

# Excellent Long-Term Survivorship Of A Dual Mobility Acetabular System

Arnaud Fiquet<sup>1</sup>, Alain Cypres<sup>1</sup>, Philippe Girardin<sup>1</sup>, David Fitch<sup>2</sup>, Philippe Bauchu<sup>1</sup>, Olivier Bonnard<sup>1</sup>, Daniel Noyer<sup>1</sup>, Christophe Roy<sup>1</sup>

<sup>1</sup>Groupe GILES, France; <sup>2</sup>Smith & 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 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 cross-linked polyethylene liners
- Cobalt chrome, ceramic, and cermet 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

<b>N Hips</b>	502
<b>Female/Male</b>	247 / 255
<b>Mean Age At Surgery</b>	68.7 years (range, 29-92)
<b>Diagnosis for Procedure</b>	
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.