Category: Knee - Cartilage

Arthroscopic Bone Marrow Stimulation for Osteochondral Lesions of the Tibial Plafond Yields Satisfactory Outcomes in 77% of Patients

Abstract ID# 22582
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Summary:
Arthroscopic BMS yields favourable clinical outcomes at mid- to long-term follow-up in 77% of patients with an OLTP. Lesion size may be a predictive factor for unfavourable clinical outcomes in OLTPs. Prospective studies are highly needed to further evaluate clinical outcomes for patients with an OLTP and to identify predictive factors on outcomes.

Data:
Purpose: A paucity of clinical outcomes from osteochondral lesion of the tibial plafond (OLTP) treatment exists in the literature. The primary purpose of this study was therefore to assess the patient-reported outcome measures (PROMs) of patients who underwent arthroscopic bone marrow stimulation (BMS) for an OLTP. The secondary aims were to assess the revision- and complication rates. Methods: Patients treated with arthroscopic BMS at a minimum follow-up of 12 months were cross-sectionally included. The primary outcome was the Numeric Rating Scale (NRS) during walking. A NRS during walking < 4 was considered a successful treatment. Secondary outcomes included; the Foot and Ankle Outcome Score (FAOS) and the Short Form Health Survey (SF-36) general health questionnaire. Additionally, the revision surgery (i.e., repeat surgery for the OLTP) - and complication rates were examined. A sub-analysis was performed for patients with or without a coexisting talar lesion. Results: PROMs were analysed for 53 patients at a mean 8.5 years follow-up, of which 37 had a solitary OLTP and 16 had a coexisting talar (bipolar) lesion. The mean NRS during walking was 2.1 (SD: 2.5) out of 10 for the total group of OLTP patients, with a treatment success rate of 77%. Anterior-posterior lesion size was observed to be significantly associated with higher NRS scores during walking (r = 0.29; P = 0.03). A significantly higher rate of males was found to have a bipolar lesion compared to patients with a solitary OLTP (P = 0.002) and were observed to have a significantly larger lesion volume (P = 0.02), though no significant differences in PROMs were found between the groups. From the 54 cross-sectionally available patients 4 patients (7%) underwent revision surgery at a mean 4.1 years post-operatively. No complications were observed. Conclusion: Arthroscopic BMS yields favourable clinical outcomes at mid- to long-term follow-up in 77% of patients with an OLTP. Lesion size may be a predictive factor for unfavourable clinical outcomes in OLTPs. Prospective studies are highly needed to further evaluate clinical outcomes for patients with an OLTP and to identify predictive factors on outcomes.

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Adipose-Derived Culture-Expanded Mesenchymal Stem Cells Provide Satisfying Outcomes in Symptomatic Cartilage Defects of the Knee at a 6-year Follow-Up

Abstract ID# 23105
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Summary:
Adipose-Derived culture-expanded mesenchymal stem cells were shown to be an efficient and safe single-stage cell-based procedure for symptomatic focal cartilage defects in the knee. It was hypothesized that the increased number of autologous AD-MSCs after culture expansion is a safe and efficient cartilage repair procedure, which improves over time chondrogenesis in cartilage lesions. Methods. Thirty consecutive patients who underwent cartilage repair in the knee with adipose-derived culture-expanded mesenchymal stem cells were prospectively followed for 6 years. To assess functional outcomes patients-reported tools were used including two validated subjective knee questionnaires, the Injury & Osteoarthritis Outcome Score (KOOS) and the International Knee Documentation Committee (IKDC) score, the Tegner activity scale and the visual analogue scale (VAS) for pain. Clinical evaluation was quantified by the IKDC examination form. Radiological evaluation of the repair tissue was performed using the MOCART score. Results. All scores recorded a statistically significant improvement (p < 0.05) at the final follow-up compared with baseline. The KOOS evaluation showed increased scores in all subcategories. More precisely, KOOS-pain was improved from 62.6 (range 44.0-70.1) to 95.5 (range 92.0-100.0), KOOS-Symptoms from 46.3 (range 68.0-96.0) to 90.0 (range 89.0-96.0), KOOS-ADL 60.0 (range 46.8-74.6) to 92.0 (range 87.8-97.0), KOOS-Sports/Rec from 32.5 (range 20.0-45.0) to 70.0 (range 55.0-85.0) and KOOS-QOL from 34.4 (range 23.5-51.5) to 84.5 (range 73.5-88.0). The average IKDC score increased from 40.2 (range 33.9-49.7) to 76.6 (range 68.4-84.7). Sport activity evaluated using Tegner Activity Score as well as VAS for pain demonstrated the same tendency of significant improvement. MRI findings confirmed complete filling of the defect and integration to the border zone for 68% of the patients. Three patients underwent postoperative biopsies and the histological analysis demonstrated the presence of hyaline-like tissue. Conclusions. Adipose-Derived culture-expanded mesenchymal stem cells were shown to be an efficient and safe single-stage cell-based procedure for symptomatic, full-thickness knee chondral lesions. The findings of the present study demonstrate that all patients presented significant long-term clinical, functional and radiological improvement. Keywords: chondral lesion, adipose derived stem cells, cartilage repair, regenerative medicine, tissue engineering, scaffolds, cell culture expansion.

Category: Knee - Cartilage

Five-year Outcomes Following Implantation of a Scaffold-free Tissue-engineered Construct Generated from Autologous Synovial Mesenchymal Stem Cells for Repair of Knee Chondral Lesions

Abstract ID# 21467
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Summary:
A scaffold-free tissue-engineered construct derived from autologous synovial mesenchymal stem cells could be used for regenerative cartilage repair via a suture-less and simple implantation procedure.

Data:

Category: Knee - Cartilage

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