



Patient reported outcomes after S2 alar-iliac screws in adult spinal deformity: Does delayed Sacroiliac pain and disability occur?

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Introduction

Numerous techniques of sacropelvic fixation for spinal deformity surgery have been introduced due to the high stress and rate of pseudoarthrosis at the L5-S1 motion segment. While S2 alar-iliac screws are less prominent, align better with S1 screws, and utilize an additional cortical fixation point at the sacro-iliac joint, no studies have assessed whether there are unintended consequences of sacro-iliac pain or pseudoarthrosis. We set out to determine the patient-reported effectiveness and long-term consequences of S2 alar-iliac screws in adult spinal deformity population.

Methods

All patients undergoing sacropelvic fixation for adult spinal deformity were enrolled into a prospective longitudinal registry. Patient demographics, treatment variables and 90-day morbidity were assessed. Baseline and one-year postoperative pain, disability and quality of life, return to work, and satisfaction were prospectively assessed.

Results

A total of 24 patients were included. Mean age was 65.1 ± 8.5 . Mean number of motion segments involved was 8.1 ± 1.9 . Mean EBL was 1.31 ± 0.93 L, length of surgery was 6.3 ± 1.8 hrs, and length of stay was 5.3 ± 2.9 days. All cause 90-day morbidity occurred in 4(16.7%) patients. All PROs assessed(NRS, ODI, SF-12 and EQ-5D) significantly improved at one-year follow-up($p < 0.001$). At one-yr follow-up, no pseudoarthrosis at L5-S1 was reported; loosening of sacral screws was seen on CT in 3(12.5%) patients. None of the patients reported SI joint pain or sacral-pelvic pain. Eighteen(75.0%) patients reported an improvement in general health and 20(83.3%) patients were satisfied with their outcome.

Conclusions

Sacropelvic fixation using S2 alar-iliac screws provides significant and sustained improvement in pain, disability and quality of life one year post-operatively. Two year results are pending. S2 alar iliac screws have benefit of better alignment with S1 screws, low-profile leading to decreased implant prominence, and higher pull-out strength, with no long term consequences like increased rate of pseudoarthrosis or sacroiliac pain at one year.