



Bicortical S1 Screw Fixation May Obviate the Need for Iliac Screws in Minimally Invasive Surgery for Adult Spinal Deformity (ASD)

Joseph M Zavatsky MD; Brandon Cook MD; David Briski MD
[Institution]

Click To
Add Logo

Introduction

MIS techniques, along with bicortical S1 screw placement may obviate the need for iliac screw fixation in the treatment of Adult Spinal Deformity (ASD).

Methods

A retrospective review from 2009 to 2014 included all patients with ASD treated using lateral and transforaminal interbody fusion MIS techniques. Group 1 (Hybrid) had open pedicle screws with bilateral iliac screw fixation. Group 2 (MIS) had percutaneous pedicle screws without iliac screws. All S1 pedicle screws were placed in a bicortical fashion in both groups. CT scans were obtained at one-year post-op.

Results

Twenty-seven patients with average follow-up of 2 years. Group 1 included 11 patients (38 levels); Group 2 included 16 patients (52 levels). There was no difference in age, height, weight, BMI, number of lateral levels fused, pre or post-operative Cobb angles between the 2 groups. There was a statistical difference in the mean length of the posterior construct between Group 1 and Group 2 (10 vs 6 levels) mean blood loss (1727 vs 465 ml) mean operative times (505 vs 329 min) number of complications (8 (72%) vs 5 (31%) patients, and mean length of stay (14 vs 7.6 days) CT scans were available for 25 of the 27 patients and both radiologists agreed there was solid fusion at all interbody levels including L5-S1 (100% fusion rate). Two patients, one from each group, had full-length scoliosis x-rays that demonstrated fusion, without evidence of hardware failure, radiolucency, migration or sacral fracture.

Conclusions

MIS techniques preserve many of the spine’s stabilizing structures. Additional stability is observed when S1 screws are placed bicortically and may obviate the need for iliac screw fixation. These techniques resulted in a 100% interbody fusion rate without failure, thus questioning

Learning Objectives

MIS techniques, along with bicortical S1 screw placement may obviate the need for iliac screw fixation in the treatment of Adult Spinal Deformity (ASD).