Dislocated Dual-Mobility Implants Are Unlikely to Be Successfully Closed Reduced and Are More Likely to Require Revision Than Standard Articulation Implants

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INTRODUCTION:
Dual mobility (DM) articulations are increasingly being used in primary and revision hip arthroplasty due to the lower dislocation risk compared to standard articulations (SA). If a DM hip does dislocate, the inner head can disassociate from the outer polyethylene head usually during attempted reduction. This is called an intraprosthetic dislocation and necessitates the need for revision surgery. The natural history of a dislocated dual mobility is not well defined with regards to the chances of a successful closed reduction or the long-term need for revision surgery. Our hypothesis is that dislocated DM hips have a lower chance of successful closed reduction and a higher long-term risk of revision surgery than SA hips. Therefore we asked, what percentage of dislocated DM and SA hips are able to be successfully closed reduced? What percentages of dislocated DM and SA hips ultimately require reoperation?
METHODS:
A retrospective analysis was performed on patients who sustained a dislocated THA from 2014-2023 within the Banner Health System. Patients were identified utilizing ICD-10 diagnosis codes. Patients were included if they had undergone an attempted closed reduction and were over the age of 18. Patients were stratified based on type of implant (DM vs SA). Data regarding patient demographics, previous surgical history, closed reduction attempts, intraprosthetic dislocations, subsequent instability and rate of revision surgery was collected. The rates of successful reduction, subsequent instability and revision surgery was assessed utilizing Chi-square. A p-value of 0.05 was considered statistically significant.
RESULTS:
74 patients (26 DM, 48 SA) with a mean age of 65.5 (range, 40-91) were included. The rate of successful closed reduction was lower in the DM compared to SA group (34.6% vs 90%, $p<0.001$). Of the 26 dislocated DM hips, 15 sustained intraprosthetic dislocations upon attempted reduction, of which 5 were missed and were discharged home. Dislocated DM hips ultimately required revision at a higher rate than dislocated SA hips (79.2% vs 41.7%, $p<0.004$). Of the patients that underwent a successful closed reduction, there was no difference in patients who continued to have multiple instability events which lead to need for revision surgery (44.4% vs 58.1%, $p < 0.84$).
DISCUSSION AND CONCLUSION:
Dislocations are an unfortunate complication of primary and revision hip arthroplasty. While less common with DM implants, they can still occur and pose the risk of intraprosthetic dislocation. The risk of intraprosthetic dislocation was very high in our series and was missed one-third of the time. Patients with dislocated DM hips had a lower chance of successful closed reduction and a higher risk of reoperation compared to dislocated SA hips. Most of this increased risk of reoperation appears to be due to the chance of intraprosthetic dislocation, as those who were able to be successful reduced without intraprosthetic dislocation did not have increased risk of revision compared to successfully reduced SA hips. Patients with dislocated dual mobility implants are less likely to be closed reduced and are more likely to require revision surgery than patients with standard articulation implants. Most of this increased reoperation risk is due to the risk of intraprosthetic dislocation, which is common and frequently missed.