

P44**Arthroscopic MACI of the tibial plateau; short term results and technical description.**

R. Carey Smith¹, J.R. Ebert², W.B. Robertson³, G. Janes⁴, D.J. Wood⁵;
¹Perth Orthopaedic Institute, University of Western Australia, Perth, Australia, ²Hollywood Functional Rehabilitation Clinic, Perth, Western Australia, Australia, ³School Of Surgery & Pathology (orthopaedics) And School Of Human Movement & Exercise Science, University of Western Australia, Perth, Western Australia, Australia, ⁴Orthopaedics, Perth Orthopaedic & Sports Medicine Centre, Perth, Western Australia, Australia, ⁵School Of Surgery & Pathology (orthopaedics), University of Western Australia, Perth, Western Australia, Australia

Purpose: Matrix induced autologous chondrocyte implantation (MACI, Verigen, Perth, WA) is a tissue engineering technique usually performed via an open arthrotomy. 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 the arthroscopic group vs 487.8m (312-810) 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 in arthroscopic vs open groups 27.1 (23.6-30) to 33.2 (22.1-45.5) vs 38.9 (22-58.6) to 35.9 (23.2-55.7), and motor component was 45.7 (41.8-51.1) to 56.7 (53.3-59.8) vs 51.6 (23.3-68.4) to 55.0 (27.3-71). KOOS, Lysholm and VAS scores also show equivalence.

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**

M. Pastina¹, S. Zanasi²;

¹Bologna, Italy, ²Orthopaedics, Villa Erbosca SpA, BOLOGNA, Italy

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 and Materials: We performed a prospective evaluation of 27 patients treated with SET HYALOGRAFT-C and SET BIOSEED-C for unshouldered unicompartimental kissing lesions of the knee and ankle. Average age was 31ys (19-45). All patients achieved minimum follow-up period of 18ms. Objective and subjective evaluation using the ICRS-IKDC 2000 scores were used as well as NMR 1.5 T scans at 18ms. EuroQol EQ-5D has been used to evaluate the patients quality of life. Statistical analysis were conducted using paired T-test nd Wilcoxon signed rank test.

Results: A statistically significant improvement of clinical status has been obtained at the ICRS-IKDC scale. EuroQol EQ-5D index dramatically improved with respect to baseline conditions in all our patients. NMR studies at 18 ms. revealed an almost normal cartilage tissue-like resurfacing in 73% of these cases, with positive correlation to clinical outcomes. Second look at 6 ms from surgery demonstrated good (>90%) covering and integration of the set grafts.

Conclusions: A tissue engineered approach by the use of harder biomaterial derived from collagen (BIOSEED-C) shows complete resurfacing of kissed articular surfaces areas without mobilization or sliding of the patches during the passive and secondary active mobilization: the setting technique for some cases series by Hyalograft-C demonstrated less impressive in clinical and NMR improvement, with partial failure of the graft uptake.

P46**Does autologous chondrocyte implantation allow return to physical activity and work?**

P.K. Jaiswal¹, M. Jameson-Evans², J. Jagiello², R. Carrington², J. Skinner², T. Briggs², G. Bentley²;

¹The Joint Reconstruction Unit, The Royal National Orthopaedic Hospital, London, United Kingdom, ²Joint Reconstruction Unit, Royal National Orthopaedic Hospital, London, United Kingdom

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 activities.

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 began 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 (Personal Services 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.**

J. Vanlauwe¹, J. Victor², J. Bellemans³, F. Luyten⁴;

¹Leuven, Belgium, ²Orthopedics, AZ St Lucas, Bruges, Belgium, ³Orthopedics, University Hospital Leuven, Leuven, Belgium, ⁴Rheumatology, University Hospital Leuven, Leuven, Belgium

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 referred to as 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 6 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 -27.96 and -28.31 were recorded for pain (negative values indicating improvement) following CCI (n=51) and microfracture (n=59), respectively. For activity level (using an ARS) -3.14 and -4.14 (ARS pre-defect as baseline), respectively for CCI (n=51) and microfracture (n=61), were recorded.

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.