P44

Arthroscopic MACI of the tibial plateau; short term results and technical description.

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Purpose: Matrix induced autologous chondrocyte implantation (MACI, Verigen, Perth, WA) is a tissue engineering technique usually performed via an open arthroscopy. Advances have been made in methods of rehabilitation, cell culture and cell delivery. We describe our experience with arthroscopic MACI of the lateral tibial plateau and compare the results with our current practice of open MACI.

Methods and Materials: 3 patients with MRI proven chondral injury to the lateral tibial plateau suitable for arthroscopic surgery underwent an initial arthroscopic biopsy, and debridement of associated meniscal injuries. Following successful cell culture using standard portals the area of chondral injury were debrided, measured, the graft introduced to a dry surface and fixed with fibrin glue. Standard progressive weight bearing rehabilitation was followed under supervision of exercise therapists.

Results: At 3 months the 6 minute walk test was 533.7m (490-563) in 15, 487m (422-500) in the open group. Active range of movement 144 (142-145) in the arthroscopic group vs 128 (71-152) in the open group. SF-36 psychological components 33.4 (27-40) in the arthroscopic group vs 487.8m (312-810) in the open group.

Conclusions: All short term results show at least equivalence, with a trend for a more rapid recovery with lower morbidity. Reducing the surgical morbidity of cartilage reconstruction surgery is the natural progression of this technique but requires technical expertise. We await the results of MRI at 12 months.

P45

Unshouldered kissing lesion treatment by Bioseed-C ACT set technique

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Purpose: In unshouldered kissing lesions for patients younger than 45 ys. old, who want to avoid or better to delay UNI or PFR and strongly require resurfacing, as alternative, we have obtained extremely promising results with ACT-set technique development.

Methods: We performed a prospective evaluation of 34 patients with MRI proven chondral defects of the knee. All patients had undergone an initial arthroscopy. The average age was 34ys (18-48). At 3 months follow-up the patient reported an improvement of 90% covering and integration of the set grafts.

Results: The best result was obtained at the ICRS-IKDC scale. At the endpoint of 12 months the KOOS, Lysholm and VAS scores also showed equivalence.

Conclusion: The ACT-set technique is a minimally invasive, one-step arthroscopic procedure with limited postoperative morbidity.

P46

Does autologous chondrocyte implantation allow return to physical activity and work?

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Purpose: We determined whether autologous chondrocyte implantation (ACI) in patients with articular cartilage defects of the knee resulted in patients returning to pre-injury levels of work and physical activity.

Methods and Materials: 133 consecutive patients from January 2001 to December 2002 underwent ACI at our institution. A telephone and postal questionnaire was conducted to ascertain a detailed occupational and leisure activity profile in this cohort of patients. For each job held we asked whether an average working day had involved any of ten specified physical activities. For each sport that had been played 5 times a year, we asked the age the sporting activities had begun and whether they were able to return to these sports after surgery. Occupation for each patient was given a 3 digit code according to the Standard Occupational Classification System 2000 and hence determined whether the work performed was manual or non-manual.

Results: 97 patients responded to the questionnaire. There were 53 females and 44 males and the mean age at the time of operation was 34.5 (range 14 to 49). Category 6 (Administrative and Secretarial Occupations) was the most common occupation pre-operatively, whereas category 4 (Administrative and Secretarial Occupations) was the most common post-operatively. 42% of patients had to make some form of modification to their work. 47% of patients were able to return to at least one of the sports they played pre-injury.

Conclusions: This questionnaire has demonstrated that patients are able to return to work and resume sporting activity following autologous chondrocyte implantation.

P47

Short-term clinical outcome following characterized chondrocyte implantation versus microfracture for symptomatic cartilage lesions of the knee.

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Purpose: Microfracture is often considered a technically easy, minimally invasive, one-step arthroscopic procedure with limited postoperative morbidity. In contrast, autologous chondrocyte implantation is often considered a demanding two-step procedure with an extensive postoperative recovery period. Clinical outcome at 6 months was therefore assessed in patients with symptomatic cartilage lesions of the knee treated with either characterized chondrocyte implantation (CCI) using ChondroCelect® or microfracture.

Methods and Materials: CCI (n=51) was compared to microfracture (n=61) in patients with symptomatic cartilage defects of the femoral condyles in a Phase III multicenter, prospective, randomized controlled trial. After treatment, patients in both groups followed an identical, standardized rehabilitation program. At 6â€”months follow-up, clinical outcome was assessed using the Knee Injury and Osteoarthritis Outcome Score (KOOS), a Visual Analog Scale (VAS) for pain and an Activity Rating Scale (ARS).

Results: At 6 months postsurgery, the adjusted mean change from baseline for Overall KOOS was 13.29 and 14.18 following CCI (n=51) and microfracture (n=59), respectively. Mean changes of -3.14 and -4.14 (ARS 90%) covering and integration of the set grafts.

Conclusions: Although CCI is a two-step procedure, comparable short-term clinical outcome was observed at 6 months postsurgery compared to the one-step arthroscopic microfracture procedure in a randomized, controlled trial with identical, standardized rehabilitation in both groups.