Center.*

***Keith W. Lawhorn, MD,** graduated with a BA in Chemistry from the University of Virginia and continued his education at the University of Virginia School of Medicine, where he earned his medical degree . He completed a general surgery internship and orthopaedic residency at the Medical College of Virginia. Dr. Lawhorn served on active duty in the U.S. Air Force for eight years, reaching the rank of Lt. Colonel.*

For full biographies and a complete directory of the physicians at Commonwealth Orthopaedics who perform these and other procedures visit our website at www.c-o-r.com.