

PATIENT SAMPLE: Patients with posterior instrumented correction and >2 years follow-up.

OUTCOME MEASURES: Preoperative demographic and radiological variables. Surgical variables. Intra and postoperative complications. Sagittal and Coronal Outcomes and Health Related Quality of Life (HRQoL) Parameters (VAS-Back, VAS-Leg, ODI, COMI, SF36, SRS22) preoperatively and at 6–12 and 24 months.

METHODS: Matching Variables: Age; Gender; ASA; Primary vs. Revision; Extend of Fusion; Use of Tricolumnar osteotomies.

Independent t-test and Fischer Exact test were used to compare continuous and categorical variables respectively.

RESULTS: From the 331 ASD patient with more than 2 years follow-up, 20 (6.4%) had an SSI. 60 Patients were accordingly matched and formed the control group (1:3 Matching).

We did not detect significant differences between cases and controls in matched or non-matched preoperative variables including radiological and HRQoL, confirming comparable samples.

SSI group had a higher proportion of: wound complications (p0.03); Radiological complications (including PJK and pseudoarthrosis) (p0.04); Non-infectious revisions (p=.04).

It also had: Longer length of stay (28,25 days vs. 12,35; p=.01); More non-infectious major complications (1,05 vs. 0,48; p=.021); More unrelated revision surgeries (0,75 vs. 0,33; p=.045).

We did not find any significant difference in radiological outcomes between groups at the different time intervals. One death was related to SSI. The infected group had worse results (COMI p=.038) and were less likely to experience improvement at 1 year (COMI, ODI, SRS22-Mental p<.05). However, we could not detect any difference in HRQoL parameters or in the proportion of patients reaching MCID at 2 years.

CONCLUSIONS: SSI after ASD surgery significantly altered the first post-operative year. It is associated to worst quality of life and more complications and unrelated revisions in the short term. It's effect on final outcomes was diluted at 2 years however. It doesn't seem to affect deformity correction.

CONFLICTS OF INTEREST: None.

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4. Circumferential annular and anterior longitudinal ligament release from a posterior approach in the treatment of adult degenerative scoliosis

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BACKGROUND CONTEXT: Posterior lumbar interbody fusion [PLIF] offers the advantage of achieving a 360° spinal fusion via a single-stage posterior approach. This technique is infrequently used in the management of adult degenerative scoliosis due to its presumed limited potential for correction of severe deformities.

PURPOSE: To describe and evaluate the safety of our technique of annular and anterior longitudinal ligament (ALL) release using a posterior approach. This technique was used in conjunction with PLIF for the treatment of adult deformities.

STUDY DESIGN/SETTING: Retrospective study. Technical report.

PATIENT SAMPLE: Consecutive series of 10 patients who underwent PLIF with annular and ALL release via a single stage posterior approach.

OUTCOME MEASURES: Disc angle (DA), motion segment angle (MSA), lumbar lordosis (LL), sagittal vertical axis (SVA), pelvic tilt (PT), sacral slope (SS), pelvic incidence (PI).

METHODS: A review of the case notes and radiographic studies of a consecutive series of patients who underwent uni or multilevel PLIF, combined with annular and ALL release using a posterior approach was carried out.

RESULTS: The mean LL was 27.06° preoperatively which improved to a mean of 49.35° postoperatively. The average (DA) was 2.68° preoperatively

and improved to 15.32° after PLIF with annular and ALL release. The MSA was 2.94° pre-operatively and increased to an average of 15.75° postoperatively.

CONCLUSIONS: We demonstrate that ALL release can be performed safely using a posterior approach with minimal risk of vascular or neurological injury. When combined with PLIF an average of 12-degree correction per segment can be achieved.

CONFLICTS OF INTEREST: None.

FUNDING SOURCES: None.

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5. A novel approach to the thoracolumbar spine to s1 using visceral rotation to perform multilevel anterior lumbar interbody fusion (ALIF) for sagittal balance correction

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BACKGROUND CONTEXT: Sagittal plane misalignment is an increasingly recognised cause of pain and disability. Re-establishing harmonious spino-pelvic alignment is associated with significant improvement in health-related quality of life outcome measures and patient satisfaction. Significant corrections in rigid sagittal plane deformity can be achieved either with a PSO or with the insertion of multiple lordotic interbody cages. Although PSO is an effective and powerful technique to improve sagittal malalignment, it carries a high neurological complication rate, large blood loss and shortens the height of the patient. Multilevel ALIF allows for excellent fusion rates and insertion of large lordotic cages to restore sagittal balance and lumbar lordosis. Traditional access to the thoracolumbar junction via an anterior approach involves a thoracotomy, dividing of the diaphragm and opening of the chest cavity with associated morbidity.

PURPOSE: We describe a novel truly anterior approach to the spine from T12 to S1 involving visceral rotation, preserving the diaphragm and avoiding entry into the chest cavity. We report our approach-related complications and radiological outcomes of T12 to S1 ALIFs performed as part of a 360-degree fusion for adult spinal deformity correction.

STUDY DESIGN/SETTING: Prospective cohort study.

PATIENT SAMPLE: N=13.

METHODS & OUTCOME MEASURES: This is a prospective cohort study of 13 patients having multilevel ALIF using SynFix cages as part of a 2-stage complex spinal reconstruction for adult deformity from T12 to S1. Data was collected for operative time, blood loss, technical challenges, perioperative complications and need for secondary procedures. Radiological outcomes measured correction of lumbar lordosis and sagittal balance parameters.

RESULTS: All patients underwent a transperitoneal left-sided approach to the lumbar spine with visceral rotation to expose T12/L1, L1/2, and L2/3 for adult deformity correction. Mean age was 63 years (range: 22–81), 4 male and 9 female patients. Mean follow-up was 16 months (6–36 months). Mean number of spinal levels that had an ALIF performed was 4.2 levels (range 3–5). Mean blood loss was 400 mL (200–2,700 mL) and mean time of operation was 5 hours and 15 minutes (range 4–8 hours). There was no neurological complications, 2 vascular injuries (L CIV) both repaired uneventfully, 2 cases of ileus and one late death after the 2nd stage from a pulmonary embolism. Lumbar lordosis increased from 5.80 (range –630–450) pre-operatively to 490 (range 340–640) post-operatively (p<.01). The sagittal vertical axis (SVA) reduced from 9.9 cm (4–15 cm) preoperatively to 4.9 cm (range 1.6–7 cm) post-operatively (p<.01).

CONCLUSIONS: Visceral rotation allows for a truly anterior approach to the spine from the thoracolumbar junction to S1. Although technically demanding, this novel approach carries certain advantages in that it preserves the diaphragm, involves a single midline incision and allows for insertion of multiple large lordotic ALIF cages that lengthens the patient and facilitates restoration of spinopelvic parameters.

CONFLICTS OF INTEREST: None.

FUNDING SOURCES: None.

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