

Letter to the Editor

Femoral Component Positioning in Hip Resurfacing with and Without Navigation

Andrea Emilio Salvi MD

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To the Editor:

I read with interest the article entitled “Femoral Component Positioning in Hip Resurfacing With and Without Navigation” by Ganapathi et al. [4]. I agree with the authors that intraoperative technical errors during femoral preparation in resurfacing hip prostheses are important reasons for short-term and midterm failures of this procedure, which technically is more challenging than conventional THA [4]. In my opinion, it is possible to single out at least four procedural traps worthy of note. First, as the femoral component is provided with a central stem to aid in alignment and initial stability, it is mandatory to perform a perfect central matching drilling of the femoral head to avoid the central stem becoming load-bearing. Although these prostheses are sold together with increasingly better head-centering devices, a minimal intraoperative mistake is always possible. Error at this point concerns inclination of the bony channel, the first trap of the surgical procedure; therefore, an accurate preoperative plan is required to select the proper stem and cup sizing, while shortening surgical times. Nevertheless, a preoperative plan cannot eliminate all errors. Relatively small deviations from anatomic alignment of a resurfacing hip component, should the central stem be inserted slightly inclined, result in marked localized increases in

loading of the femoral neck under conditions approximating single-limb stance [8] because the stem is not designed to be load-bearing [3]. This aspect relates to the second trap, namely, possible notching of the flanged profile of the femoral component owing to its consequent inclination. According to Anglin et al. [1], a femoral resurfacing component placement greater than 10° can lead to greater probability of notching. Shimmin and Back [7] reported fracture of the femoral neck after substantial varus placement of the femoral component and intraoperative notching of the femoral neck. In my opinion, the possible mechanism of fracture could be that the prosthetic cup flange involved in notching during weightbearing may start to angulate and eventually loosen from repeated loadings during gait or other activities. Consequent fractures of the neck are well described [2]. Even if performed perfectly, reaming of the neck and additional drilling of the channel for the central stem subtract a certain quantity of bone leading to its weakening. This aspect concerns the third trap, the bony reaming, hazardous but required by the manufacturer and completely surgeon-independent. A possible demonstration of the damaging action of bony reaming is given by the narrowing of femoral necks after resurfacing arthroplasty of the hip as described by Hing et al. [6], which may be attributable to excessive surgical dissection around the femoral neck that damages extraosseous vessels [2]. Once in place, the metal of the central stem may cause bone resorption [5] that becomes apparent only when a fracture of the bony neck occurs. This is the fourth and last trap. Therefore, the central stem, provided to improve insertion of the femoral resurfacing component, may be associated with unforeseen complications in time.

(Re: Ganapathi M, Vendittoli PA, Lavigne M, Günther KP. Femoral component positioning in hip resurfacing with and without navigation. *Clin Orthop Relat Res.* 2008 May 17. [Epub ahead of print]).

A. E. Salvi (✉)
Department of Orthopaedics and Traumatology, Mellino Mellini
Hospital Trust, Civil Hospital of Iseo, Brescia, Italy
e-mail: andrea@orthopaedics.com

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