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Presentation	Pid	Title
not available	P763	A 10-18 years follow up of the uncemented isoelastic monoblock RM acetabular component in young patients.
Authors		
Dean Pakvis, Liesbeth Biemond, Gijs Van Hellemond, Maarten Spruit		
Abstract		

Background: The uncemented isoelastic monobloc socket developed by Robert Mathys mimics the elastic modulus of the acetabular bone. The biological fixation combined with its osteoconductive coating, physiological stress transfer and absence of back side wear could lead to long term survival of the acetabular component. The purpose of this retrospective cohort study was to evaluate the long-term clinical and radiological survival of the RM cup in high demand patients under 50 years. Methods: During the period of 1990 and 1997 a cohort of 158 total hip arthroplasties were performed in our institution on 131 patients. The mean age was 42.4 years (range 16-50 years); 67 were female and 64 were male. The mean follow up period was 13.2 years (range 10 – 18 years). Clinical and radiological analysis was performed using standard pelvic radiographs and questionnaires. Results: Four patients died due to surgery unrelated causes, 4 patients were lost to follow up. During follow up twenty patients underwent acetabular revision. The main reason for revising the socket was PE wear. Worst case survival for the RM monoblock socket at 10 years is 99% (StdE 0.009) and 81% at 14 years (StdE 0.043). Survival for aseptic loosening of the RM cup at 10 and 14 years is 99% (StdE 0.006) and 98% (StdE 0.13). Survival analysis for wear shows 99% (stdE 0.007) survival at 10 years and 87% (StdE 0.04) at 14 years follow up. Conclusion: This study shows excellent long term results of this uncemented monoblock socket at 10 – 18 years follow up in a high demand patient cohort under 50 years. The main cause for revision of the acetabular component has been PE wear with a peak incidence a 13 years after implantation. Level of evidence: Therapeutic level IV. See instructions to authors for a complete description of level of evidence.

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A 10-18 years follow up of the uncemented isoelastic monoblock RM acetabular component in young patients.

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Introduction:

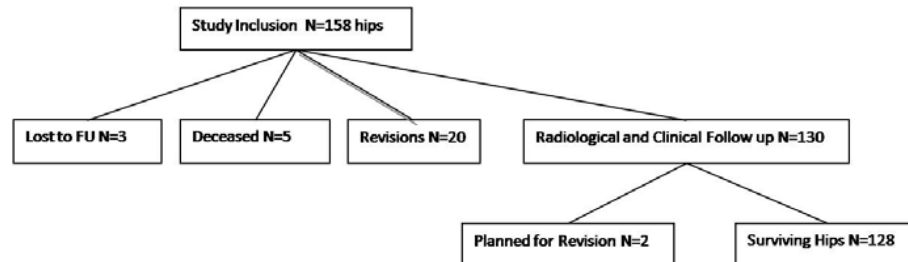
Although cementless sockets seems to be the primary option in hip arthroplasty for young patients, there are few reports presenting long term survival data for cementless sockets in patients under 50 years. Acetabular stress shielding has been named as a potential failure mechanism. An elastic socket theoretically provides an answer for this failure mechanism.

Goal:

Determine the radiographic and survival results of an elastic (UHMWPE with titanium coating) cementless socket in young patients.

Methods and Materials:

During 1990 through 1997, 158 total hip arthroplasties were performed on patients younger than 50 years old. The mean age was 42.4 (range, 16 to 50) years; 67 were female and 64 were male. The underlying diagnosis was primary OA in 46 hips and secondary OA in 112 hips. All femoral heads used were 28 mm with Metal on PE articulation in 58 hips and Ceramic on PE in 100 hips. Four uncemented stem types were used during the inclusion period. The Harris hip and the Merle D'Aubigne questionnaires were used. Standard AP en lateral pelvic radiographs were used to determine migration, osteolysis and PE wear. A Kaplan-Meier analysis was used to determine survival of the socket.



Results:

The mean follow up period was 13.2 (range, 10 to 18) years. Four patients (5 hips) died during the follow up period. Their death showed no relationship with the arthroplasty. Clinically 79% scored excellent-good on the HHS and 91% on the Merle D'Aubigne questionnaire. Significant migration was seen in N=3 (2%) of surviving cases. Significant and progressive osteolysis was seen in N=4 (3%) of these cases. The annual PE wear rate of the non-revised sockets was 0.11 mm/yr vs 0.16 mm/yr in the revised group. A 6.8 higher odds ratio was seen for PE wear and revision in metal on PE articulations. Survival analysis showed an overall survival of 80% at 14 years. (Fig 1) The primary reason for revision has been PE wear. Survival analysis for aseptic socket loosening showed 98% survival at 14 years follow up (Fig 2). (To see figures click mouse of spatial bar)

Discussion:

This retrospective analysis of a large cohort using an unchanged elastic cementless socket in young patients shows good clinical outcome, low osteolysis rates, equivalent to published literature PE wear and migration rates. A metal on PE articulation resulted in a 6.8 higher odds ratio for revision in this cohort. Excellent aseptic loosening survival rates were seen at 14 years after the index operation. PE wear was the primary reason for socket revision. Due to its structure, a socket revision was deemed as easy and was performed without great loss of acetabular bone. Advancement in tribology will result in lower wear rates and resulting revisions. To determine the effect of socket elasticity on acetabular stress shielding we are currently performing a prospective qCT BMD analysis of acetabular bone behind a press fit elastic socket.

Conclusion:

We found good clinical scores, low pelvic osteolysis rates, acceptable wear rates, satisfactory overall survival and excellent aseptic loosening survival rates for an elastic cementless socket in young patients.

There are no conflicts of interests concerning this study

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Fig 1. Kaplan-Meier curve of the overall survival of the RM cup.

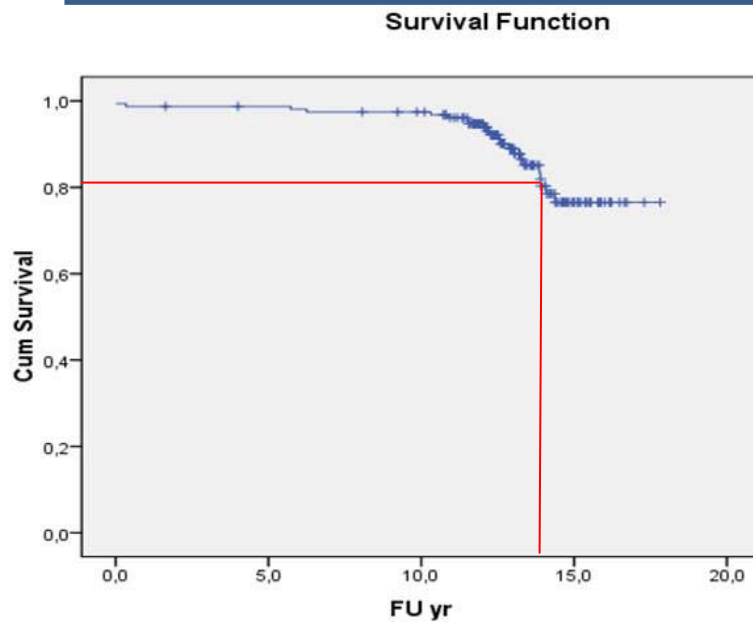


Fig 2. Kaplan-Meier curve of the aseptic loosening survival of the RM cup.

