

Metal-on-Metal Total Hip Arthroplasty

Jess H. Lonner, MD

For the past 14 years, I've been caring for a patient whose knee I replaced over a decade ago. Sure, her knee has done fine, but I've been most impressed with the metal-on-metal (MOM) bearing total hip arthroplasty (THA) that she has—one implanted 34 years ago by Dr. Ted Waugh when he was with New York University Medical Center. That hip has remained painless and the radiographs have shown spot welding of the interfaces, without any evidence of loosening or osteolysis. Before the recent explosion of evidence of potential catastrophic failures associated with MOM THA and hip resurfacings, the common sentiment was that while some degree of metal ion (especially cobalt and chromium) shedding was observed in the blood of recipients, there was little risk of ill consequences (such as sarcoma, blood borne cancers, neurologic symptoms, and loosening/osteolysis) related to this. Unfortunately, it appears that the emerging data are now raising concerns about some of those past dismissals (i.e. osteolysis and premature failure).

There is an alarming number of studies now reporting pain and catastrophic failures from aseptic lymphocytic vasculitis-associated lesions (ALVAL) and adverse local tissue response (ALTR) in the setting of MOM THA. As a knee surgeon who recently reviewed abstracts on the topic of revision THAs submitted to the American Association of Hip and Knee Surgeons, I was struck by the staggering number that dealt with this very problem. Like most innovations, the rationale for promulgation and advancement of this bearing concept was sound, preclinical kinematic



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and wear simulator studies were convincing, and early data were encouraging. Now it turns out that perhaps there are tight tolerances for patient selection, bone quality, and component positioning that challenges the bearings' routine use and questions the predictability of outcomes. In this issue, Hsu and colleagues review 2 cases of metal hypersensitivity and tissue reaction that are being seen and reported more commonly in series of MOM hip arthroplasties. While this report doesn't particularly give additional insight into the mechanism or etiology of failure, it highlights a diagnostic dilemma that may exist, as these cases displayed some features which were consistent with deep infection, although they were aseptic failures.

Embracing innovation is highly personal for surgeons and patients. For some, wading into the waters of innovation comes easily. Others prefer to watch from the shore, opting to delay trying new technologies until there are adequate data. The story of MOM hips is one in which initial data were intriguing, complications were apparently few, and the argument in favor of seemed compelling. Now the US Food and Drug Administration has mandated that manufacturers of MOM THAs develop and implement postmarket surveillance studies for up to 8 years postsurgery. This will surely produce the data needed to determine whether or not these bearings have been a success. This issue highlights the dramatic potential value of the American Joint Replacement Registry for tracking the performance and durability of knee and hip arthroplasties on a broad scale, without the taint of bias. For now, we should be looking to our associates in other countries with such national registries to better sort out their collective experiences with MOM THA.

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Dr. Lonner, this journal's Associate Editor for Adult Reconstruction, is Associate Professor of Orthopaedic Surgery, Thomas Jefferson University Hospital, Rothman Institute, Philadelphia, Pennsylvania.

Address correspondence to: Jess H. Lonner, MD, Rothman Institute, 925 Chestnut St, Philadelphia, PA 19107 (tel, 267-339-3500; fax, 215-503-0580; e-mail, jess.lonner@rothmaninstitute.com).

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Given the volumetric growth of younger and more active arthroplasty patients, we should continue to innovate to improve the durability and feel of knee and hip arthroplasties, striving to make 4 decades of in vivo success the norm. If I relied exclusively on my experience observing one MOM THA, which is surviving well into its 34th year, I would have little concern for the prospects for success of this

class of implants. And in fact, many hip surgeons acknowledge that the majority of patients with MOM hips continue to do well. However, it is our responsibility to carefully track these products, particularly since failures are being identified, so that we can make informed decisions about implant use, patient selection, and surgical technique. In the case of MOM hip arthroplasties, let's make sure that the

incidence of failures with ALVAL and ALTR aren't begging for an SOS.

AUTHOR'S DISCLOSURE STATEMENT

Dr. Lonner reports being a paid consultant and a member of the speaker's bureau for Zimmer Inc. He is also a shareholder and a member of the speaker's bureau for Mako Surgical Corp.



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