

Posterior Trans-Pedicular Fibular Grafts And Interferential Screws To Treat L5-S1 Spondyloptosis. Report On Four Cases With 9.5 Year Follow-Up.

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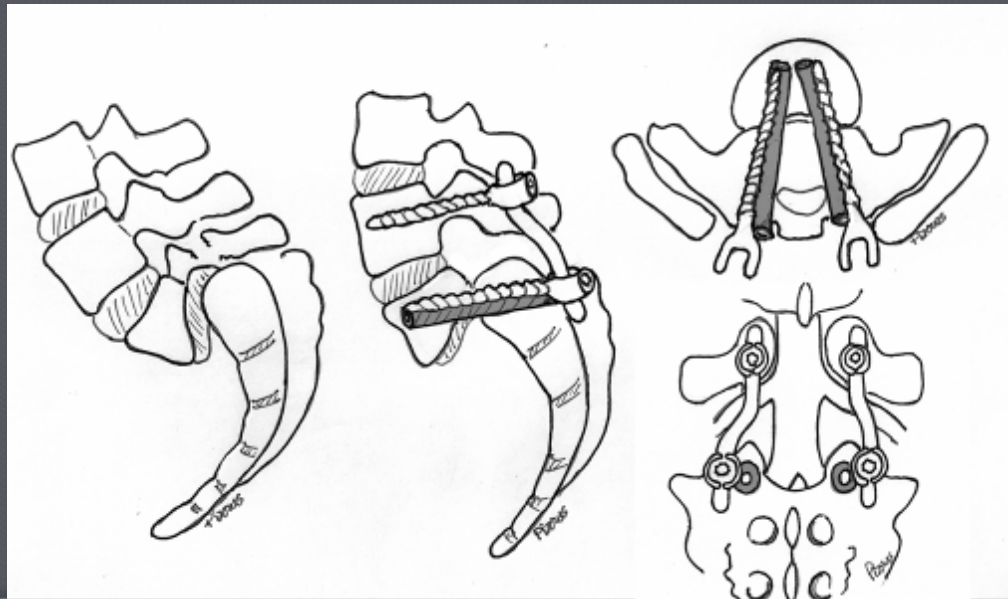


Introduction

- Several techniques have been described to treat high-grade spondylolisthesis.
- Reported historical complications are:
 - Neurologic injuries
 - Pseudarthrosis
 - Progression of slip
 - Instrumentation failure

We present a posterior-only approach to treat spondyloptosis with:

- Partial reduction and instrumentation
- Interbody fusion provided by trans-pedicular fibular struts inserted through S1 capturing L5, avoiding central neural manipulation.
- Graft stress is protected using interferential screws placed through these same pedicles.



Material and methods

- Retrospective revision of four cases with grade V spondylolisthesis.
- We analyzed preoperative, postoperative and final follow-up clinical and radiographic data, with final SRS-22 outcomes.
- Fusion and complications were recorded.

Material and methods

- Measured variables were:
 - Pelvic Incidence (PI)
 - Sacral Slope (SS)
 - Pelvic Tilt (PT)
 - L5 Incidence (L5I)
 - Lumbar Lordosis (LL)
 - L5 Slip Angle (L5SA)
 - Lumbosacral Kyphosis (LSK)
 - Sagittal Vertical Axis (SVA).

Results

- Mean age was 25.7 ± 5.7 yr
- All were men with isthmio-spondyloptosis (Meyerding grade V; type 5/6 SDSG classification)
- One revision and three primary surgeries
- Median fused levels were 3 (3, 3.75)
- Mean operative time was 6.1 ± 0.8 hours
- Median transfusion units were 2 (2, 5)
- Median follow-up was 114 months (45, 147.7)

Results

- The VAS reduced from preoperative 7.1 ± 2.4 to postoperative 1.3 ± 1.3
- PT improved 9.7°
- L5I improved 15°
- LSK and L5SA improved over 30° and maintained over time
- SVA improved 1.6 cm but lost them at final follow-up.

Results

TSagittal spino-pelvic radiographic measurements pre and postoperative, postoperative difference, and at final follow-up.

	Preoperative	Postoperative	Postop difference	Final follow-up
PI	79.5±1.3	79.5±1.3	0	79.5±1.3
PT	41.5±5.7	31.7±7.6	-9.7±2.7	32.2±4.8
SS	40±7.1	47.7±8.2	7.7±1.7	47.2±5.8
IL5	79.5±1.3	70±8.5	-15.7±12.5	72.5±12.8
LL	56.5±25.1	52.2±15.7	-4.2±20.3	53.2±13
LSA	47.7±9.9	81.5±13.8	33.7±4.0	86.2±7.4
L5SA	50.1±6.8	13.4±6.9	-36.7±13.2	9.42±2.1
SVA	4.9±1.3 cm	3.7±1.5 cm	-1.6±1.5 cm	5.50±3 cm

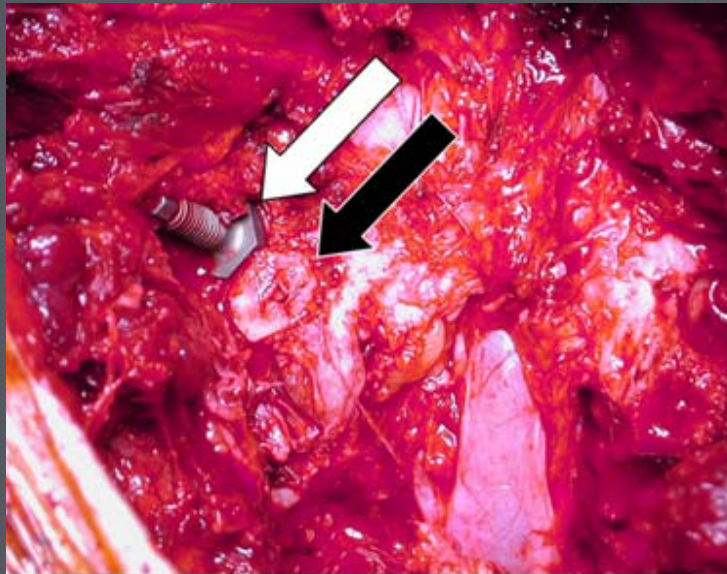
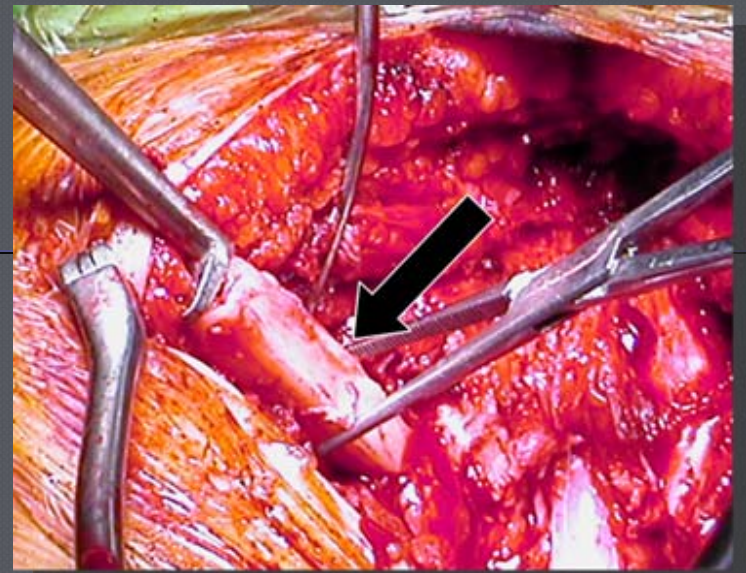
Numbers are expressed by Means ± Standard deviations. PI: pelvic incidente, PT: pelvic tilt, SS: sacral slope, IL5: L5 incidence, LL: lumbar lordosis, LSA: lumbosacral angle, L5SA: slip angle, SVA: sagittal vertical axis.

Results

- The SRS global satisfaction was 4.6 ± 0.2 .
- We have not seen any neurological complications, graft fractures, pseudarthrosis, progression of slip, or instrumentation failure.

Table 2. SRS-22 outcomes

	Mean	Standard deviation
PAIN	4.8	.16
FUNCTION	4.5	.20
SELF IMAGE	4.5	.47
MENTAL HEALTH	4.7	.34
GLOBAL	4.6	.21
SATISFACTI ON	5.0	.00



Conclusions

- This technique developed by the senior author (EI) yielded satisfactory clinical results in the treatment of L5-S1 spondyloptosis.
- It provided stable anterior support and high fusion rate by means of the transpedicular fibular grafts while interferential screws protected from graft failure.
- It avoided anterior approach related complications and mid-body inserted grafts neurologic risks.

Disclosure

Pizones J: None

Nuñez A: None

Sánchez-Mariscal F: None

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