



Paper #14

Varus-Valgus Constrained Knee Implants: Survivorship and Outcomes

Marcelo B. Siqueira, Paul B. Jacob, DO, John A. McLaughlin, MD, Alison K. Klika, MS, Robert M. Molloy, MD, **Wael K. Barsoum, MD**, Carlos A. Higuera, MD

Introduction: Varus-valgus constrained (VVC) knee implants provide coronal plane stability and are the implants of choice in severely deformed knees or cases with soft tissue deficiencies. The purpose of this study was to (1) estimate survivorship of VVC implant in primary, aseptic revision, and septic revision total knee arthroplasty (TKA), (2) determine functional outcomes; and (3) main modes of failure.

Methods: 685 consecutive cases of TKAs with VVC implants in 597 patients performed between 1999 and 2008 were identified and retrospectively reviewed using electronic medical records. Data collected included demographics, clinical and surgical variables, and preoperative modified Knee Society (KSS) and Function Scores (KFS). Patients were followed-up via telephone and assessed for further knee surgery, reason for further surgery, and postoperative KSS and KFS if the VVC implant was not removed. Revision for any reason was the primary end-point.

Results: Of the 597 patients, 465 (77.9%) had a minimum two-year follow-up. Mean follow-up was 6.5 years (range, 0.1-15.1). Of these, n=246 were primary TKAs, n=316 were aseptic revisions, and n=123 were septic revisions. A total of 23 (9.4%), 55 (17.4%), and 39 knees (31.7%), underwent further revision surgery (primary TKA, aseptic revision, and septic revision groups, respectively). Five-year survival was 92.8% (95% CI 91.9% – 97.7%) for primary TKAs, 83.7% (95% CI 79.4% – 88.2%) for aseptic revisions, and 71.2% (95% CI 63.2% – 80.2%) for septic revisions. KSS and KFS improvement were significant in primary TKAs and aseptic revisions ($p < 0.0001$ all), and for septic revisions (KSS < 0.0001 ; KFS = 0.008). Infection was the main mode of failure in all 3 groups [primary 12/23 (52%); aseptic revision 12/55 (22%); septic revisions 28/39 (72%)].

Conclusion: VVC implant showed similar survivorship at 5 years to cruciate retaining and posterior stabilizing implants, and superior survivorship at 5 years to hinged implants. The main failure mode was infection for all three groups.