

Multicenter Evaluation of a Modular Dual Mobility Construct for Revision Total Hip Arthroplasty

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Introduction: The risk of instability following revision total hip arthroplasty (THA) is greater than after primary THA. New modular dual mobility (MDM) constructs have offered increased stability without compromising hip range of motion. The purpose of this study is to evaluate the outcomes of revision THA using MDM constructs.

Methods: The study is a multi-institutional retrospective cohort study of 370 hips that underwent revision THA with the MDM construct between April 2011 and April 2017. The average age was 66.0 years. There were 221 females and 149 males. The average BMI was 31.4 kg/m². Clinical, radiographic, and patient-reported outcomes were collected. Reasons for failure were assessed.

Results: Of the 370 patients, 315 patients met one-year minimum follow-up and were included in the study. Average follow-up was 3.3 years (range 1.0-7.7 years). The acetabular component was revised in 84% cases whereas only an MDM liner was placed in 16% of cases. Average Harris Hip Score improved from 54.8 to 83.4 ($p < 0.001$). Thirty (9.5%) hips required reoperation, nine (2.9%) for instability, eight (2.5%) for acetabular component loosening, six (1.9%) for infection, four (1.3%) for periprosthetic fractures, one (0.3%) for acetabular component malposition, one (0.3%) for improper liner seating, and one (0.3%) for improper screw placement. Seven of 107 cases performed for instability had recurrent instability (6.5%), of which five did not undergo acetabular component revision during the index surgery. Recurrent instability was associated with not revising the acetabular component ($p = 0.003$).

Conclusions: Revision THAs with MDM constructs provided a very low rate of instability, good functional improvement and a low reoperation rate. Recurrent instability following use of MDM in revision THA was associated with retention of the acetabular component, likely due to cup malposition. While longer-term follow-up is needed to fully assess these devices, there is clearly a benefit in the first few years following revision surgery.