

Advantages of Lateralized Offset Femoral Components in THA

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INTRODUCTION: Restoration of femoral offset is thought to be important to restore biomechanics of the hip, properly tension the soft tissues, and minimize dislocations. Due to variations in anatomy, femoral stems having a single or proportional offset do not consistently restore the patient's pre-morbid offset. This study was conducted to determine if more accurate soft tissue tensioning and a lower dislocation rate could be achieved using a lateralized offset stem when indicated.

METHODS: Over a 24 months period, the author implanted 216 consecutive cementless THA's using the same femoral component in all (Group A) using a posterior, single-incision MIS approach. A lateralized offset version was used in cases of a) varus femoral neck, b) protrusio acetabuli, c) a narrow canal in large patients, and d) when adequate soft tissue tensioning could not be achieved intra-operatively. Seventy-nine (37%) of stem offsets were lateralized. Group B consisted of 441 consecutive cementless THA's also performed through a posterior MIS approach over the previous 48 months using the same stem but prior to the availability of the lateralized offset version. Minimum follow-up was 12 months for all hips.

RESULTS: One hip dislocated in Group A (0.46%) while 24 hips dislocated in Group B (5.44%, $p < 0.01$). The Group A dislocation was anterior and did not recur. Ten of the 24 dislocators in Group B required further surgery to increase soft tissue tension by using a lateralized acetabular liner, longer neck length, stem revision to a lateralized offset stem, use of a larger diameter head, conversion to a constrained acetabular component; or some combination of the above. Of all patients with normal contralateral hips, 6 of 18 dislocators vs. 70 of 463 nondislocators had post-operative offset at least 10mm less than the normal contralateral side ($p < 0.05$). Eighteen (8.3%) hips in Group A and 40 (9.1%) hips in Group B had leg length discrepancies > 7 mm ($p = \text{NS}$).

CONCLUSIONS: Use of a lateralized offset femoral component in certain patients allows more accurate soft tissue tensioning and restoration of pre-morbid offset. Restoring offset may reduce the dislocation rate in certain subgroups of patients.