

Collagen Meniscus Implant

Ivy Sports Medicine

(<http://www.ivysportsmed.com/en>)

Collagen Meniscus Implant



Wayne K. Gersoff, MD, Advanced Orthopedics & Sports Medicine, Denver, CO

The number of patients undergoing arthroscopic partial meniscectomy has continued to increase. However, this is potentially not a benign procedure, as there are increased contact pressures on the articular cartilage even with the removal of only a segment of the meniscus.

The Collagen Meniscus Implant (CMI, Ivy Sports Medicine) is a resorbable and biocompatible Type I collagen matrix that was developed to restore the segmental loss of meniscal tissue in the knee. It consists of a porous cross-linked matrix scaffold that allows for the ingrowth of the body's own cells. The CMI is the only meniscal implant composed of purely biological materials and is available in an off-the-shelf supply.

The CMI is available in the United States for use in the restoration of segmental loss of the medial meniscus. The CMI can be utilized in either an acute or chronic situation. In the acute case, it would be indicated when the medial meniscus is irreparable, and that segment must be removed. In the chronic case, the patient would have had a previous partial meniscectomy and/or failed meniscus repair and had developed either pain or signs of early articular cartilage wear in the compartment. The procedure can be done arthroscopically and as an outpatient. The CMI can be kept on the shelf to be available as needed; it has a 2-year shelf life. There are specialized instruments for measuring the length of implant needed and for delivery of the implant.

The CMI has been utilized clinically for 18 years with excellent clinical results. Patients treated with CMI have benefited in over 80% of cases. Studies have demonstrated improved knee function, activity levels, and pain values from the pre- to postoperative periods.^{1,2} In addition, functional improvements have been maintained for over 10 years. The reoperation rate has been demonstrated to be 10% to 20%, which is comparable to the reoperation rate after meniscal repair.

Surgical pearl: The surgical technique for insertion of the CMI is relatively uncomplicated (**Figure A, B**). The first step is the resection of all dysfunctional meniscus and then creating 90° walls to attach to posteriorly and anteriorly, and a firm peripheral rim to attach the CMI into.

The second step is to measure the length of your meniscus defect with the measuring rod.

Once measured, you want to oversize the implant 10% to

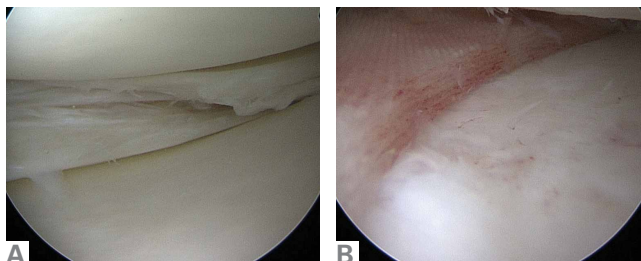


Figure. The patient is a 22-year-old male who sustained an injury to his knee while playing soccer. Magnetic resonance imaging demonstrated a complex tear of a segment of the posterior horn and body of the medial meniscus. Because the patient was a young, active individual, it was decided to proceed with placement of a Collagen Meniscus Implant. Intraoperative photographs demonstrate (A) his meniscus tear and (B) placement of the CMI.

15% (ie, if you measure 30 mm, you will cut at least 34 mm). Use the measuring rod to measure the length of the CMI and mark your length. Use a new scalpel blade to cut the CMI.

Place the measured CMI into the delivery clamp and insert through a mini-arthrotomy into the meniscal defect. The fixation technique of the CMI is entirely up to the implanting surgeon. Most surgeons have used a combination of all-inside and inside-out meniscus repair techniques. It is recommended to start fixing the CMI first posteriorly. The posterior stitch is usually an all-inside horizontal mattress stitch. Coming 1 cm anteriorly, place a vertical mattress stitch. Continue this method sequentially while moving anteriorly. The anterior suture is the surgeon's choice for device, but it should be a horizontal mattress like the most posterior stitch. It is important while tightening your suture tension to apply the concept of "approximated and not strangulated." Once completed, close wounds in typical fashion.

Author's Disclosure Statement: Dr. Gersoff reports that he is a consultant for Ivy Sports Medicine and Vericell.

References

1. Zaffagnini S, Marcheggiani Muccioli GM, Lopomo N, et al. Prospective long-term outcomes of the medial collagen meniscus implant versus partial medial meniscectomy: a minimum 10-year follow-up study. *Am J Sports Med.* 2011;39(5):977-985
2. Bulgheroni P, Murena L, Ratti C, Bulgheroni E, Ronga M, Cherubino P. Follow-up of collagen meniscus implant patients: clinical, radiological, and magnetic resonance imaging results at 5 years. *Knee.* 2010;17(3):224-229.