Survivorship of Modular Dual Mobility Constructs is Comparable to Polyethylene Liners in Revision Hip Arthroplasty for Metallosis

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INTRODUCTION:

Metallosis is an uncommon but significant complication that can occur after total hip arthroplasty (THA), with a reported incidence of 1-5%. The study aimed to determine implant survivorship and clinical outcomes of patients who underwent revision THA for metallosis between liner constructs.

METHODS:

This retrospective cohort study at a single institution included 232 patients who underwent revision THA for metallosis between October 2012 and October 2023, with a mean follow-up of 3 ± 2.5 years. Patients received either a DM construct (n=116, 50%), standard-bearing polyethylene liner (n=103, 44.7%), or constrained liner (n=13, 5.6%) system. Patient age, sex, and comorbidities were similar between groups. Implant survivorship with re-revision as the endpoint via Kaplan-Meier analysis was compared between patients.

RESULTS:

The five-year survivorship was 90.5% (95% CI: 85.3, 96) and 81.6% (95% CI: 74.4, 89.4) for DM liners and polyethylene groups, respectively (P = 0.12). Instability or dislocation was the most common indication for re-revision in both cohorts (DM: 5.2%; polyethylene: 5.8%; constrained: 0%). Acetabular revisions constituted 46.5% of DM revisions, while head-liner exchanges comprised 35% of polyethylene revisions (P<0.001). The 90-day readmissions were similar across DM, polyethylene, and constrained liners (10.3 versus 14.6 versus 7.7%, P = 0.631).

DISCUSSION AND CONCLUSION:

In this retrospective series investigating outcomes following revision THA for metallosis, 5-year re-revision-free survivorship of DM constructs was comparable to polyethylene liners at 90.5% compared to 81.6%. Surgeons may consider DM liners as a viable alternative to use in patients undergoing revision THA for metallosis. Dislocations remain a concern following metallosis, so using the implant that ensures optimal hip joint stability is recommended.

Kaplan-Meier Curve: Time to Revision (10 Years, DM & Poly)