

Two Year Follow-up Clinical Outcomes with a Modular Dual Mobility (MDM) System: A Multicenter Study

Geoffrey H. Westrich¹, Zachary D. Post², Arthur L. Malkani³, Michael A Mont⁴, Ahava Muskat¹

¹Hospital for Special Surgery, New York, ²Rothman Institute, Egg Harbor Township, New Jersey, ³University of Louisville, Louisville, Kentucky,

⁴Department of Orthopaedics at the Cleveland Clinic, Cleveland, Ohio.

INTRODUCTION

- Total hip arthroplasty (THA) is one of the most successful operations in orthopaedic surgery for alleviating pain and restoring function.
- The most common cause of revision THA is **instability with 22.5% of all revisions performed for this reason**.¹ Dislocation causes distress for both the surgeon and the patient and substantial costs are incurred to manage the problem.²
- Instability occurs in **approximately 1% of THA's in the 1st month** after surgery and **the risk of dislocation increases at a linear rate after 1 year to a cumulative risk of 7% at 20 years**.³ **More than ¾ of all dislocations occur within the first 3 months postoperatively, and that more than ¾ occur within 1 year.**⁴
- Prevention of postoperative instability has been a major focus in implant design and innovation. Modular Dual Mobility (MDM) polyethylene liners have been introduced in the United States as a component design option for total hip arthroplasty (THA). It was initially developed by Gilles Bousquet in the 1976.
- The MDM system is designed to increase impingement-free range of motion and decrease dislocation risk.** THE MDM system's large head and low friction low friction design allows for more stability.

OBJECTIVES

- This study was designed to retrospectively review a series of hips implanted with the modular dual mobility (MDM) liner to examine clinical outcomes after 2 years of implantation.



Modular Dual Mobility
acetabular system (MDM®
X3®, Stryker Orthopaedics,
Mahwah, NJ, USA

METHODS

- We retrospectively queried our prospectively collected total joint replacement registry for patients who underwent THA with a MDM liner at four major high-volume arthroplasty centers including the **Hospital for Special Surgery** (New York), **Rothman Institute** (New Jersey), **University of Louisville** (Kentucky), and the **Department of Orthopaedics at the Cleveland Clinic** (Ohio) .
- Harris Hip Score (HHS), 12-Item Short Form Survey (SF-12), Visual Analogue Scale scores (VAS),** and Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scores were evaluated at **2 year follow-up**.
- Radiographic analysis was collected.
- Postoperative complications and revision for any reason were recorded.

RESULTS

	Preoperative	2 Years Postop
Harris Hip ROM	2.5	4.1
Harris Hip Fx	23.3	38.0
Harris Hip Total	53.2	77.7
WOMAC	51.7	85.5
SF-12 PCS	31.4	37.5
VAS	6.9	1.5

- 217 hips were implanted with an average age of 64 years (range 39-91 years).**
- Complications included one DVT.
- There were **no dislocations** in this patient series.
- There were 6 revisions due to periprosthetic joint infections (PJI). Two were due to early postoperative infections and 4 were late infections.
- Radiographic analysis showed no radiolucent lines, osteolysis, or acetabular loosening at 2 year follow-up.
- There were no cases of adverse local tissue reactions (ALTR).**



CONCLUSIONS

- Dual mobility prostheses are designed to reduce the risk of dislocation.
- Our patients appear to have excellent clinical and radiographic outcomes at two year follow-up with this implant **with no dislocations or ALTR noted.**

REFERENCES

- Bozic, K. J., Kurtz, S. M., Lau, E., Ong, K., Vail, T. P., & Berry, D. J. (2009). The epidemiology of revision total hip arthroplasty in the United States. [Research Support, Non-U.S. Gov't]. *J Bone Joint Surg Am*, 91(1), 128-133. doi: 10.2106/JBJS.H.00155
- Chandler, R. W., Dorr, L. D., & Perry, J. (1982). The functional cost of dislocation following total hip arthroplasty. *Clin Orthop Relat Res*(168), 168-172.
- Berry, D. J., von Knoch, M., Schleck, C. D., & Harmsen, W. S. (2004). The cumulative long-term risk of dislocation after primary Charnley total hip arthroplasty. *J Bone Joint Surg Am*, 86-A(1), 9-14.
- Woo, R. Y., & Morrey, B. F. (1982). Dislocations after total hip arthroplasty. *J Bone Joint Surg Am*, 64(9), 1295-1306.



I (and/or my co-authors) have something to disclose.

Detailed disclosure information is available via:

“My Academy” app;



or

AAOS Orthopaedic Disclosure Program on the AAOS website at
<http://www.aaos.org/disclosure>