

Short segment anterior fusion with interbody cages for painful Scheuermann's disease

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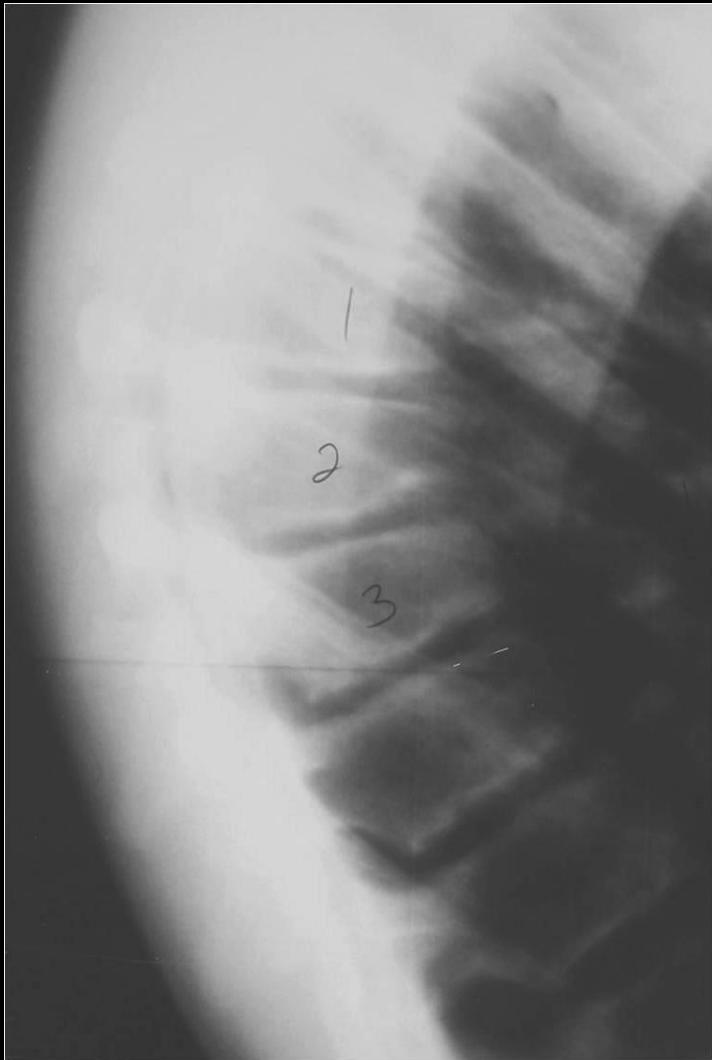
Short segment anterior fusion with interbody cages for painful Scheuermann's disease

Paper#: 128

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**18th International Meeting on
Advanced Spine Techniques
Authors Disclosure
Information**

- a. Grants/Research Support
- b. Consultant
- c. Stock/Shareholder
- d. Speakers' Bureau
- e. Other Financial Support



- ø Teen aged farm boys
- ø Activity related thoracic pain
- ø Progressive deformity



Holger W. Scheuermann
1877 - 1960

The natural history and long-term follow-up of Scheuermann kyphosis

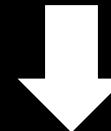
PM Murray, SL Weinstein and KF Spratt
J Bone Joint Surg Am. 1993;75:236-248.

- ø 67 patients; 71° untreated deformity
- ø 32 years follow up (10 – 48 years)
- ø Disconnect between deformity and pain
- ø Pain over the apex of a moderate deformity

Scheuermann's disease

Group I Predominant deformity

Group II Predominant pain



IA Asymptomatic

- No progression
- Normal life style

IB Symptomatic

- Progression
- Require surgery
- Issues:
 - Life-style
 - Psychological
 - Cosmetic

IIA Minimal pain

- Normal lifestyle
- Pain meds
- Phy therapy

IIB Severe pain

- Life-style limiting
- Despite narcotic meds
- May lead to IB

Thoracic (apical pain): discopathy

- Ø MRI changes support discography

Paanjanen Sk Radiol 1989

- Ø Discography studies

Winter Am J Orth 1996

Wood Spine 1999



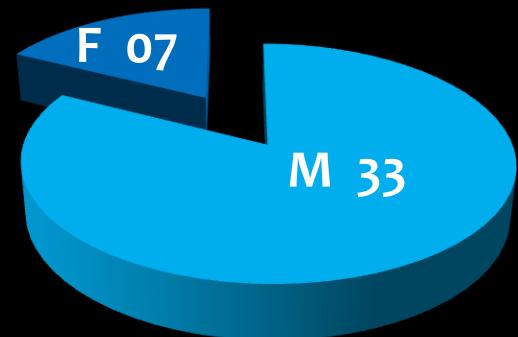
Purpose of the study

To evaluate the outcome of:

- Ø a short segment, open, anterior fusion
- Ø with interbody structural supports
- Ø for pain predominant, kyphotic deformity of Scheuermann's disease.

Patient cohort & demographics

- ø 40 patients from 5 centres
- ø Presentation for pain and a moderate deformity ($< 100^\circ$)
- ø Failed conservative trial despite narcotic analgesics
- ø Mean age 20y (14 – 34y)

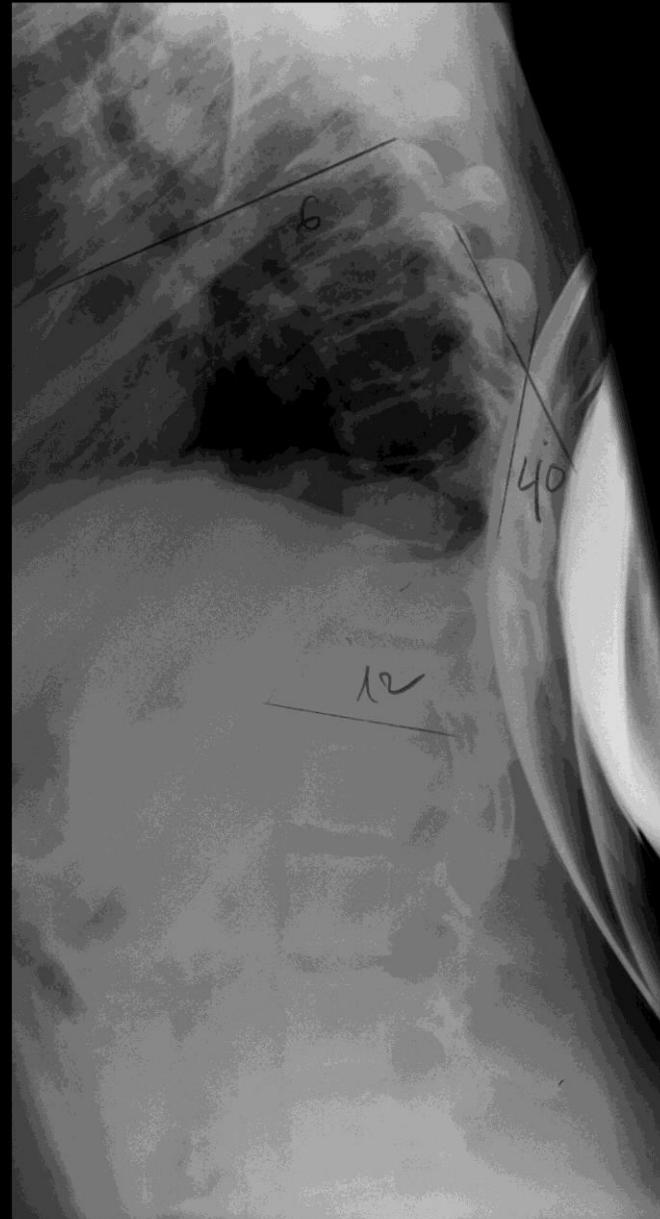


Indications for the short segment anterior fusion

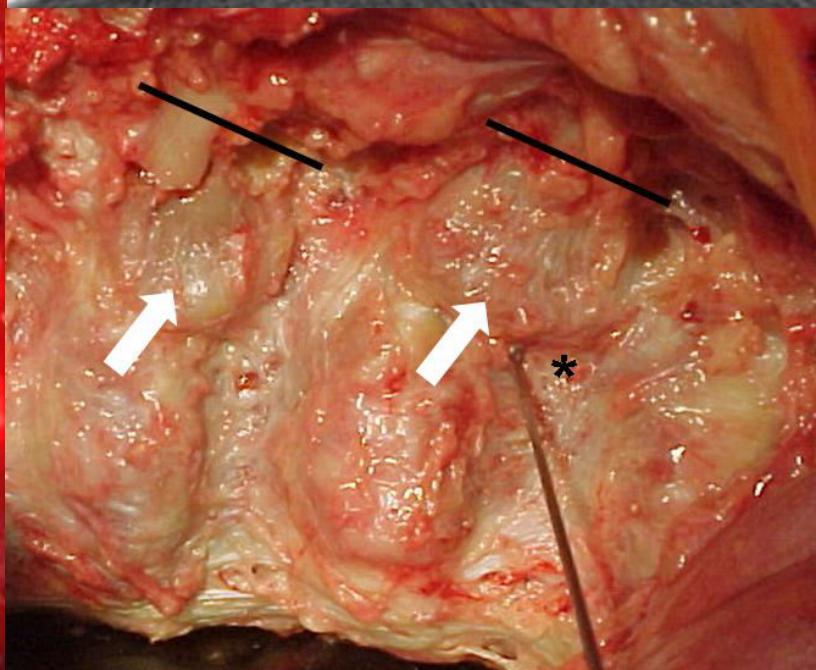
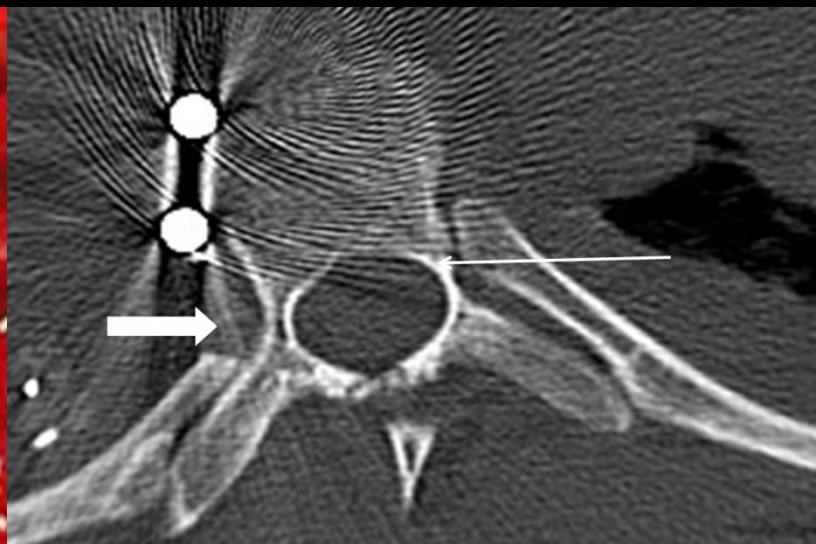
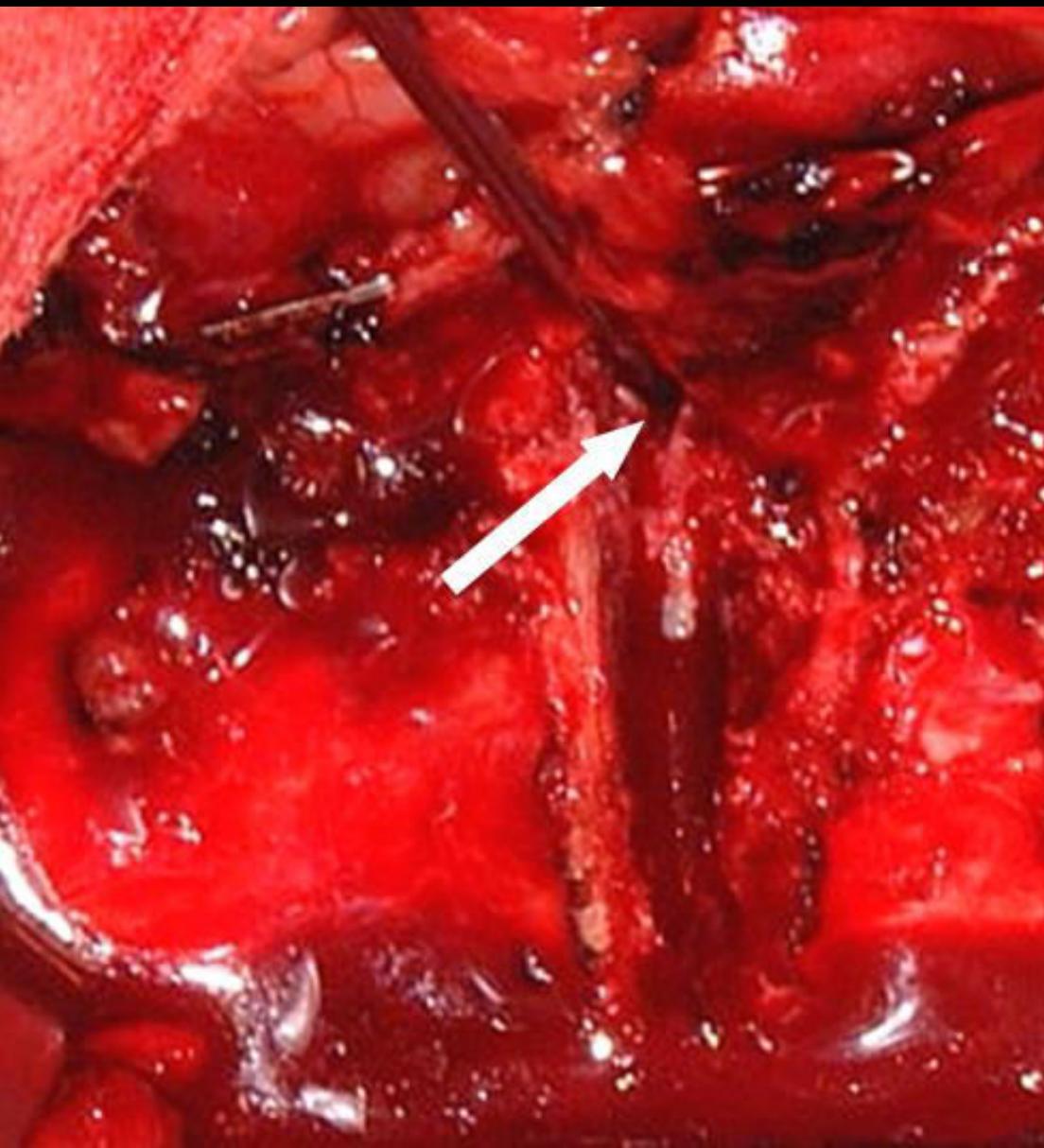
- ø Adolescents or young adults
- ø Scheuermann's disease confirmed on Xrays, MRI
- ø Severe, constant, life style limiting pain
- ø No response to narcotic medications

Selection of levels

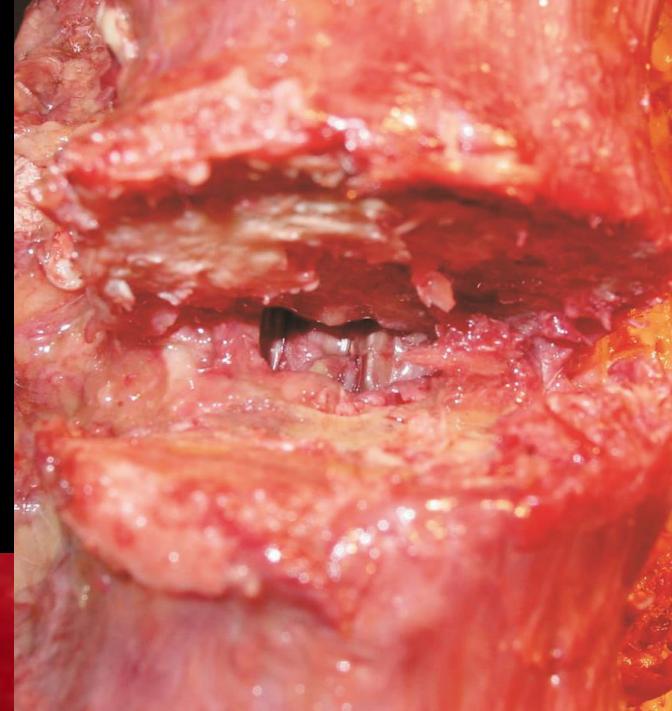
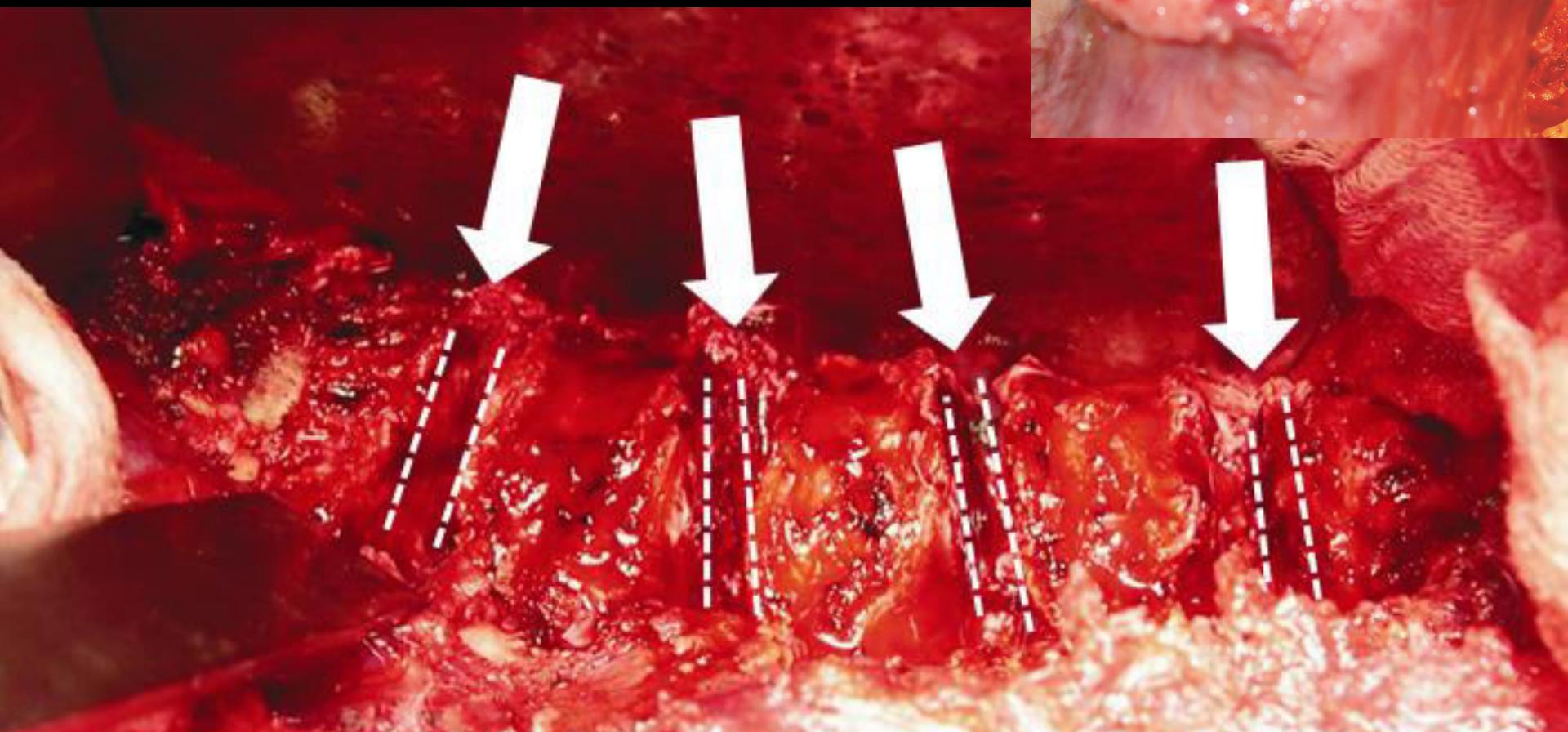
- ø Erect Xrays to quantify deformity magnitude
- ø Hyper-extension xrays to assess flexibility
- ø All the ‘wedged’ levels on Xrays
- ø All the ‘black’ discs on MRI



Surgical technique: Rib head, foramen



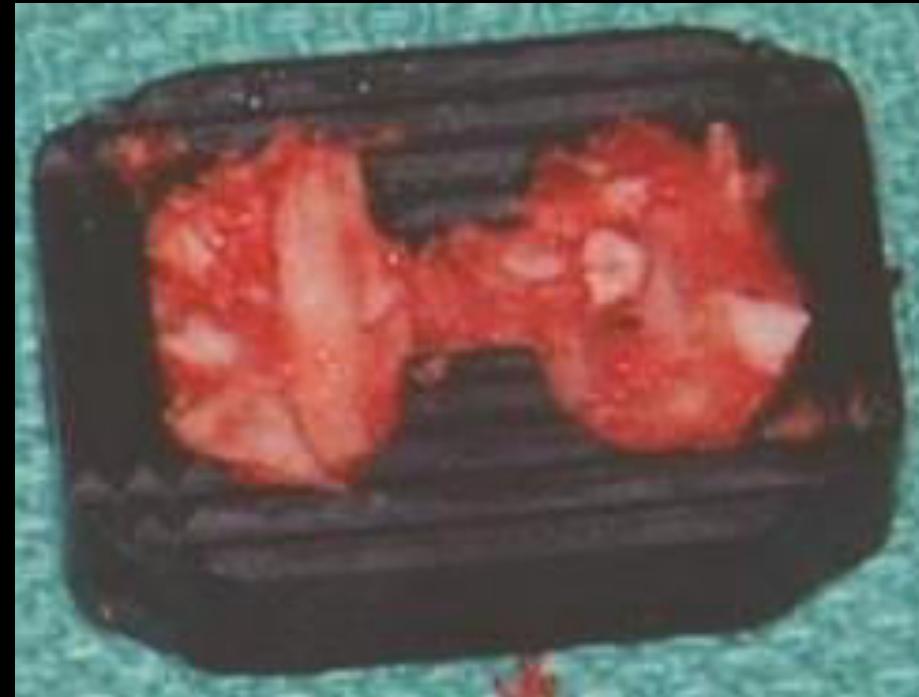
Surgical technique: Discectomy



Cage types: FRA, synthetic



FRA: 16 patients

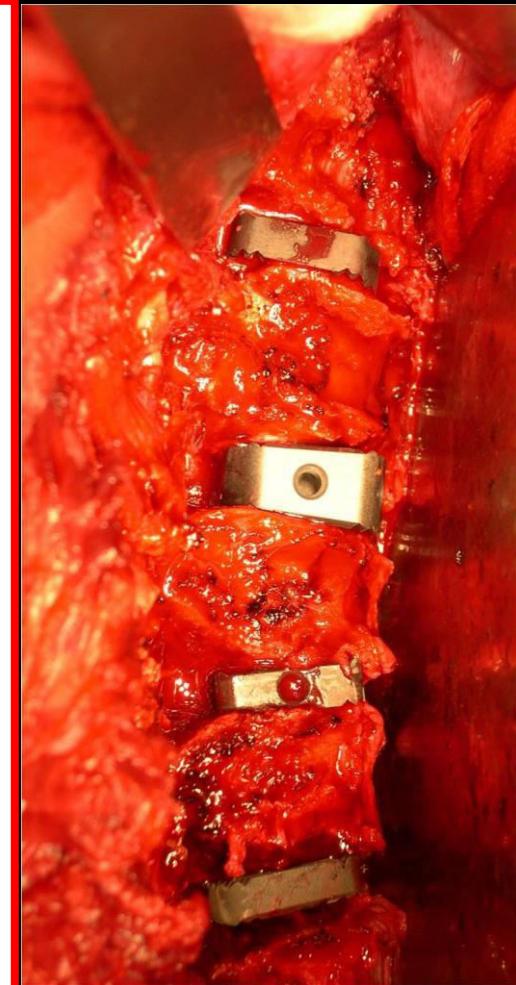
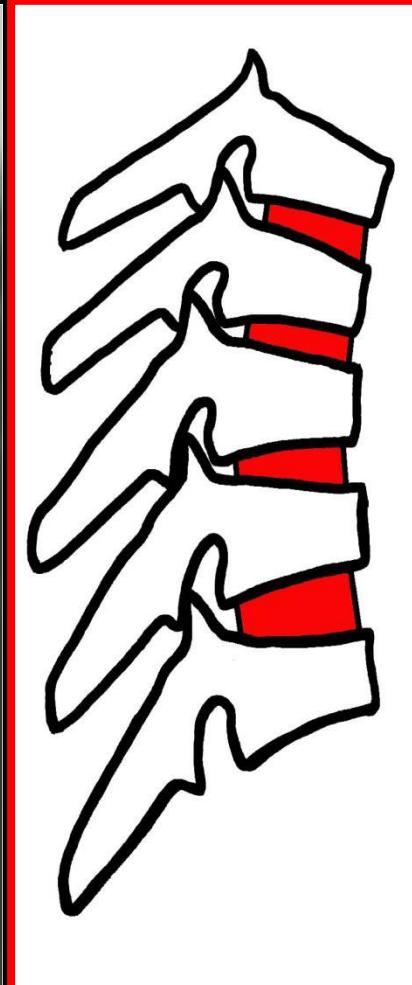
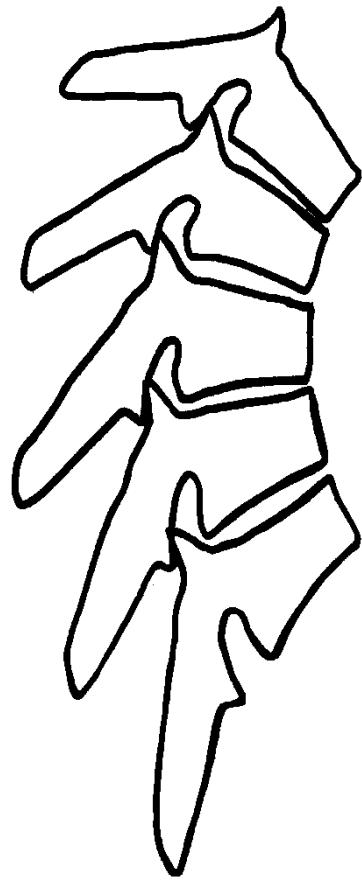


PEEK: 16 patients

Carbon fiber: 6 patients

Titanium: 2 patients

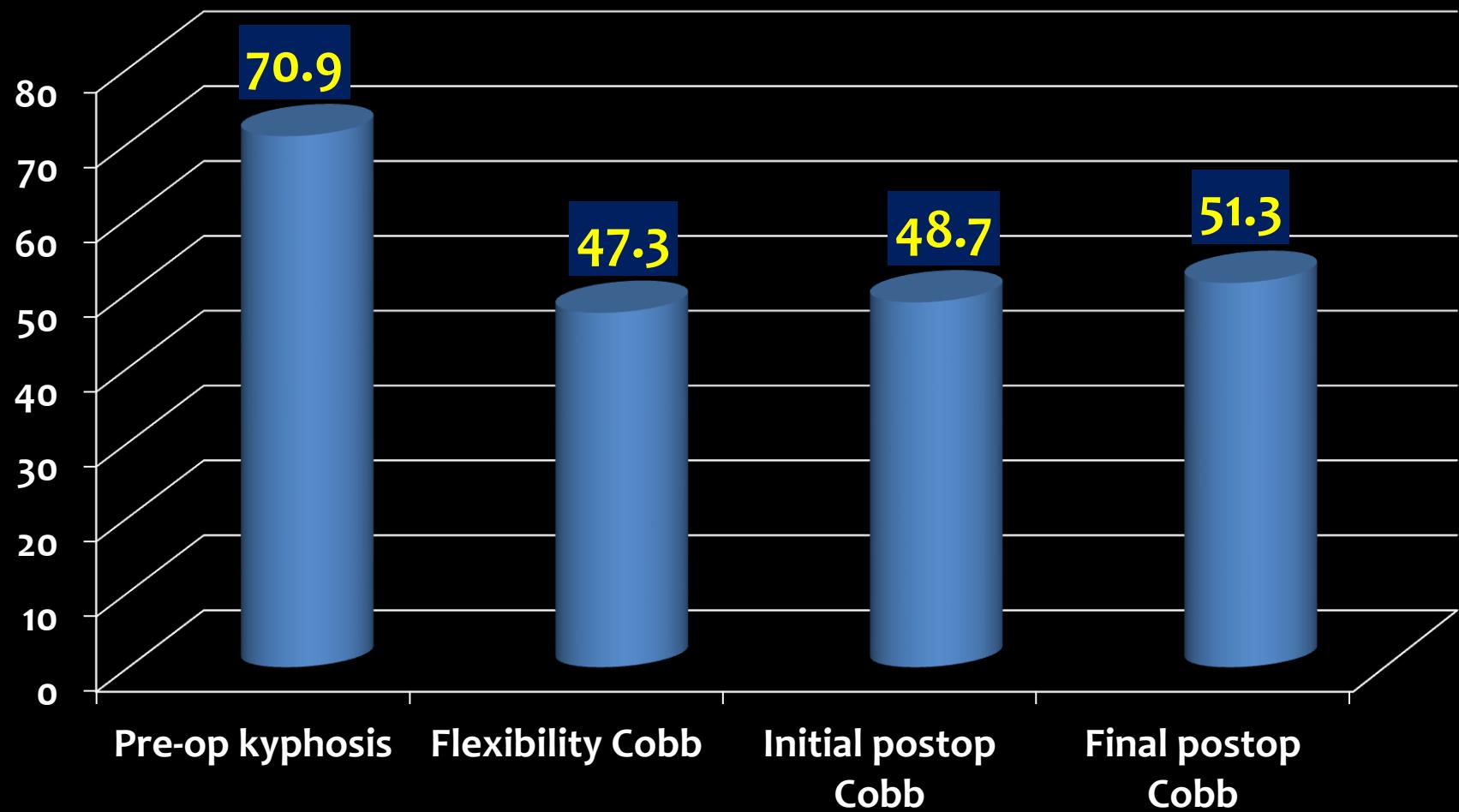
Surgical technique: Inter-body cages



Surgical demographics

	Mean	95% CI
Operation time	462.3 min	46 – 879
Blood loss	776.8 ml	606 – 948
Hospital stay	16.6 d	13 – 20.4
Levels fused	5.1	4.8 – 5.4

Deformity characteristics



Range

$42^\circ - 99^\circ$

$26^\circ - 70^\circ$

$27^\circ - 78^\circ$

$27^\circ - 78^\circ$

Final follow-up

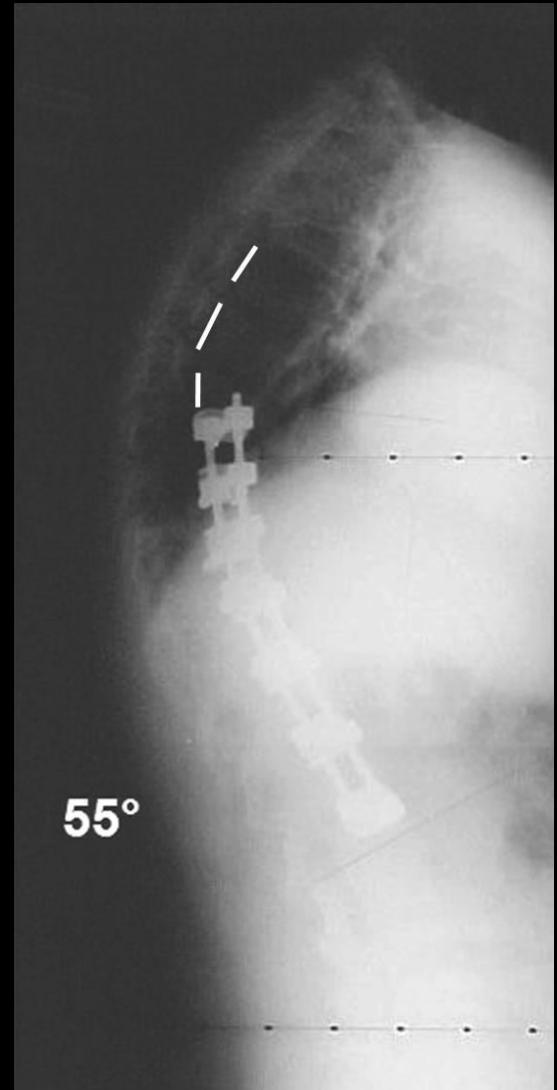
- ∅ Mean 34.5 mo (95% CI 26.2 – 42.8)
- ∅ Pain relief by 4 mo post-op
- ∅ Loss of correction 4.1% (2.4° increased kyphosis)
- ∅ No mechanical, neurological, pulmonary complications



Balgus

Proximal junctional kyphosis

- ∅ Posterior ligaments intact
- ∅ Normal kyphosis restored
- ∅ No cases of junctional kyphosis
in our series



Conclusions

- Ø This is a safe and effective treatment paradigm for the pain-predominant moderate ($< 100^\circ$) Scheuermann's kyphosis.
- Ø Pain relief is consistent
- Ø Fusion of half the number of levels by posterior based approaches achieves similar correction.