

because of post-traumatic bone losses. The main features of this prosthetic system are the versatility in the diameters choice, lengths, kind of fixation, kind of reconstruction, and the flexibility in the components assembly which also allows to modify the anteverision degree in any moment; moreover, it enables to successfully manage problems related with surgical proximal femur reconstruction.

### **ACETABULAR REVISION SURGERY IN THE PRESENCE OF SEVERE BONE LOSS: SURGICAL TECHNIQUE AND EARLY RESULTS WITH MODULAR POROUS TANTALUM AUGMENTS AND CUPS**

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**Subject:** In the presence of minimal acetabular bone loss most revision procedures can be done with the use of an uncemented hemispheric device with or without morselized allograft.

The use of modular porous tantalum augments and cups has been recently introduced to address more severe bone deficiencies. The purpose of this study is to describe the surgical technique and early clinical results obtained with trabecular metal acetabular augments in cases of acetabular revision with severe bone loss.

**Materials and Methods:** Since November 2003 seven acetabular revisions have been done by means of TMT® augments and cups: the primary indication for acetabular revision was aseptic loosening in five patients and septic loosening in two patients.

According to Paprosky classification the acetabular bone defects were classified as follows: 2B in two hips, 2C in one hip, 3A in two hips and 3B in three hips. In two cases it was the first surgical hip replacement procedure. Five cases were multiple revisions.

**Results:** At an average follow-up of 24 months no implant had evidence of loosening or migration. No dislocations occurred.

**Discussion and Conclusions:** Augments provide mechanical support to hemispheric cups of various dimensions. This surgical technique avoids the use of structural allograft, helps to restore the center of hip rotation and increases contact area between the implant and the host bone for biological fixation. Longer follow-up is required to verify survival of these implants and potential mechanical and biologic complications related to use of this modular TMT® system.

### **PROSTHESIZATION IN CROWE GRADE IV HIP DYSPLASIA: INDICATIONS, TECHNIQUES AND RESULTS**

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Prosthesization in Crowe grade IV hip dysplasia is a surgical technique which is technically demanding for the surgeon and requires strong motivation from the patient (because of localized pain or pain in the supra and sub-segmentary structures), as well as a careful pre-operative assessment and an accurate execution of the operation. Prosthesization can take place in single stage or two stage surgery, and the site for placement can be the neocotyle or the paleocotyle. The authors report their experience, in which they privileged single stage surgery and placement of the prosthesis in the paleocotyle. The use of appropriate modular prosthetic systems makes it possible to regain adequate functional dysmetria of the rotational centre, as well as to benefit from the unquestionable advantage of performing the operation in one stage. There is a description of the surgical technique used, comprising an ample lysis of the articular and peri-articular environment, positioning the acetabular cup in the paleocotyle, shortening of the femur, and the use of a modular prosthetic stem. The results obtained and the not uncommon complications limit this type of surgery to selected cases.

### **SALVAGE OF FAILED OSTEOSYNTHESIS OF PROXIMAL FEMUR FRACTURE AND COMPLEX KNEE FRACTURES WITH MODULAR MEGAPROSTHESES**

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Surgical revision of osteosynthesis failures in complex fractures of the proximal and distal femur is often a very complex, long lasting procedure with an unacceptable high rate of perioperative and post-operative complications. Different techniques have been proposed: revision prosthesis, strut graft augmentation, massive allografts. We want to present an original technique derived from authors' experience with tumoral modular prosthesis which can represent a quick, efficient and long term solution with a quite rapid return to activities. From 1995 to march 2006 15 patients (M/F=7/8) have been treated with a proximal femur megaprosthesis (Waldemar Link, C system) to salvage a failed osteosynthesis. In every case the modular prosthesis was implanted after two previous failed attempts of ORIF. The prosthesis was implanted as a bipolar head or with an acetabular cup depending on patient's age. Average operative time was 150 minutes. We did not observe perioperative complications, with an average age of the patients of 72 years. At 5 year follow up the functional results were excellent or good in 14 out of 15 cases. The fair case was due to a dislocation of the total hip and further revision with a constrained socket. The results remained poor for the late (8 year) infection of the prosthesis and subsequent removal of the prosthesis and positioning of a cement spacer loaded with antibiotics. Treatment of this case is still in progress. We used the same modular megaprosthesis system in two cases of complex knee fractures. The patient treated with a distal femoral prosthesis had a traumatic bone loss of distal femur of 12 cm, including condyles; the other patient had an articular fracture of proximal tibia with tibial tuberosity avulsion. Both patients had a good result. In conclusion we believe that in selected cases with previously failed ORIF and important residual bone loss this technique offers a valid alternative to arthrodesis.

### **FOUR-YEAR FOLLOW-UP OF A TANTALUM, MONOBLOCK ACETABULAR CUP: CLINICAL AND RADIOLOGICAL RESULTS**

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**Objective:** Osteolysis secondary to polyethylene wear is the most serious aseptic long-term complication following total hip replacement (THR). Studies have shown that fixation with screws, modularity and lack of extensive bone ingrowth are associated with increased osteolysis. This study examines our experience with tantalum cup designed to address these issues.

**Materials:** Between 2000-2001, seventy-two consecutive primary THR were performed using uncemented monoblock, elliptical, tantalum cup without screw holes. Average follow-up was 61 months (range 54 to 72). Average age was 67.5 years (range 46 to 81). Pre and post-operative clinical assessment used Harris hip score (HHS), WOMAC and SF-36. One independent, blinded observer performed zonal radiographic analysis with De Lee and Charnley method.

**Results:** Average HHS at recent follow-up was 91 (range 85 to 100). All cups appear fixed with bone ingrowth. Dome-gaps present in 4 cups post-op; all have filled in. Radiolucencies at follow-up: 2% zone 1, 6% zone 2; none greater than 1 mm. No cup migration was observed. None cup related complications.

**Conclusion:** Tantalum cup provides secure, symptom-free fixation at 4 years. No complication was reported associated with use of tantalum. The elliptical shape of the cup creates an interference fit with the spherically reamed acetabulum. From the pole of the dome, the interference