Paper #39

Association between Pseudotumor Formation and Patient Factors in Metal-on-Metal Total Hip Arthroplasty Population

Notes

Lindsay Kleeman, MD, **Daniel E. Goltz, BS**, Joseph G. Mammarappallil, MD, PhD, Thorsten M. Seyler, MD, PhD, Samuel S. Wellman, MD, Michael P. Bolognesi, MD

Introduction: Pseudotumor formation following metalon-metal (MoM) total hip implants can be a devastating complication predisposing to instability and infection. Our study was to determine if there is a relationship between pseudotumor type and specific patient factors, metal ion levels, implant parameters, and patient outcomes.

Methods: We retrospectively reviewed patients who underwent primary total hip arthroplasty (THA) with a MoM implant at our institution between 2002-2013 (minimum 2 years follow-up). Patients who underwent hip MRI (with MARS sequencing) following surgery were included in our review. MRI images were independently reviewed by a fellowship-trained radiologist with pseudotumors graded using a validated classification system. Statistical significance was calculated using an unpaired two-tailed t-test for continuous variables and a chi-square test for categorical variables.

Results: Our institution performed 966 MoM THAs in 830 patients. We identified 207 hips with a post-operative MRI. Evidence of pseudotumor was present in 107 hips (52%), with an average size of 113.8 cm 3 . Of these, 65 (61%) were cystic with a wall thickness less than 3 mm, 22 (21%) were cystic with a wall thickness greater than 3 mm, and 20 (19%) were predominantly solid masses. Patients with thick-walled cystic or solid masses had significantly higher cobalt and chromium levels than those with a thin-walled pseudotumor (p <0.001). Patients with pseudotumor had larger cup sizes, high offset stems, and were more likely to be revised than those without evidence of pseudotumor (all p < 0.05). Patients with thick-walled cystic or solid masses were more likely to be revised than those with thin-walled cystic masses (p < 0.001).

Conclusion: Pseudotumor formation following metalon-metal total hip arthroplasty is high, seen in 52% of our patients who underwent an MRI following their surgery. Risk factors for development of a pseudotumor include elevated cobalt levels, larger implant head size and high.

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