



Treatment of the thoracolumbar trauma by short segment percutaneous transpedicular screw instrumentation.

Prospective comparative study with minimum 2 year follow up

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Inclusion criteria were:

One thoracolumbar fracture classified from A3.1-A3.3 according the AO/Magerl classification

Absence of neurological deficit

No other significant injury

Willingness to take part in the study. After explanation of surgical options patients signed informed consent.



Clinical and radiological outcome

Clinical evaluation

VAS 7 days after surgery

Overall satisfaction and pain after 2 years

Working ability and return to original occupation

Radiological evaluation

Admission radiographs, CT and MR

Parameters

Bisegmental Cobb angle

VBI (vertebral body index)

VBA (vertebral body angle)

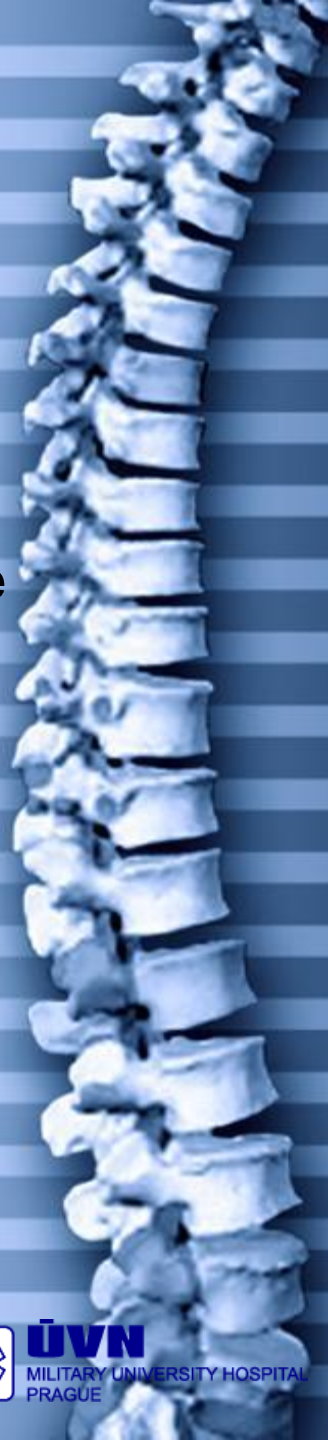
Accuracy of pedicle screw placement





35 patient from 37 finished follow up

	MIS	Control	p value
Number of patients	18	17	
Age	39.4 ± 16.9	45.6 ± 15.3	0,264
Male sex	14	14	1
Thoracic fracture	11	9	0,738
VBI pre-op	0.67 ± 0.12	0.68 ± 0.12	0,848
VBA pre-op	-14.4 ± 6.5	-13.5 ± 5.5	0,635
Cobb pre-op	-9.3 ± 10.1	-8.2 ± 10.5	0,766





Fracture level

T9

1

0

T12

6

8

L1

8

6

L2

0

1

L3

1

2

L4

2

0

Fracture type

A3.1

1

1

A3.2

6

4

A3.3

11

12

Mechanism of injury

Road Traffic Accident

3

3

Fall

10

13

Sport injury

5

1

Profession

Manual worker

11

9

Office worker

7

8





Surgical time and blood looss

	MIS group	Control group	
Surgical time	53±10 min	60±9 min	p = 0.032
Blood looss	56±17 ml	331±149 ml	p < 0.001

Screw accuracy

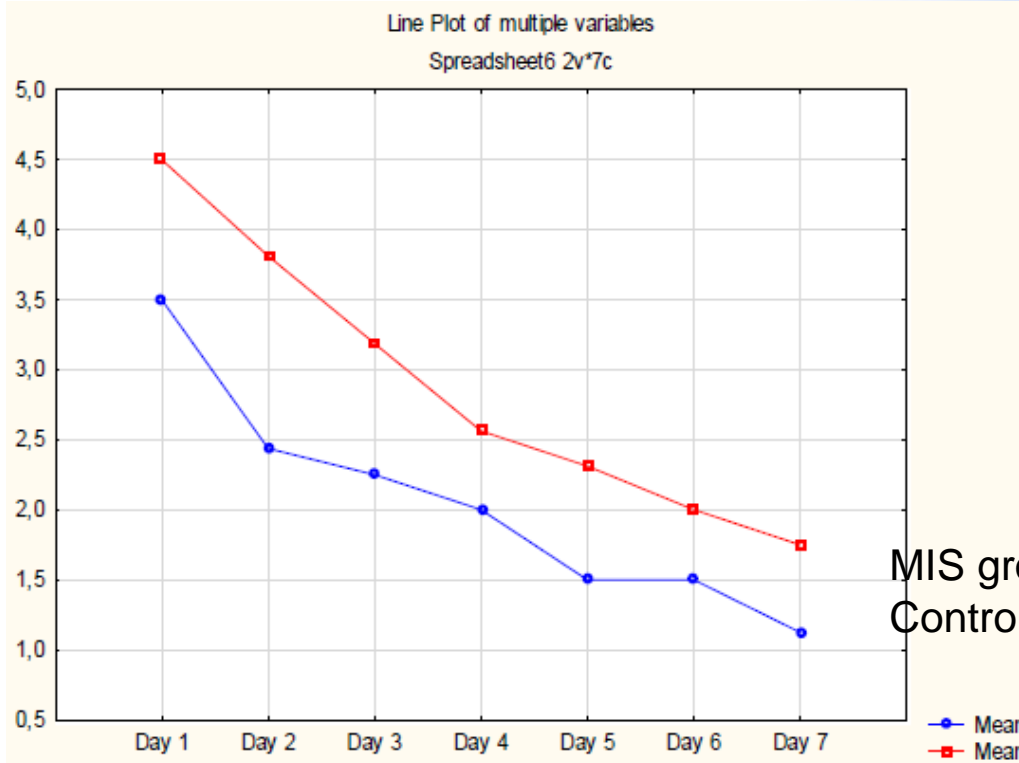
	Medial	Paramedial	Lateral	Medial
MIS group	41	24	5	2
Control group	34	25	4	5

p = 0.265





Pain profile after surgery (VAS)



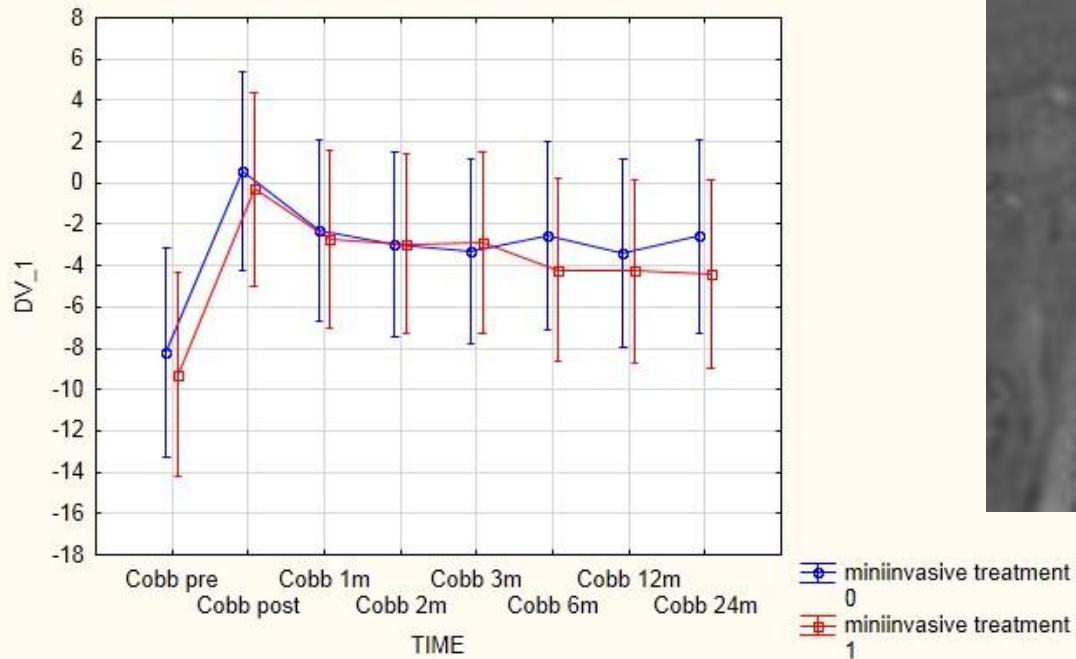
MIS group – blue curve
Control group – red curve

$p < 0.001$



Bisegmental Cobb angle

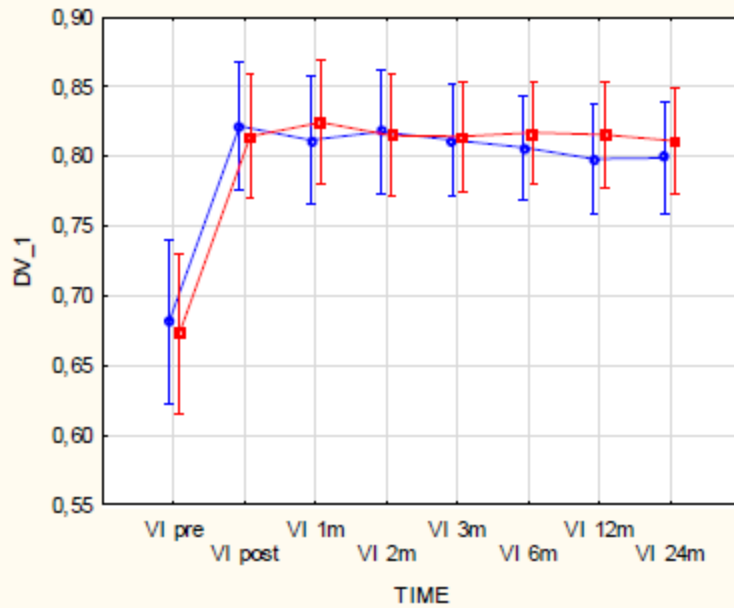
TIME*miniinvasive treatment; LS Means
Current effect: $F(7, 231)=,53634$, $p=,80649$
Effective hypothesis decomposition
Vertical bars denote 0,95 confidence intervals





Vertebral body index (VBI)

TIME*mininvasive treatment; LS Means
Current effect: $F(7, 231) = ,34503, p = ,93238$
Effective hypothesis decomposition
Vertical bars denote 0,95 confidence intervals

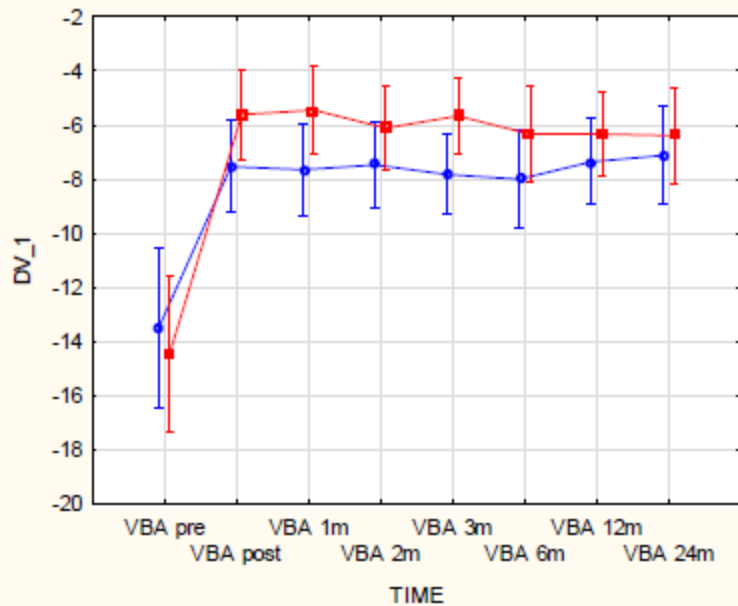


- mininvasive treatment 0
- mininvasive treatment 1



Vertebral body angle (VBA)

TIME*miniinvasive treatment; LS Means
Current effect: $F(7, 231)=2,1163, p=,04278$
Effective hypothesis decomposition
Vertical bars denote 0,95 confidence intervals



- miniinvasive treatment 0
- miniinvasive treatment 1





Overall satisfaction after 2 years

1-without any inconvenience

2-some residual difficulties, no need of analgesics

3-difficulties partially limiting common daily activities, analgesics sometimes

4-significant limitation of daily activities, suboptimal response on analgesics

MIS group Control group

Satisfaction 1-2	16	13	$p = 0.402$
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Satisfaction 3-4	2	4
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Working ability after 2 years

MIS group Control group

Return to work	17	12	$p = 0.088$
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Invalidity	1	6
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Conclusions

Percutaneous transpedicular short segment instrumentation of A3 fractures can be done with short operative time and minimal blood loss and complication rate

This approach reduce significantly postoperative pain

The functional and radiographical outcome isn't inferior to open technique after two years

Disclosures

The authors (Vanek P, Bradac O, Konopkova R, Benes V) disclaim any conflicts of interest. All listed authors approved the final version of the e-poster.

