

Femoral Neck Fractures Following Metal-on-metal

Total Hip Resurfacing

Michael A. Mont, MD, Baltimore

(*a,e* – Wright Medical Technology)

Ronal Emilio Delanois, MD, Lutherville, MD (*n*)

Johannes F Plate, BS, Heidelberg, Germany (*n*)

Thorsten M Seyler, MD, Baltimore, MD (*n*)

Abstract: Metal-on-metal total hip resurfacing arthroplasty is recommended for young and active patients with advanced hip disease who are likely to outlive standard total hip arthroplasty. Femoral neck fracture as a result of stress shielding is well-documented in the literature. The purpose of this study was to analyze and determine the incidence of femoral neck fractures after metal-on-metal total hip resurfacing. Between November 2000 and April 2006, 480 metal-on-metal total hip resurfacings were performed by the senior author, and data was prospectively collected in our database. The authors reviewed operative reports, patient charts, preoperative and postoperative radiographs to screen for any femoral neck fracture after metal-on-metal total hip resurfacing. Any relevant data concerning the occurrence of femoral neck fractures was then analyzed. In 12 patients (13 hips) fracture of the femoral neck occurred as complication. Eleven of the first thirteen fractures occurred in the first 50 resurfacings performed. The incidence for fracture in the first 50 resurfacings was 22% versus 0.46% for the remaining series (2 out of 430).

The incidence for femoral neck fractures in women was 4.4% (8 hips) and 1.6% for men (5 hips). The relative risk for fracture for women versus men was 2.75. The mean time to fracture was 75 weeks (range, 1-276 weeks). Seven (54%) fractures occurred within one year of surgery. In women, the mean time to fracture was 95 weeks (range, 1-276 weeks) and in men, it was 48 weeks (range, 3-120 weeks). The mean BMI was 28.8 (range 12-49) with 5 (38%) fractures occurring in patients with a BMI greater than 30. Anatomic and/or surgical bone management problems (large neck cysts, osteopenia, notching), surgical experience (head seating, cement mantle), and other patient factors (BMI, female gender) were indicated as common risk factors. The risk of femoral neck fracture in metal-on-metal resurfacing appears to be multifactorial. These findings suggest that fractures occur more often in the early part of the learning curve of a surgeon. In addition, it appears that intraoperative notching, female gender, and obesity increase the risk of femoral neck fractures.