

THE EFFECT OF UPPER INSTRUMENTED VERTEBRA LEVEL (T9 VS T10) ON RADIOLOGIC AND FUNCTIONAL OUTCOMES IN THE SURGICAL TREATMENT OF ADULT DEFORMITY IN OSTEOPOROTIC PATIENTS WITH AGE >60 YEARS

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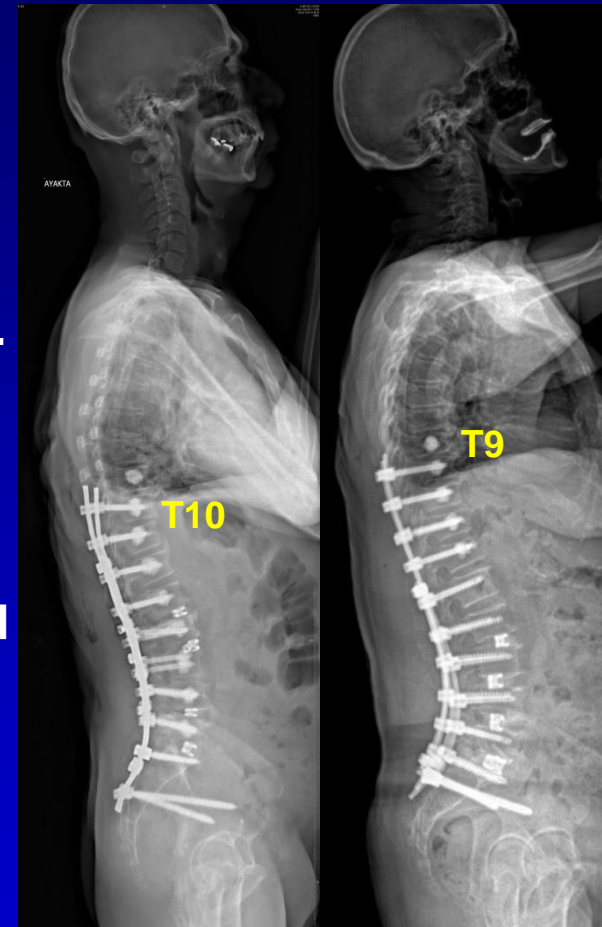
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BACKGROUND

- Selection of fusion levels in ASD depends on
 - Severity and morphology of the existing deformity
 - Neurological symptomatology
 - Healthy adjacent segments with normal alignment.
- It is crucial to ascertain the ideal upper instrumented vertebra (UIV) minimize risk of proximal junctional failure (PJF)



INTRODUCTION

- For long years, the UIV in the midthoracic area has been selected as T10 which is lowest immobile vertebra in adult deformity surgery.
- Compared to T10, T9 carries different anatomical, biomechanical, and sagittal plane characteristics.



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Clinical Study

T9 versus T10 as the upper instrumented vertebra for correction of adult deformity—rationale and recommendations

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■ Debate: Determining the Upper Instrumented Vertebra in the Management of Adult Degenerative Scoliosis

Stopping at T10 *Versus* L1

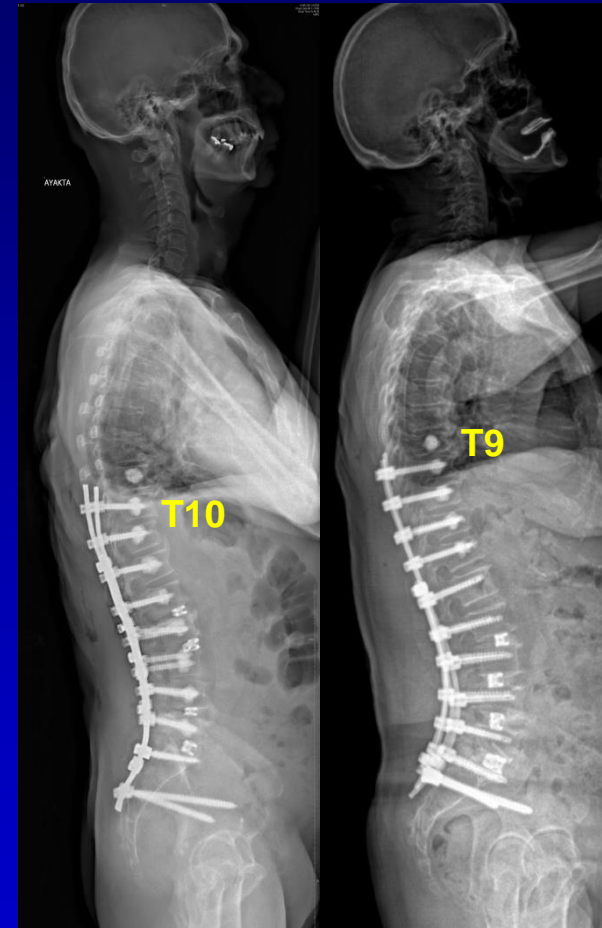
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T9 vs T10?

- T10 - T11 is the lowest mobile segment in thoracolumbar area.
- However, when T10 is the UIV there would be only one level fixation above the mobile T10–T11 segment
- We propose the T9 vertebra as a more suitable choice of UIV to fulfill the biomechanical concept of bridge fixation

PURPOSE

To compare the radiologic and clinical outcomes of 2 groups in which T9 or T10 were selected as the UIV, especially with respect to proximal junctional kyphosis (PJK) and proximal junctional failure (PJF) rates.



MATERIALS & METHOD

Inclusion Criteria :

- Adult spinal deformity with osteoporosis (>60 yrs , T score < -2,5)
- Underwent long fusion to sacrum surgery
- Pre-op and f/up x-rays , ODI, NRS scores
- Min. 2 years f/up, retrospective



63 pts

T10 Group

39 patients (26F,13M)

T9 Group

24 patients (18F,6M)

MATERIALS & METHOD

	T9 Group	T10 Group
Gender	24 pts (18f,6m)	39pts (28f,11m)
Mean Age	69.1 (60-84)	66.8 (60-83)
Mean Follow-up	51.6m (24-133)	53.4m (24-138)
Mean T Score	-2,9 (-4,3 - -2,5)	-3,1 (-4,5 - -2,5)
Mean instrumented level	9,37 (7-10)	8,54 (7-10)
Mean interbody level	2,91 (0-6)	2,92 (0-6)

RESULTS

➤ The correction was preserved better in T9G

at f/up (p=0,04)

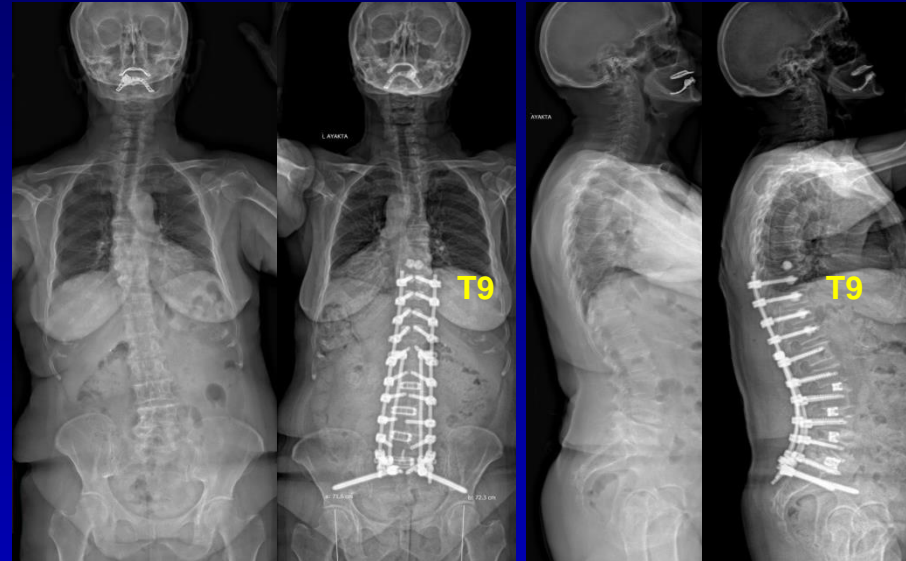
➤ ODI and NRS scores were significantly

better in T9G at final f/up (p=0,02)

➤ Radiologically;

➤ No pt had PJK/PJF in T9G

➤ 6 patients had PJK/PJF in T10G (15.3%)



	Group T9 n=24	Group T10 n=39
PJK	0	6 (15.3%)
PJF	0	4 (10.2%)
PVF	0	4 (10.2%)
ASD	1 (4.1%)	12(30.7%)

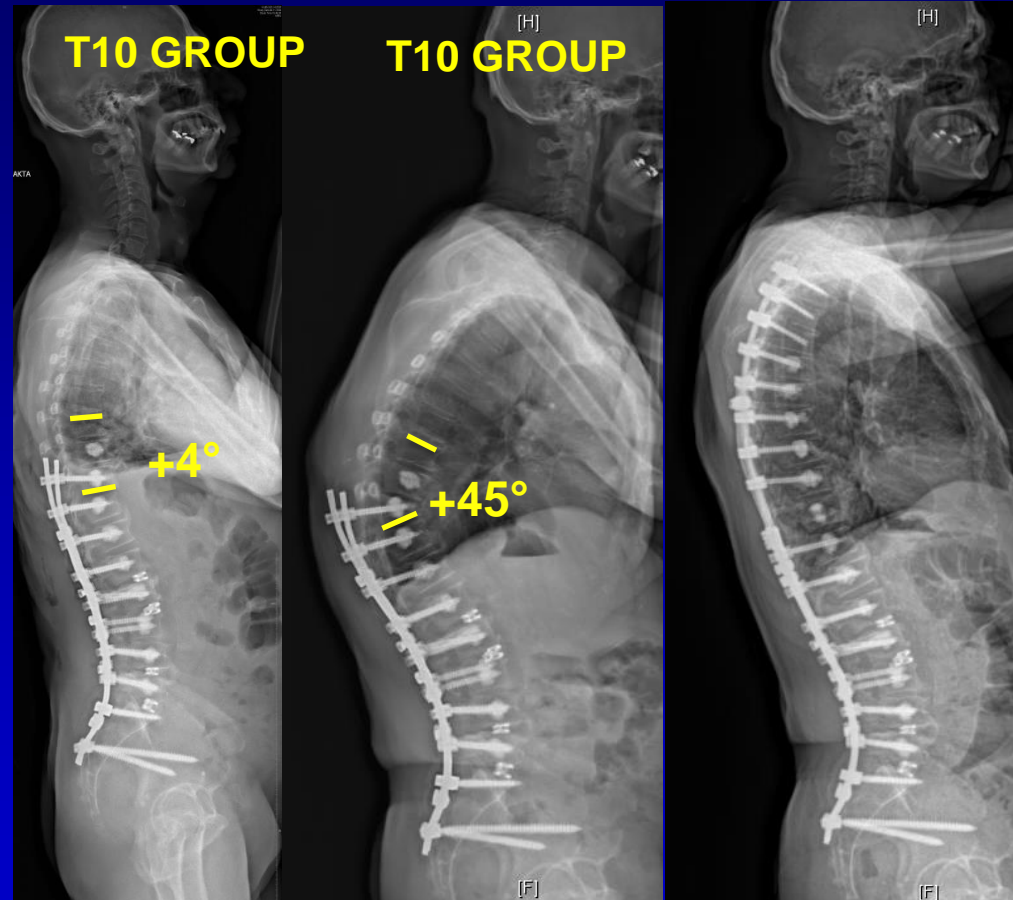
PJK: Proximal junctional kyphosis, PJF: Proximal junctional failure, PVF: Proximal vertebra fracture, ASD: Adjacent segment disease

RESULTS

Revision surgery

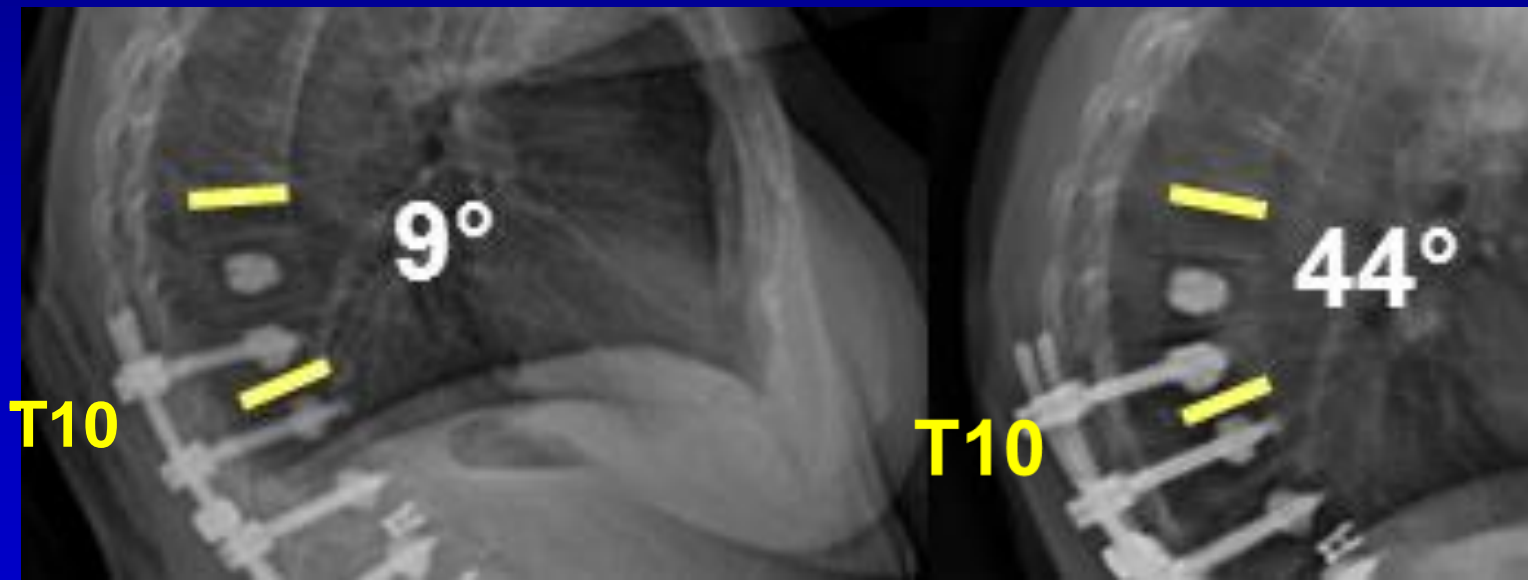
➤ T10 G → 8 pts (20.5%)
Implant failure/pseudoarthrosis
and PJF

➤ T9 G → 3 pts (12.5%)
Only implant failure no PJF



CONCLUSION

Despite the application of prophylactic vertebroplasty, the development of PJK (15.3%) and PJF (10.2%) were more frequent in patients with UIV at T10, compared to T9 group.



CONCLUSION

The early clinical and radiologic outcomes were similar in both groups, however at 2 years f/up the patients in whom the UIV was T9 had higher rates of maintaining the corrections in sagittal plane and also had better clinical outcomes.

P80 - THE EFFECT OF UPPER INSTRUMENTED VERTEBRA LEVEL...

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