Autologous chondrocyte implantation versus ACI using 3D-bioresorbable graft for the treatment of large full-thickness cartilage lesions of the knee.

Abstract:
In autologous chondrocyte implantation (ACI), the periosteum patch which is sutured over the cartilage defect has been identified as a major source of complications such as periosteal hypertrophy. In the present retrospective study, we compared midterm results of first-generation ACI with a periosteal patch to second generation ACI using a biodegradable collagen fleece (BioSeed-C) in 82 patients suffering from chronic posttraumatic and degenerative cartilage lesions of the knee. Clinical outcome was assessed in 42 patients of group 1 and in 40 patients of group 2 before implantation of the autologous chondrocytes and at a minimum follow-up of 2 years using the ICRS score, the modified Cincinnati score and the Lysholm score. Although patients treated with BioSeed-C had more previous surgical procedures on their respective knees, highly significant improvements (P<0.001) were assessed in both groups at comparable outcome levels: the ICRS score improved from grade D (poor) preoperatively to grade C (fair); the modified Cincinnati knee score from 3.26 to 6.4 (group 1) and 3.3 and 6.88 (group 2). Lysholm score improved from 33 to 70 points (group 1) and from 47 to 78 points (group 2), respectively. Revision surgery was due to symptomatic periosteal hypertrophy (n = 4), graft failure (n = 3), plica syndrome (n = 2).
synovectomy (n = 1) (group 1); and graft failure (n = 2), debridement (n = 1), synovectomy (n = 2) (group 2). These results suggest that BioSeed-C is an equally effective treatment option for focal degenerative chondral lesions of the knee in this challenging and complex patient profile.

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