

**Conclusions** We are very positively impressed using this socket because of easy application and instrumentation. The catastrophic results with the first RM cup were due to the polyethylene-back-side wear [6]. We are also encouraged by the very positive results reported in Literature with the RM titanium-coated classic cup.

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### RADIOLOGICAL EVALUATION OF THE METAL-BONE INTERFACE OF A POROUS TANTALUM ACETABULAR COMPONENT

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**Introduction** Porous tantalum presents a bone-matched elastic modulus and an high coefficient of friction in cancellous and cortical bone. Furthermore, its open-cell tantalum structure of repeating dodecahedrons, similar to cancellous bone, should be favourable for bone ingrowth. These physical and mechanical properties should increase primary fixation and potential osteointegration of acetabular cups and should decrease periacetabular stress shielding. The purpose of this study was to radiographically evaluate the evolution of the metal-bone interface of porous tantalum acetabular components.

**Materials and Methods** Serial radiographic evaluation of 41 porous tantalum acetabular component has been performed in 40 patients. Twelve hips underwent total hip arthroplasty using a trabecular metal monoblock acetabular component and 29 hips using a trabecular metal modular acetabular system. All patients were clinically and radiographically evaluated at four, eight, 12, 24 weeks, 12 months and then annually. All cases were available for a minimum follow-up of two years (mean 35 months). On post-operative x-rays the metal-bone interface was investigated for areas in which the porous surface of the acetabular component was not in contact with bone. These gaps were measured and classified by location according to DeLee and Charnley zones. Evolution of post-operative gaps, presence of lysis or periacetabular radiolucencies and component migration were assessed during follow-up.

**Results** On post-operative x-rays 36 components (88%) had a gap between the outer surface and the host bone but only in 12 cases (29%) gaps were larger than 1 mm. The gaps were mostly situated in the polar region (zone II) when compared with the peripheral zones and no one was bigger than 5 mm in width. At last follow-up 23 (64%) of the initial gaps were no longer radiographically evident, 10 (28%) had a favourable evolution and appeared reduced in dimension but still present and 3 (8%) didn't fill at all and were unchanged when compared with post-operative controls. There was no progres-

sion of any post-operative gap and no evidence of new periacetabular radiolucent lines or lysis. No acetabular implant showed evidence of migration or needed revision for loosening. At last follow up the mean Harris Hip Score was 95. There were no dislocation or other complications.

**Discussion** Short term results with porous tantalum acetabular component are encouraging: the bridging of the interface gaps and the absence of periacetabular radiolucencies indicate good mechanical and osteoconductive properties. Further follow-up will be required to confirm these results in the long term.

### THE COTILE TRILOGY. REVIEW OF OUR CASUISTRY AFTER 10 YEARS

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In the Complex Operating Unit of our hospital, they give approximately 10 years that we use the cotile trilogy for hip surgical total prosthesis participations in patients with fracture of the femoral neck or arthrosis of the hip. The authors have seen again the cotile implanted in the period with minimal follow-up of 8 years, finding optimal results at a distance, with almost null relative data to the mobilization and usury of the polyethylene. They come indicated the characteristics of the cotile and the technical modifications that the house manufacturer has brought in the time with the introduction of new biomaterials.

### THE TMT IN HIP PROSTHESIS: OUR EXPERIENCE

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**Background** The necessity of reduce the aseptic mobilizations of the prosthetic systems through the creation of more biocompatible materials and therefore able of osteointegration, has carried to the synthesis of the Trabecular Metal; its characteristics are similar to the trabecular bone, and it comes obtained through the infiltration and the successive tantalum gas vapor warehouse (a pure metal like titanium, highly biocompatible and resistant to the corrosion) on reticulated of glasses carbon, a material with low density and high percentage of empty volume (97%).

The physical and mechanical characteristics of this new material are unique in order to guarantee an effective primary stability and through an osteoinductive and osteointegrative ability it guarantees an optimal secondary stability, as demonstrated by the studies on animal executed by Bobyn.

In order to take advantage at the best and to value the property of the TMT it has been designed an elliptic geometry acetabular component, obtained with a 2 millimeters increase of the equatorial diameter of the goblet for an optimal primary stability of the system.

**Materials and Methods** Made curious from these "credentials" we have begun our experience with the TMT acetabular components in 1999 and at today we have treated a total of over 100 patients. They come classified by sex, age, operated side and pathologies. We have revalued over 50 operated patients. The Patients have been examined clinically, according to the Harris Hip Score, and from the instrumental point of view: radiographically and with an machine for densitometry (Lunar DPX Bravo-GE).

**Results** The minimum follow-up is 24 months and the maximum 96 months. It is been taken in consideration the eventual radiographical change of the superior portion of the goblet greater than 3 millimeter and/or than 8° in comparison to the post-operative x-ray and the eventual radiolucency lines, considering the 3 zones codified from Gruen, that is areas of 60° each one of the acetabular goblet. This Gruen's zones come estimated also with the densitometry.