

severity of the cartilage damage. A maximum of the 3 most significant articular lesions was then recorded on the data sheet and subsequently entered into the database. Fisher's exact test, Pearson chi-square test, *t* test and Mann-Whitney *U* test were used for the statistical analysis. All tests were two-tailed with a confidence level of 95% ($P < .05$). An increased incidence of articular lesions was found in patients with synovial shelves, in comparison with patients without shelves (94.7% versus 81% respectively; $P < .001$). Patients with shelves type B2-D3 were found to have increased incidence of cartilage lesions in comparison with patients with type A0-B1 shelves (96.5% versus 86.4% respectively; $P = .002$), as well as cartilage lesions with bigger size (84% versus 71.4% respectively; $P = 0.02$). Patella and F2, F3 zones of the medial femoral condyle were areas with increased incidence of cartilage lesions, in patients with synovial shelves in comparison with patients without shelves, with percentages 47.7% versus 27.5% for the patella ($P < .001$), and 80.2% versus 45% for the F2 and F3 zones ($P < .001$), respectively. In conclusion, Synovial shelves of the knee are a risk factor for cartilage lesions. Even small shelves with chronic inflammation (type B2-D3) predispose towards more frequent and larger articular lesions. Areas at risk particularly include the patella and the non-weight-bearing medial femoral condyle.

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Cartilage Resurfacing with Precut Fresh Osteochondral Core Allografts (SS-43)

Objective: To familiarize the clinician with the development of a new and simple method to resurface full-thickness cartilage defects of the knee. **Methods:** Large articular cartilage defects of the knee can be managed with various methods. These include mosaicplasty and chondrocyte reimplantation which can be technically difficult, associated with a prolonged recovery period and expensive. Fresh chondral allografts can now be preserved for as long as twenty one days with maintenance of chondrocyte viability. Precut full-thickness osteochondral core allografts are now available in 2 mm incremental sizes from 10 to 20 mm in diameter. The grafts are harvested from multiple sites on the donor femoral condyle to orthotopically match the recipient defect. The required size of the donor osteochondral plug is determined by prior arthroscopy or an MRI utilizing 3 plane high resolution sequencing with fast-spin echo proton density. The graft can be inserted arthroscopically or via a mini-arthrotomy on an out-patient basis. No internal fixation is required. Range of motion and early weight bearing

is encouraged. **Results:** Twenty-three grafts have been inserted over the past 38 months. Six cases have undergone follow-up arthroscopy with visualization of the graft and cartilage biopsy. Excellent maintenance of the resurfaced cartilage site has been observed in all cases. Chondrocyte viability has been observed to be in the range of 80%. **Conclusions:** This new, easily reproducible process provides the simplest and most cost effective method for cartilage resurfacing of large femoral condyle defects and is associated with low morbidity and early recovery.

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Chondral Osseous Replacement (COR) Technique for Femoral Defects (SS-44)

Localized, full-thickness articular cartilage defects of the femoral condyle are often found unexpectedly. An arthroscopic repair technique that transplants chondral osseous plugs to fill the defect (COR technique) offers an immediate solution for these lesions. The purpose of this study is to review the clinical and radiographic results of chondral osseous replacement for full-thickness articular cartilage lesions. **Methods:** A prospective two center study of full-thickness articular cartilage lesions was initiated in 1995. All knees were evaluated both pre and postoperatively by physical examination, radiographs, Lysholm and Tegner knee scores. Inclusion criteria were full-thickness femoral condyle defects >1 cm and <3.5 cm in diameter, and a minimum 24 months follow-up. Exclusion criteria were associated tibial defects, patellar defects, or generalized arthritic change. ACL tears, concurrent ACL surgery, and meniscal tears were not contraindications. Grafts harvested from the superior and lateral femoral notch were press fit into holes drilled into the defect placed adjacent to the articular cartilage margin. Cancellous bone bridges were maintained between grafts. Relook arthroscopic examinations were done when possible. **Results:** 39 patients met the inclusion criteria with an average follow-up of 48 months (24-89 months). The average age was 45. There were 20 males and 19 females. The MFC was involved in 30 and the LFC in 9. The average Lysholm score increased from 43 preoperatively to 84 at follow-up. The average Tegner score at follow-up was 4.9. Relook arthroscopies were obtained in 14 of the 39 and demonstrated good incorporation of the grafts in all cases. Biopsies of these grafts over time demonstrated viable chondral and osseous components at intervals out to 12 months. Radiographic examinations demonstrated early arthritic changes in some patients. **Discussion:** The technique successfully transplants chondral osseous grafts within the knee that remain