

How constrained can you start? A multicenter review of pelvic discontinuity treated with custom triflange implants.

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INTRODUCTION: Pelvic discontinuity is a unique failure following total hip arthroplasty (THA) characterized by separation of the superior and inferior hemipelvis. Given the substantial bone loss, implants such as custom triflange acetabular components (CTACs) are often required to unitize the pelvis. Numerous studies have reported good early outcomes for CTACs with dislocation the primary source of failure. For this reason, many surgeons have begun to primarily constrain patients at the time the CTAC is inserted. Therefore, the purpose of this study was to report the dislocation incidence and risk of aseptic loosening between CTACs with and without primary constrained implants.

METHODS: The following retrospective multicenter study identified all patients treated with a CTAC secondary to pelvic discontinuity. Patients were stratified by level of constraint, either standard liners (SL) or constrained liners (CL). Constrained liners were placed based on surgeon preference, most frequently in the setting of complete abductor compromise, trochanteric demise, or proximal femur replacement. Patient demographics and clinical outcomes were collected and compared with a focus on dislocation, revision surgery and implant failure.

RESULTS: We identified 113 patients that underwent CTAC during our study period; 54 inserted a SL while the remainder were primarily constrained (n=59). There were no differences in implant failure (CL:6 vs. SL:7, p = 0.771), number of patients with a revision (CL:14 vs. SL:20, p=0.152), or the number of patients with a dislocation (CL:3 vs SL:7, p =0.190) between constrained and standard liners, respectively. Constrained patients did have a significantly lower number of revision surgeries (CL:21 vs SL:40, p =0.010) and total number of dislocations (CL:5 vs SL:13, p =0.044). Lastly, despite the difference in dislocation rate there were no differences in the number of patients requiring a revision for dislocation (CL:5 vs SL:10, p=0.169)

DISCUSSION: Herein we demonstrate that primarily constraining CTACs does not lead to an increase in implant failure while decreasing the revision and dislocation rate. Given the high rates of dislocation often seen in these patient populations, constrained liners represent a safe and appropriate option to curb the rate of dislocation and subsequent revision surgery without increased risk of failure.

CLINICAL RELEVANCE: Primarily constraining CTACs does not increase implant failure rates, and although only used for the highest risk patients, had no difference in dislocation rates compared to standard liners. Constrained liners represent a safe and appropriate option to curb dislocation rates without increased risk of failure.

