Risk factors affecting the survival rate of Collagen Meniscus Implant (CMI) for partial meniscus deficiency. An analysis of 156 consecutive cases at a mean 10 years of follow-up

Gian Andrea Lucidi, Alberto Grassi[1], Piero Agostinone, Stefano Di Paolo, Giacomo Dal Fabbro, Nicola Pizza, Stefano Zaffagnini[1]

[1]Istituto Ortopedico Rizzoli

INTRODUCTION: Collagen Meniscus Implant (CMI) is a biologic scaffold that could be used to replace meniscus host tissue after partial meniscectomy. The short-term results of this procedure have already been described, however, little is known about risk factors for failure. The goal of the present study was to determine the factors that predict failure of meniscus scaffold implantation in a large series of patients treated at a single institution, and to better define the indications for surgery.

METHODS: 186 consecutive patients with a minimum 5-year follow-up who underwent CMI scaffold implantation or combined procedures were included in the analysis. Demographics and details of the surgery were obtained by chart review. Patients with a Lysholm score < 65 were considered a clinical failure. Surgical failure was defined as partial or total scaffold removal.

RESULTS: 156 patients (84%) with a mean age at surgery of 42.0 ± 11.1 were included in the final analysis at an average follow-up of 10.9 ± 4.3 years. The survival rate was 87.8%. Subgroup analysis identified Outerbridge grade III-IV (HR 3.8; P =.004) and a lateral meniscus implant (HR, 3.2; P= .0048) as risk factors for failure. The survival rate for the medial implants was 90.4% and 77.4% for the lateral implants. Finally, an Outerbridge grade III-IV (HR, 2.8; P =.000) and time from meniscectomy to scaffold greater than 10 years (HR, 2.8; P = .020) were predictive of surgical or clinical failure.

DISCUSSION AND CONCLUSION: Collagen meniscus implant for partial meniscus deficiency provided good long-term results, with 87.8% of the implants still in-situ at a mean 10.9 years of follow-up. Outerbridge grade III-IV, lateral meniscus implants and greater time from the meniscectomy to implantation of the CMI implant were identified as risk factors for clinical and surgical failures.