Cemented Dual-Mobility Constructs in Uncemented Revision Acetabular Components: How Do they Fare?

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INTRODUCTION: Dislocation remains the leading cause of failure following revision total hip arthroplasty (THA). While dual-mobility mitigates this risk, options are limited when retaining an acetabular component or implanting an uncemented component without a modular dual-mobility option. In these circumstances, a dual-mobility cup, designed for cementation, can be cemented into an uncemented acetabular shell. The goals of this study were to describe the implant survivorship, complications, and radiographic outcomes of a cemented dual-mobility construct.

METHODS: Using our institutional total joint registry, we identified 65 hips implanted with a single-design dual-mobility cup, designed for cementation into metal acetabular shells, during revision THAs between 2018 and 2020. Cups were cemented into either non-modular (74%) or retained (26%) acetabular components. Median head diameter was 42 mm. Mean age was 69 years, mean BMI was 32 kg/m^2, and 52% were female. Indications for revision were pelvic discontinuity (20), recurrent instability (17), reimplantation (14), or other. Survivorship was assessed using Kaplan-Meier methods. Mean follow-up was 2 years.

RESULTS:

The 2-year survivorships free of any cemented dual-mobility revision, aseptic dual-mobility revision, and dislocation were 87%, 92%, and 92%, respectively. There were nine cemented dual-mobility cup revisions: 3 for PJI (2 in patients with prior PJI), 3 for acetabular aseptic loosening from bone, 2 for dislocation, and 1 for a broken cup-cage construct. There were 5 postoperative dislocations, all in patients with prior dislocation or abductor deficiency. On radiographic review, the dual-mobility cup remained well-fixed at the cemented interface in all but one case.

DISCUSSION AND CONCLUSION: In this series of complex revision THAs, cemented dual-mobility constructs were technically advantageous and there was only one failure at the cemented interface. While dislocation was not eliminated, this versatile technique allowed for increased head diameter and optimization of effective acetabular position during cementation, proving useful in complex revision THA.