

RADIOLOGICAL OUTCOMES AND COMPLICATIONS OF S2 ALAR-ILIAC FIXATION IN ADULT PATIENTS WITH OSTEOPOROTIC SPINE

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E-Poster #P2 **RADIOLOGICAL OUTCOMES AND COMPLICATIONS OF S2 ALAR-ILIAC...**

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INTRODUCTION

- ✓ Aim of this study is to evaluate radiological outcomes and complications of S2AI fixation in patients with osteoporotic spine undergoing long fusion to the sacrum.
- ✓ Recent studies reported rates of 13% for loosening and 6.5% for breakage of S2AI screw in adult deformity surgery.

*Strike S, Hassanzadeh H, Naef F, Sponseller, PD, Kebaish K
48th SRS Annual Meeting, Lyon, 2013*

MATERIAL & METHODS

- ✓ 126 patients /adult spinal deformity / long fusion to sacrum with S2AI fixation. (2009-2012)

Inclusion criteria:

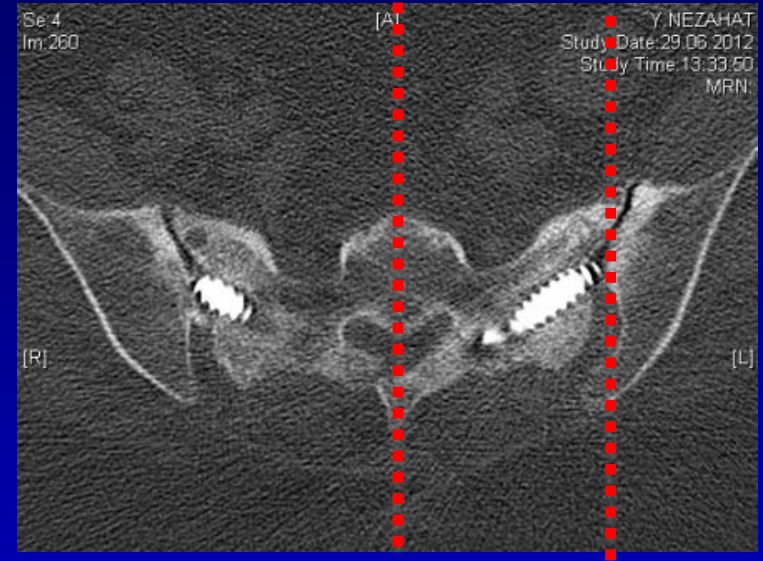
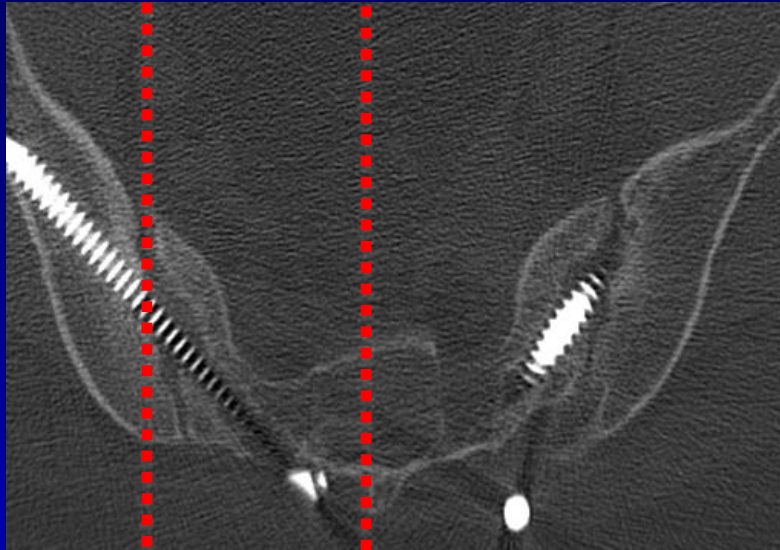
- preop BMD T score under -2,5 (QCT)
 - a long fusion (more than 5 levels) to the sacrum
 - cement augmented fenestrated pedicle fixation technique
 - lumbopelvic fixation with S2AI technique
- ✓ Preop, postop, f/up standing AP/L, pelvis AP and 3D CT scan were reviewed for radiological data.

RESULTS

- ✓ 46 pts (38F,8M) were enrolled.
- ✓ Mean age was 63.6 (58-84) years.
- ✓ Mean follow/up was 28.8 (24-49) months .
- ✓ *Mean instrumented level was 9.6 (5-16) levels.*
- ✓ Preop BMD with QCT. [-3.63 (range: -2.86 - -4.89)].
- ✓ Cement augmented fenestrated pedicle fixation technique (*except S1 and S2AI screws*) was performed to augment posterior fixation in all patients.

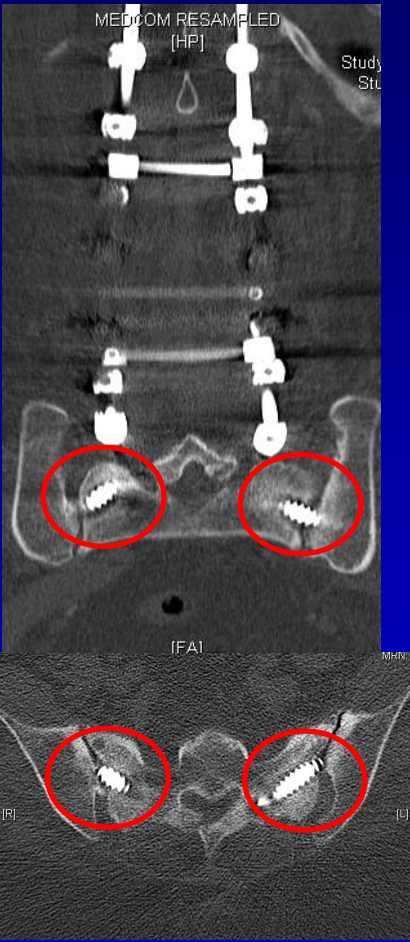
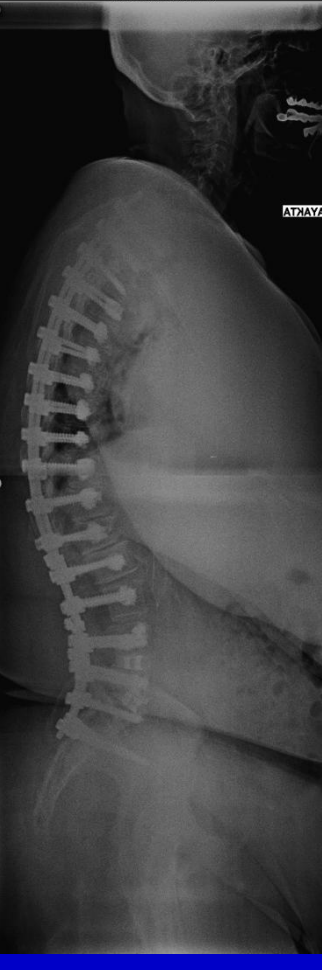
RESULTS

- ✓ **Interbody fusion for L5-S1 level was performed in 84.7% of the patients in addition to lumbopelvic fixation.**
- ✓ ***Lumbosacral fusion was achieved in 93.4% of patients.***
- ✓ **Revision surgery was performed in 4 patients (8%)**
 - **Pseudoarthrosis at level L5-S1 in 3 patients.**
 - **Rod breakage at the level of osteotomy in 1 patient.**
- ✓ **Among *92 S2AI screws*, *31 screws (33,6%)* had more than 2mm loosening.**
- ✓ **There was no S2AI screw breakage at the final f/up.**

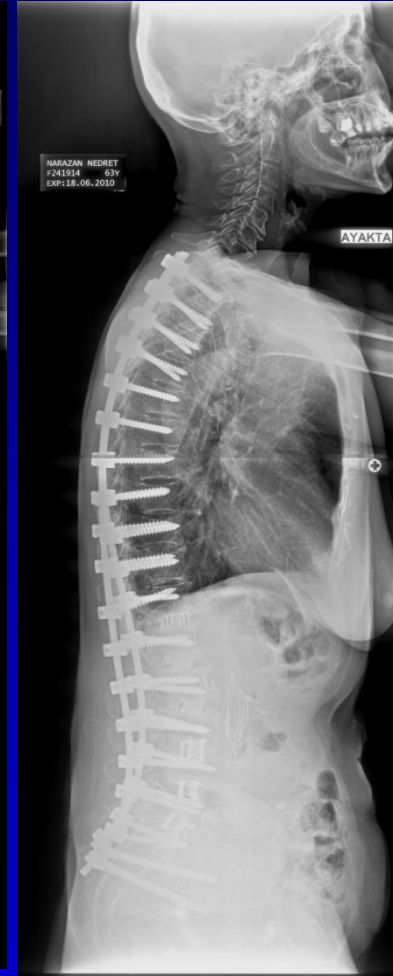
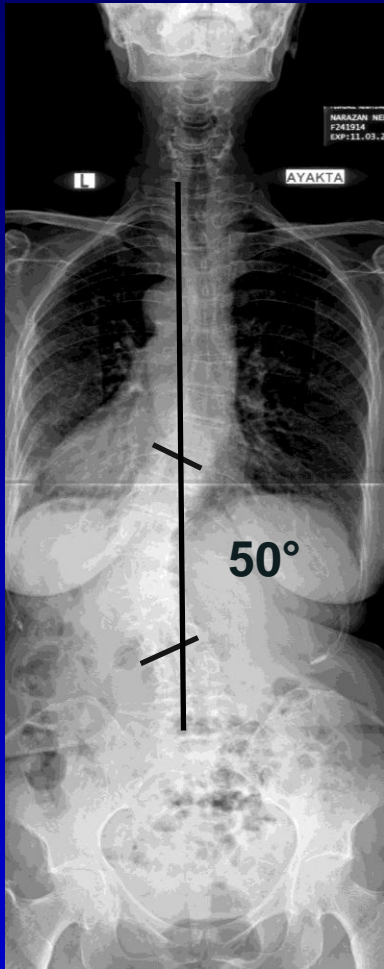


- ✓ 3D CT analysis of S2AI screws showed circumferential loosening at **sacral-alar portion of screw in 22**, **both alar and ilium portion in 7**, and **only around iliac portion in 2 screws**.

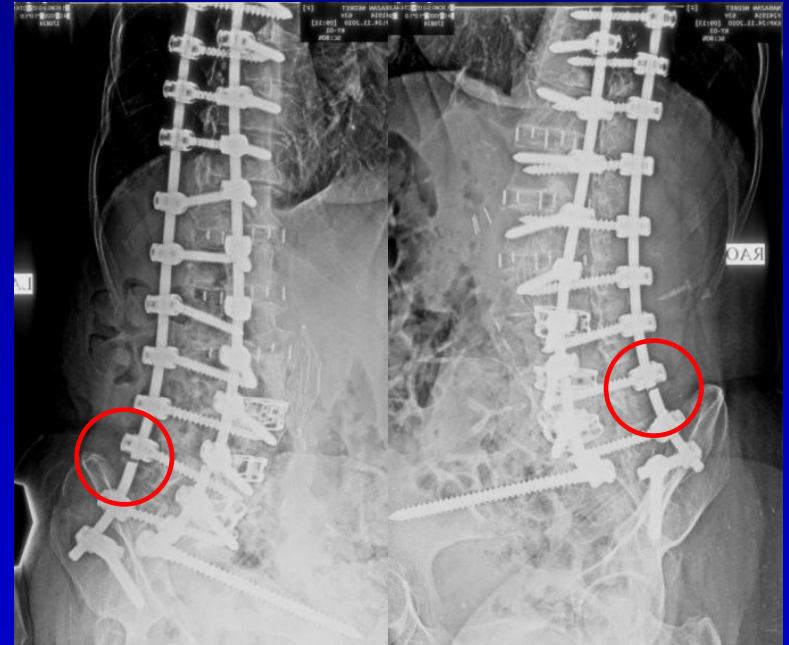
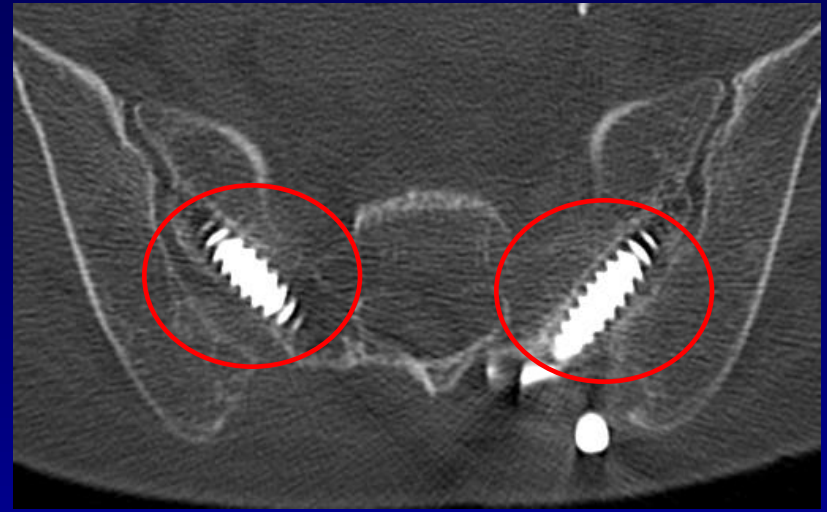
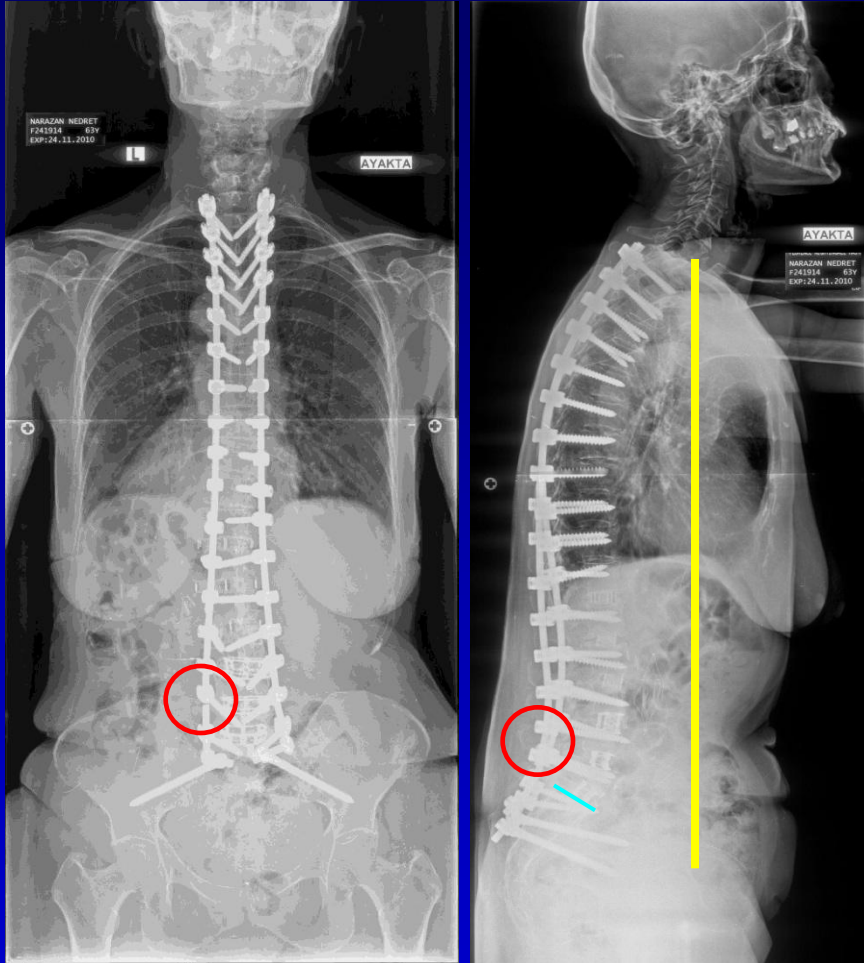
NY, 71Y, F



NN, 64y, F **T2-S2 PI+ laminectomy + correction +**
L3-4, L4-5, L5-S1 ALIF +T12-L1,L1-2,L2-3 XLIF

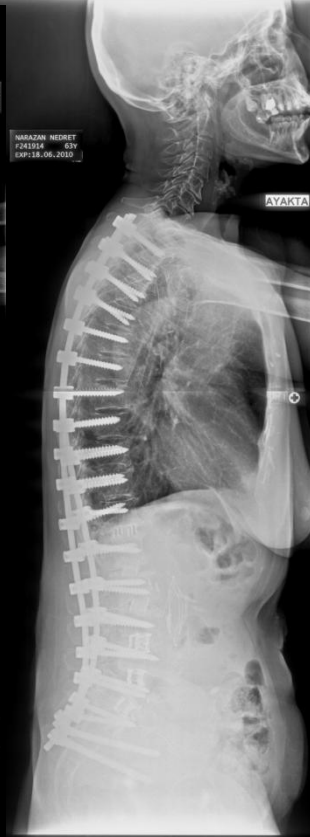
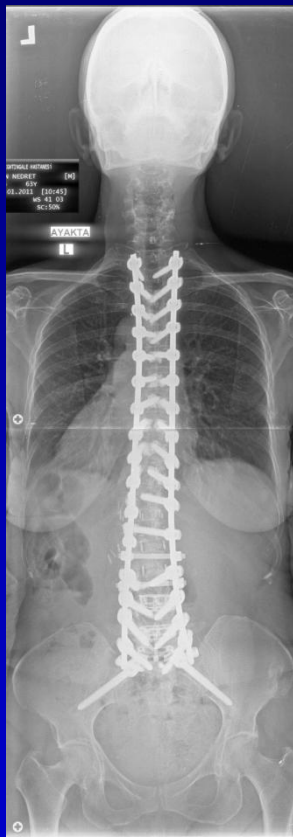
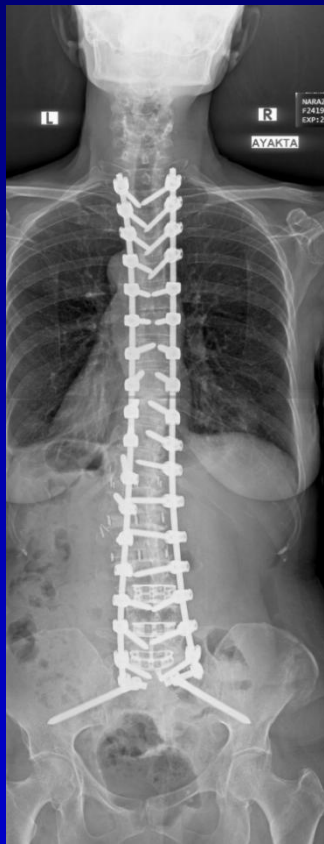


NN, 64y, F



Postop 8 months: implant failure , sagittal imbalance, pseudoarthrosis

NN, 64y, F



CONCLUSION

- ✓ S2AI pelvic fixation had higher rate of loosening (33.6%) in osteoporotic patients.
- ✓ Although S2AI screw loosening rate was high, lumbosacral fusion was achieved in majority (93.7%) of the patients. This is believed to be related with the addition of L5-S1 interbody fusions to lumbopelvic fixation.
- ✓ S2AI screws may not provide enough primary stability in osteoporotic patients.
- ✓ Preop medical treatment of osteoporosis should be planned before surgery and should continue after surgery.
- ✓ Improved fixation techniques should be considered in osteoporotic patients