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lateral and ap view preoperatively, 6 weeks, 3.6 and 12 month after surgery) of 57 patients (in total 80 implanted prosthesis) were analysed 1 year after TCDR with a ProDisc C prosthesis. We classified the HO in 5 grades. For clinical parameters the Visual Analog Scale (VAS) and the Neck Disability Index (NDI) were evaluated preop and 1 year postoperative. Student-t-test and Wilcoxon's test were used for the statistical analysis.

Findings: The clinical parameters improved significantly. The Neck Disability Index (NDI) improved in average from preoperatively 19.5 points out of 50 to 11 points. In the Visual Analog Scale (VAS 0-10) the patients improved from 6.2 (VASarm) and 5.5 (VAS-neck) to 1.8 resp. 2.6 one year postoperatively in average. In 27 treated segments no heterotopic ossification was detectable (33.75 %). Grade I ossifications were present in 6 levels (7.5%). 32 segments showed Grade II ossifications (40.0%). HO which led to restrictions of the range of motion were present in 8 cases (10.0%). One year postoperative 7 cases had a spontaneous fusion of the treated segment (8.75%).

Conclusions: The early clinical results of the ProDisc C - prosthesis are comparable to the published results of other total cervical disc prosthesis. VAS and NDI improved after TCDR significantly. There is no significant correlation between clinical parameters and heterotopic ossification. The rate of heterotopic ossification 1 year after TCDR is unexspectively high. Our results suggest the necessity of further studying the postop radiological changes.

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Experiences with 7 intervertebro-discal Spacers in spondylodesis of the cervical spine

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Aim: Spondylodesis in degenerative diseases of the cervical spine by autologous bone graft is associated with complications and pain of the iliac crest. Can we deal with this problem by the implantation of intervertebro-discal spacers?

Material and Methods: From September 1997 to September 2005 we operated 447 patients with degenerative diseases of the cervical spine and carried out a follow-up examination 3 or 12 months after surgery. During the operation via a ventral approach we performed a microsurgical discectomy and a resection of dorsal osteophytes with the high speed drill. The Titan-Spacer Cespace (Aesculap) has been implanted in 66 patients, the Weber titan spacer in 54, the Intromed titan spacer in 52 patients, the Medinorm wing-spacer in 18, the carbonium spacer (AcroMed) in 17patients, in 180 patients the PEEK-Spacer from Intromed and in 60 patients the PEEK-Spacer from amt. After 3 and 12 months we carried out a follow up-examination.

Results: The Weber titan spacer sticked out by a good handling and a medium price. The Intromed titan cage was easy to use in the operation. The x-ray contrast of the Acromed carbonium spacer is not sufficient for implantations in the lower cervical spine, the spacer was good to handle but too expensive. We registered a tendency of penetration into the end plates by the AcroMed, Medinorm and Intromed titan spacers. The Cespace (Aesculap) is easy to handle during the operation. The PEEK-spacer (Intromed) allows a safe implantation but it tended to dislocate. The amt PEEK-Spacer showed the lowest rate of complications and is well-priced.

Conclusions: Due to metallic artefacts of titan spacers in CT and MRI scans these implants are not up to date. Following the increasing preferation of PEEK spacers in spondylodesis of the cervical spine we use the amt PEEK spacers.

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Efficacy of nucleus pulposus regeneration using cultured autologous disc-derived chondrocytes coupled with sequestrectomy

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Introduction: Disc herniation treated by discectomy results in a significant loss of nucleus material and disc height. Biological restoration of the intertebral matrix using disc chondrocytes affords a potential for functional regeneration of disc metabolism in hopes of restoring spine mechanics.

Material and Methods: Nucleus regeneration using autologous cultured disc-derived chondrocytes (ADCT) has been demonstrated in both a canine model and in clinical pilot studies. In 2002 a prospective, controlled, randomised, multi-center study was initiated to compare the safety and efficacy of ADCT plus discectomy, with discectomy alone. Clinical goals were intended to sustain long-term pain relief, maintain disc height and prevent adjacent segment disease.

Results and Discussion: Interim outcome assessments were made on 28 patients at 3 and 6 months, 1 and 2 years following chondrocyte transplantation. Oswestry (Low Back Pain / disability), Quebec Back-Pain Disability Scale, as well as Prolo and VAS Scores were used for the evaluation. Disc height and fluid content were assessed by MRI. A clinically significant reduction in low back pain was shown by all 3 pain score systems in the ADCT-treated group. Decreases in the Disability index in ADCT-treated patients correlated directly with the reduction of low back pain. While statistically different differences in disc height were not shown, differences in fluid content were clearly enhanced in the discs of patients who had received the chondrocyte transplantation. An unanticipated observation emerged demonstrating that adjacent levels in patients who had received cell therapy showed a significant increase in adjacent segments as well. Safety analysis did not yield any differences between the two groups of patients.

Conclusion: Transplantation of autolous disc chondrocytes following sequestrectomy provided enhanced relief from pain compared to sequestrectomy alone. The longer the patients were followed in the study, the more apparent the difference provided by cell therapy. Finally, it would appear that the reduction in pain and the increase in signal intensity was not confined to the level receiving the cells. Patients whose treatment included supplemental cell therapy retained more fluid in adjacent segments over the 2 years during which the patients were followed. Autologous disc chondrocyte transplantation seems to sustain pain relief, enhance matrix production, and provide a biological intervention that acts offers systemic as well as local clinical outcome.

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Ventral stabilisation using the Telefix-Plate. Early clinical findings with this minimalinvasive system

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The combined dorsventral stabilization is a commonly used procedure for thorakolumbar fractures. There are many different ways for the ventral support. One of the newer developments is the minimalinvasive augmentation using a Telefix-Plate. Whether the correction obtained through the operation can be sustained in the long run is the question concerning this study.