

Reply to Dr. Ranawat's Letter to the Editor

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I'm honored that Dr. Chit Ranawat has read my recent paper, "Hip Resurfacing Using Highly Crosslinked Polyethylene: A Prospective Study with Mean Follow-Up of 8.5 Years" published in the Journal of Arthroplasty, 2016. I support his conclusion that for most patients, cementless total hip replacement (THR) is the right choice. There are young active patients, though, whose needs and expectations exceed the outcomes provided by THR. Resurfacing procedures preserve bone but they have been limited by their technical difficulty, recipient bone health, and the wear and fixation of the bearing surfaces. The reasons to consider hip resurfacing are: an easier femoral revision (if necessary), smaller volume of implanted material, and ability to offer the procedure when the medullary canal is blocked. The functional advantages for resurfacing patients are enhanced stability, ability for sports participation and other physically demanding endeavors, and a lower incidence of mortality at 10 years compared to THR (1).

Extending the use of highly cross-linked polyethylene to resurfacing makes sense and the results are comparable to its use in THR. Dr. Ranawat's statement that the results with resurfacing are not favorable for femoral head sizes less than 50 mm refers to metal-on-metal resurfacing but not to polyethylene resurfacing. Also, polyethylene thickness of 3 mm – 4 mm works well and even thinner polyethylenes may be developed in the future.

My paper in the Journal of Arthroplasty reports only results with triple-annealed polyethylene. The Editors wanted a consistent study with just one type of implant. My overall resurfacing experience also includes remelted highly cross-linked polyethylene and two other femoral components. I have performed more than 2000 resurfacing procedures using highly cross-linked polyethylene with follow-up as long as 14 years. There have been no bearing surface failures. Both Drs. Buechel and Amstutz have used highly cross-linked polyethylene with no failures and Mr. McMinn is beginning to use it, as well.

Dr. Ranawat is correct that acetabular bone retention and component fixation are challenges with hip resurfacing. Most resurfacing patients have a shallow acetabulum due to existing dysplasia. Unlike with THR, only one acetabular component size is available for each resurfacing patient, as the femoral geometry also determines the acetabular dimension. The CT image used in the paper was the best demonstration of this challenge and most other cases preserve even more bone. Screws can be helpful but are unnecessary in more than 90% of patients. The paper noted that some patients had a contralateral THR usually with an acetabular shell of the same or within 2 mm of the resurfacing size.

The past problems of component fixation, impingement osteolysis, and bone loss caused by non-wear-resistant conventional polyethylene and a thick metal backing have been eliminated by the low-profile acetabular components we now use. Highly cross-linked polyethylene for resurfacing is a good option for young active patients. The resurfacing procedure is very demanding and is gaining acceptance; I have performed resurfacing procedures in a number of orthopedic surgeons as patients. I still offer conventional THR to older, less-active patients.

Reference

1. McMinn DJ, Snell KI, Daniel J, et al. Mortality and implant revision rates of hip arthroplasty in patients with osteoarthritis: registry based cohort study. *BMJ* 2012;344:e3319.