

**Abstract: 413**

**Mid to Long Term, 1 to 2 Year Clinical and Functional Outcomes of Minimally Invasive Surgery for Scoliosis**

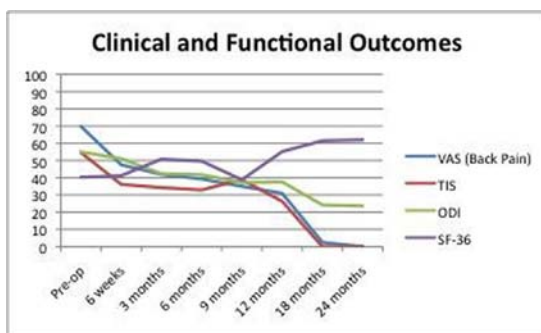
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**Introduction:** Traditional surgical approaches for Adult Scoliosis are associated with significant blood loss and morbidity; in a population, that is often elderly with medical comorbidities. We review our experience with the minimally invasive circumferential correction of scoliosis and report mid to long term clinical and functional data.

**Methods:** 72 patients have undergone MIS correction of Scoliosis over the past 3 years. 32 consecutive patients with greater than 1 year follow-up were selected for this study. All underwent minimally invasive circumferential deformity correction and fusion using 3 minimally invasive spine (MIS) surgical techniques: Lateral Transposas discectomy and interbody fusion, Trans1 AxialLIF L5-S1 interbody fusion where indicated (17 patients) and segmental percutaneous pedicle screw fixation using the Medtronic CD Horizon longitude system. 9 patients were Adult idiopathic, 2 Post-laminectomy Scoliosis and 21 were De-Novo Degenerative Scoliosis. Fusion was augmented with local bone, Bone Morphogenetic Protein (rh-BMP2) and Grafton Putty DBM at each interbody space and in the Facets. Radiographs, visual analog scores (VAS), treatment intensity scores (TIS), Oswestry Disability Index (ODI) and SF-36 were assessed preoperatively and at each regular postoperative visit.

**Results:** Mean age was 67.2 years (range 22 to 85). Mean follow up was 658 days (range 363 to 1022 days). Pre-op Cobb angle was 22° (range: 7° to 62°) which corrected to 7° (range: 0° to 22°). All patients maintained correction of their deformity and were noted to have solid arthrodesis on plain films. This was further confirmed on CT Scan in 21 patients. Mean preop VAS and TIS were 7.05 and 53.5; postop were 3.03 and 25.88 respectively. Mean preop ODI and SF-36 were 55.73 and 39.13; postop were 7.00 and 61.50 respectively. (Figures 1) There were no blood transfusions or ICU stays; 17 patients had transient thigh dysaesthesia for 2 to 6 weeks, two patients had transient quadriceps weakness that resolved within 90 days. One patient required removal of a proximal screw at 12 months after fusion was confirmed on CT scan and one patient had an asymptomatic proximal screw fracture with solid fusion. No patient had iliac fixation and no failures of sacral screws or sacral fractures were noted.



[Figure 1]

**Conclusions:** A combination of 3 Novel MIS techniques allows comparable correction of Adult Scoliosis, with low pseudarthrosis rates and significantly improved functional outcomes at 1 to 2 years post-op. MIS techniques may afford older patients surgical options and improved quality of life for the treatment of degenerative scoliosis whereas in the past these patients may have not been considered surgical candidates.