

One-Step Cartilage Repair with Bone Marrow Aspirate Concentrated Cells and Collagen Matrix in Full-Thickness Knee Cartilage Lesions: Results at 2-Year Follow-up.

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Author information

Abstract

OBJECTIVE: The purpose of our study was to determine the effectiveness of cartilage repair utilizing 1-step surgery with bone marrow aspirate concentrate (BMAC) and a collagen I/III matrix (Chondro-Gide, Geistlich, Wolhusen, Switzerland).

MATERIALS AND METHODS: We prospectively followed up for 2 years 15 patients (mean age, 48 years) who were operated for grade IV cartilage lesions of the knee. Six of the patients had multiple chondral lesions; the average size of the lesions was 9.2 cm(2). All patients underwent a mini-arthrotomy and concomitant transplantation with BMAC covered with the collagen matrix. Coexisting pathologies were treated before or during the same surgery. X-rays and MRI were collected preoperatively and at 1 and 2 years' follow-up. Visual analog scale (VAS), International Knee Documentation Committee (IKDC), Knee injury and Osteoarthritis Outcome Score (KOOS), Lysholm, Marx, SF-36 (physical/mental), and Tegner scores were collected preoperatively and at 6, 12, and 24 months' follow-up. Four patients gave their consent for second-look arthroscopy and 3 of them for a concomitant biopsy.

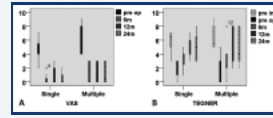
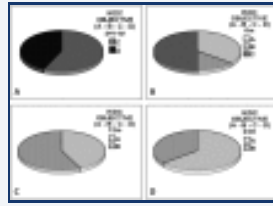
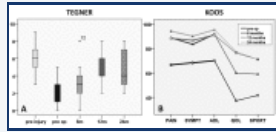
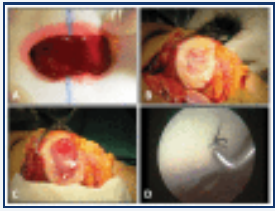
RESULTS: Patients showed significant improvement in all scores at final follow-up ($P < 0.005$). Patients presenting single lesions and patients with small lesions showed higher improvement. MRI showed coverage of the lesion with hyaline-like tissue in all patients in accordance with clinical results. Hyaline-like histological findings were also reported for all the specimens analyzed. No adverse reactions or postoperative complications were noted.

CONCLUSION: This study showed that 1-step surgery with BMAC and collagen I/III matrix could be a viable technique in the treatment of grade IV knee chondral lesions.

KEYWORDS: BMAC; Chondro-Gide; Plateltex Act; cartilage; chondral lesion; knee



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