High offset acetabular liners versus neutral liners—any concerns with contemporary implants?

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INTRODUCTION:

Stability in total hip arthroplasty is predicated on restoring soft tissue tension and leg length which is achieved through numerous methods during the procedure. One option often employed is the use of high offset liners that lateralize the head center and improve hip biomechanics particularly in those patients with a high offset native hip. Prior research has reported increased incidence of acetabular component loosening with use of high offset liners due to increased torsional movement and increased joint reaction forces. Much of this research involved polyethylene liners with substantially higher offset (7mm) compared with more contemporary implant designs that are typically 4mm.

METHODS:

A review of our institutional registry was performed to identify patients who underwent a primary total hip arthroplasty (THA) utilizing a single manufacturer's +4mm offset liner and compared to a group with neutral liners. All patients were reviewed for all-cause revision surgery and time to revision was documented. 997 patients who underwent a primary total hip arthroplasty with a +4mm offset liner were identified. 1,581 patients were found to have undergone a primary THA utilizing a neutral liner.

RESULTS:

Of the 997 patients who underwent a primary total hip arthroplasty, 21 (2.1%) patients were found to have undergone a revision THA. The majority of patients were found to be revised for infection (9 patients), instability (6 patients), or periprosthetic fracture (3 patients). One patient was found to be revised for early aseptic loosening of the femoral component at approximately 9 months. No patients were revised secondary to acetabular component loosening. 39 patients (2.47%) with a neutral liner were found to have undergone both a primary and revision THA during the same time frame. There was no difference in revision rates between those utilizing a neutral and offset liner ($p=0.5544$).

DISCUSSION AND CONCLUSION:

Contemporary high offset liners are safe and pose equal risk of complication compared with neutral liners used in primary total hip arthroplasty.