Excellent Long-Term Survivorship Of A Dual Mobility Acetabular System

Arnaud Fiquet¹, Alain Cypres¹, Philippe Girardin¹, David Fitch², Philippe Bauchu¹, Olivier Bonnard¹, Daniel Noyer¹, Christophe Roy¹

¹Groupe GILES, France; ²Smith & Nephew Inc., United States of America

INTRODUCTION

- Total hip replacement (THR) remains one of the most successful orthopaedic procedures performed.
- Dislocation remains one of the most common reasons for revision
- One potential option for preventing dislocations is to use dual mobility acetabular systems.
- Dual mobility acetabular systems have a femoral head that articulates within a polyethylene liner that is allowed to move freely within a metallic acetabular shell.
- Dual mobility THR is an option for reducing the risk of dislocation in both primary and revision procedures.

METHODS

- We retrospectively reviewed 502 consecutive THRs performed at 3 centers in France between 2002 and 2005
- All patients were implanted with a a dual-mobility acetabular system (POLARCUP, Smith & Nephew, Baar Switzerland)
- All subject records were reviewed for baseline Merle D'Aubigne, revisions, and complications.
- All living, non-revised patients were then invited for a single prospective visit that included WOMAC, Merle D' Aubigne Scores, and standard radiographs as the endpoint.

POLARCUP DUAL MOBILITY SYSTEM

- Features 250 µm titanium plasma coating with 15-20% porosity and anti-rotation fins
- Conventional and highly crosslinked polyethylene liners
- Cobalt chrome, ceramic, and cermacised metal femoral head options



Figure 1. The POLARCUP Dual Mobility System (Smith & Nephew Inc., Switzerland) was used in all patients

Statistical Considerations

- Descriptive statistics were used for demographics and functional outcome scores.
- Kaplan-Meier analysis with 95% confidence intervals was used to estimate component survivorship with revision of the acetabular component for any reason as the endpoint.

RESULTS

- Patient demographics and diagnosis for procedure are shown in Table 1.
- Postoperative Merle d'Aubigne and WOMAC scores were satisfactory and are shown in Figure 2.

Table 1. Patient demographics

| N Hips | 502 |
|--------------------------|---------------------------|
| Female/Male | 247 / 255 |
| Mean Age At Surgery | 68.7 years (range, 29-92) |
| Diagnosis for Procedure | |
| Osteoarthritis | 86.0% |
| Avascular Necrosis | 6.2% |
| Dysplasia/DDH | 3.3% |
| Rheumatoid Arthritis | 2.1% |
| Femoral Neck Fracture | 0.8% |
| Post-traumatic Arthritis | 0.8% |
| Other | 0.8% |
| | |

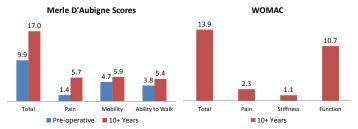


Figure 2. Merle d'Aubigne and WOMAC Scores

Radiographic Results

- 1 (0.4%) case of medial cup migration
- 1 (0.4%) case of cup osteolysis in a DDH patient with 3 prior cup revisions



Figure 3. Representative radiograph of well-fixed POLARCUP

Safety Outcomes

- At a mean follow-up of 11.9 years, the Kaplan-Meier survivorship was 98.7% (95% CI, 96.6-99.5).
- There were 14 acetabular revisions for aseptic loosening and 1 secondary to fracture of the femur.

CONCLUSIONS

- This study is the first to report long-term results with this dual mobility system.
- The system was associated with excellent long-term component survival and satisfactory functional outcomes.

