

Construct Rigidity: Keystone for Reconstructing Pelvic Discontinuity

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Introduction: The rarity of pelvic discontinuity has limited evaluation of different treatments. This study's aim is to report results of current treatments with emphasis on revision rates, radiographic discontinuity healing and clinical results.

Methods: We retrospectively reviewed 113 revision THA performed for unilateral pelvic discontinuity between 1997 and 2011. There were 19 men and 95 women (average age 63 years). Patients were followed a minimum of 2 years or to failure of reconstruction [average 5 years (2 to 15y)]. Charts were reviewed and preoperative, immediate postoperative, serial and last followup radiographs were examined to assess discontinuity healing and implant stability.

Results: The four most common treatment modalities included: uncemented cup with posterior plate N=50; cup-cage construct N=24; antiprotrusio cage with or without posterior plate and allograft bone N=22; and an uncemented cup alone N=12. Average followup time for the four reconstruction types was similar (range 4 to 6.5 years). Both five year revision-free survivorship and healing of the pelvic discontinuity increased with increasing construct rigidity: cup only: 50% cup survival and 49% discontinuity healing, posterior plate and uncemented cup: 77% and 49%, cup cage constructs: 73% and 75%, and cage constructs: 87% and 76%. Healing was highest in the cup-cage and cage constructs with structural allograft with or without posterior plating. These were the constructs that provided the most rigid discontinuity fixation and mechanical cup fixation. Average pre-op HHS improved from 50 to 67 (p=0.017)

Conclusion: Improved survivorship and healing rates were seen when reconstruction cages were used as an adjunct to an uncemented cup or in combination with bulk allograft that bridged the discontinuity. Uncemented cups with or without a posterior plate often demonstrated cup osteointegration to the ilium but less than half the discontinuities healed.

