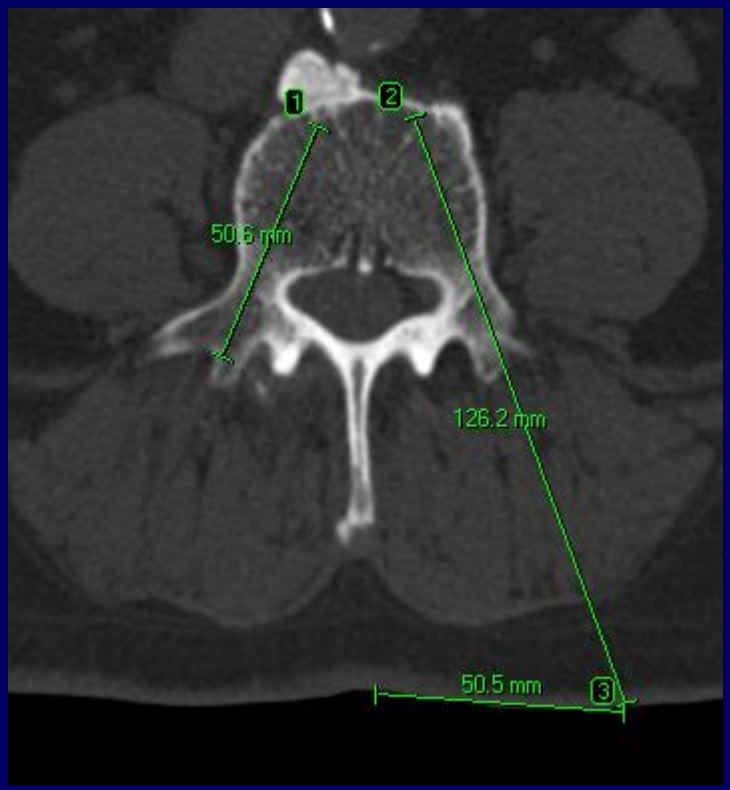
MIS in Trauma (How I do it?)

99% of trauma cases I do with MIS

- **I always follow the 3 „P” rule: Plan, Plan, Plan**
- **I measure the length and diameter of the screws**
- **I measure distance between the midline and the ideal screw entry-point on the skin**
- **I acheive a lordosis with patient positioning (cushions)**

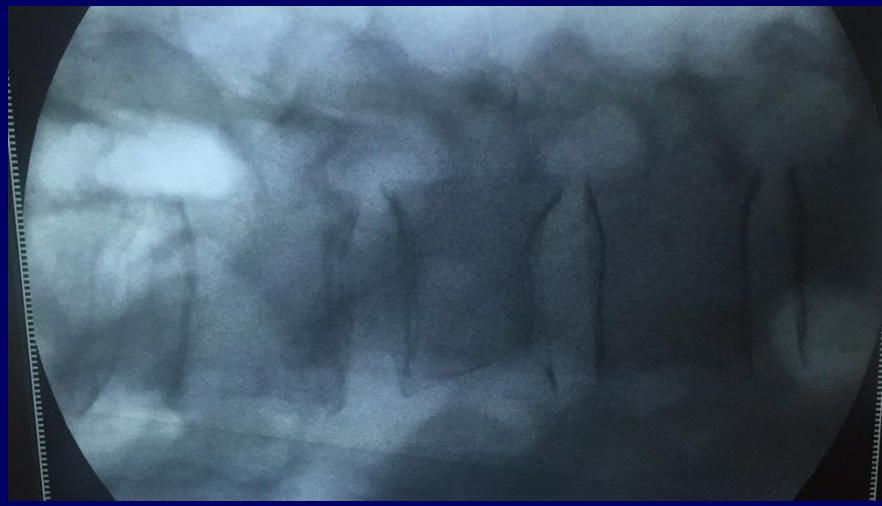


Patient positioning: perfect AP views on C-arm

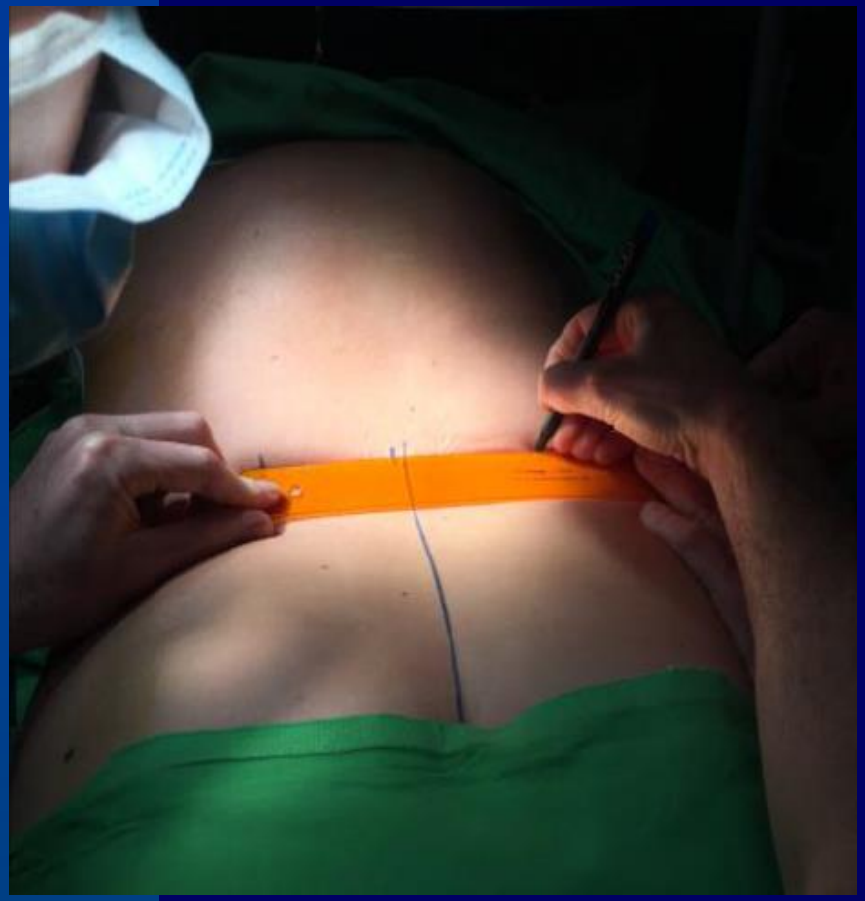
Spinous process in the midway between the pedicles

Only one contour at the upper end-plate

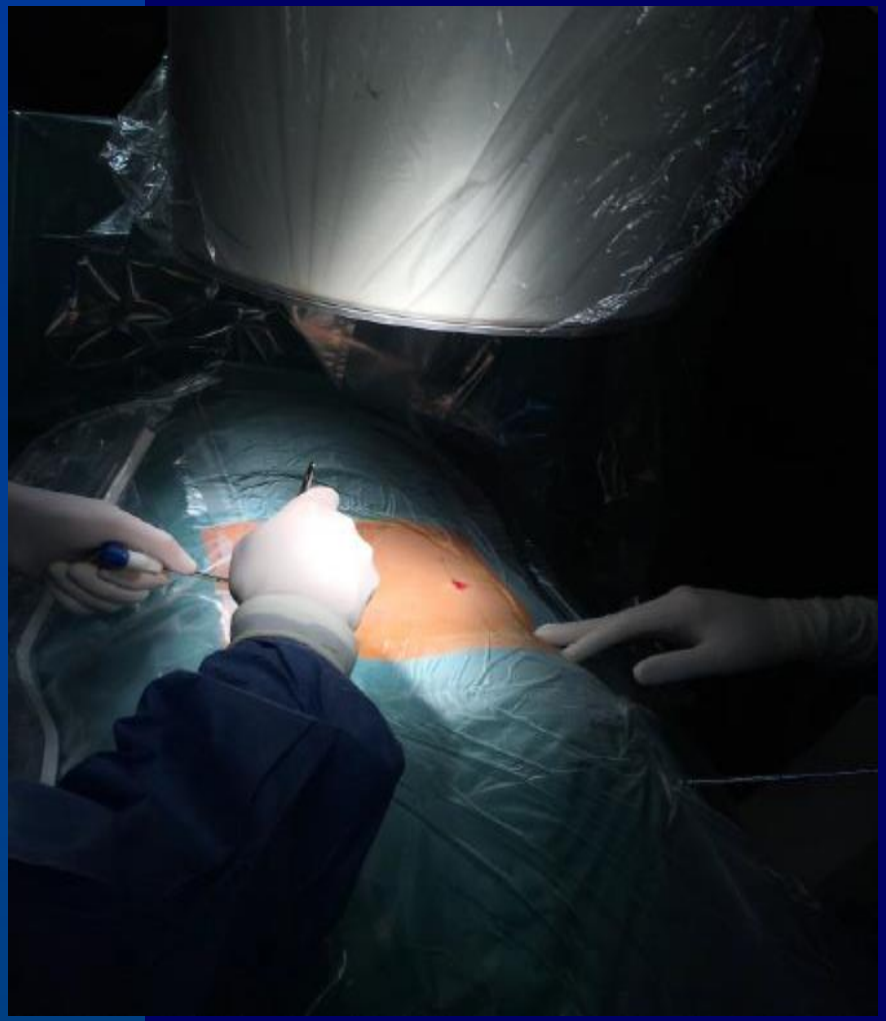
In „A” and „C” type fractures we make a whole body distraction maneuver to reduce the fracture

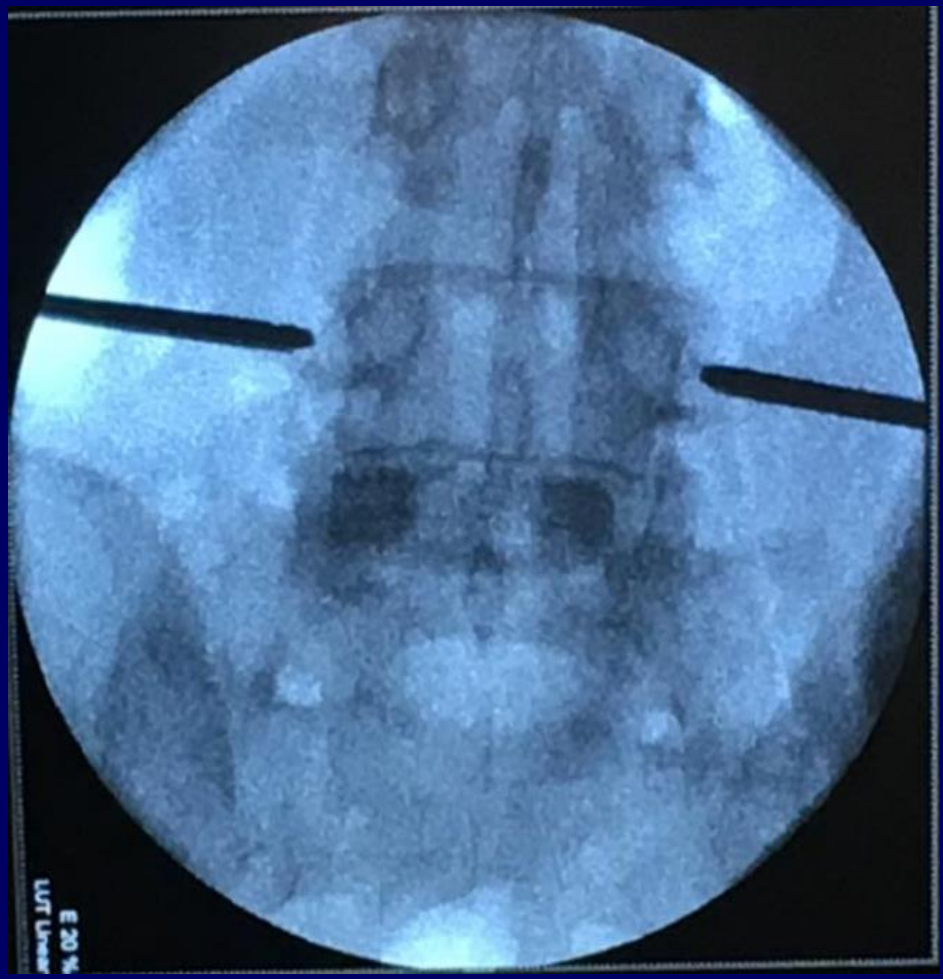


Applying the distances measured on CT

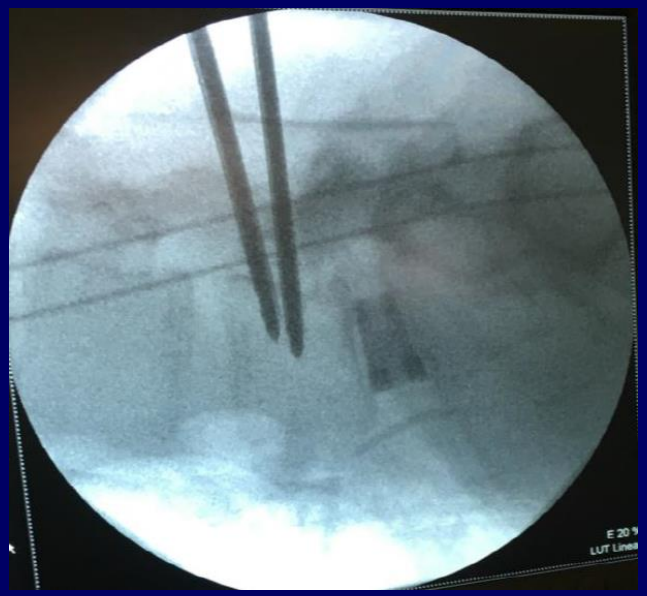


Incisions are on the side lines, I use Jamshidi needles at 9 and 3 o'clock positions

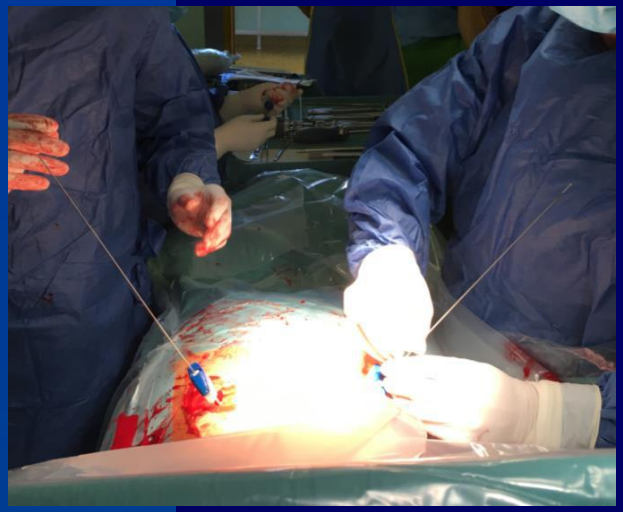
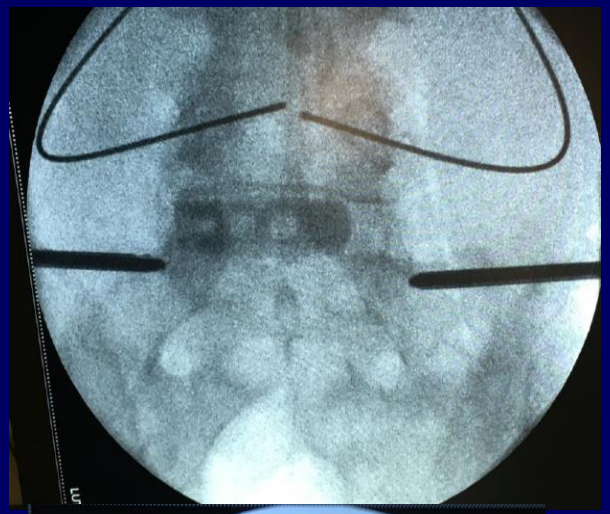
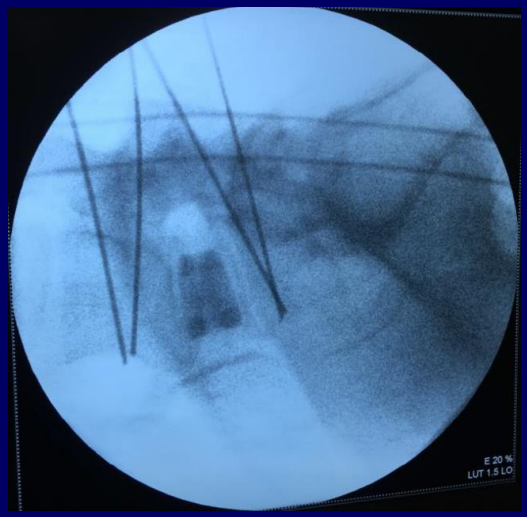
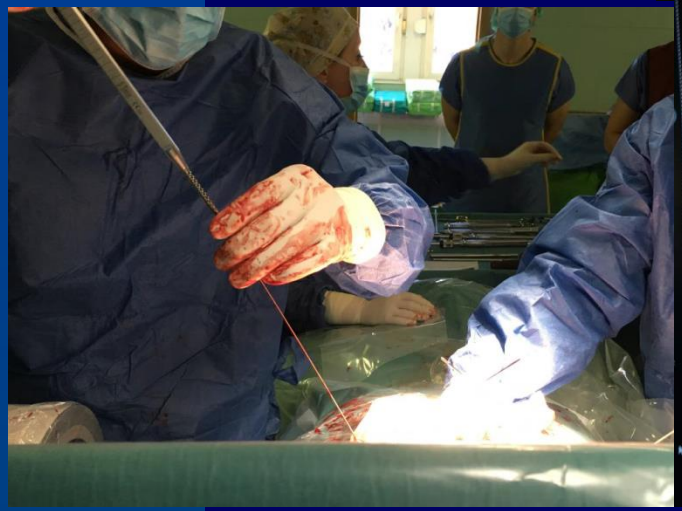
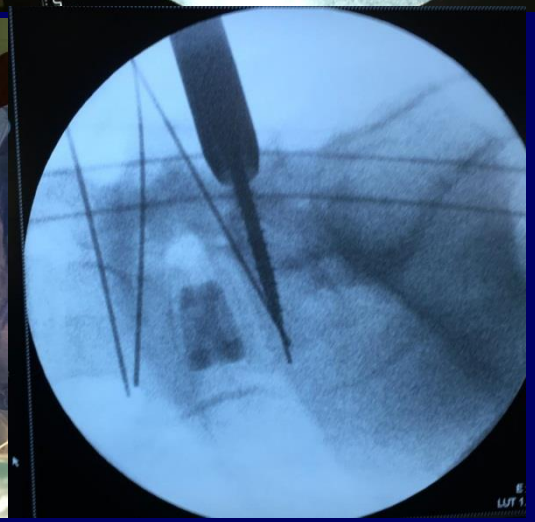




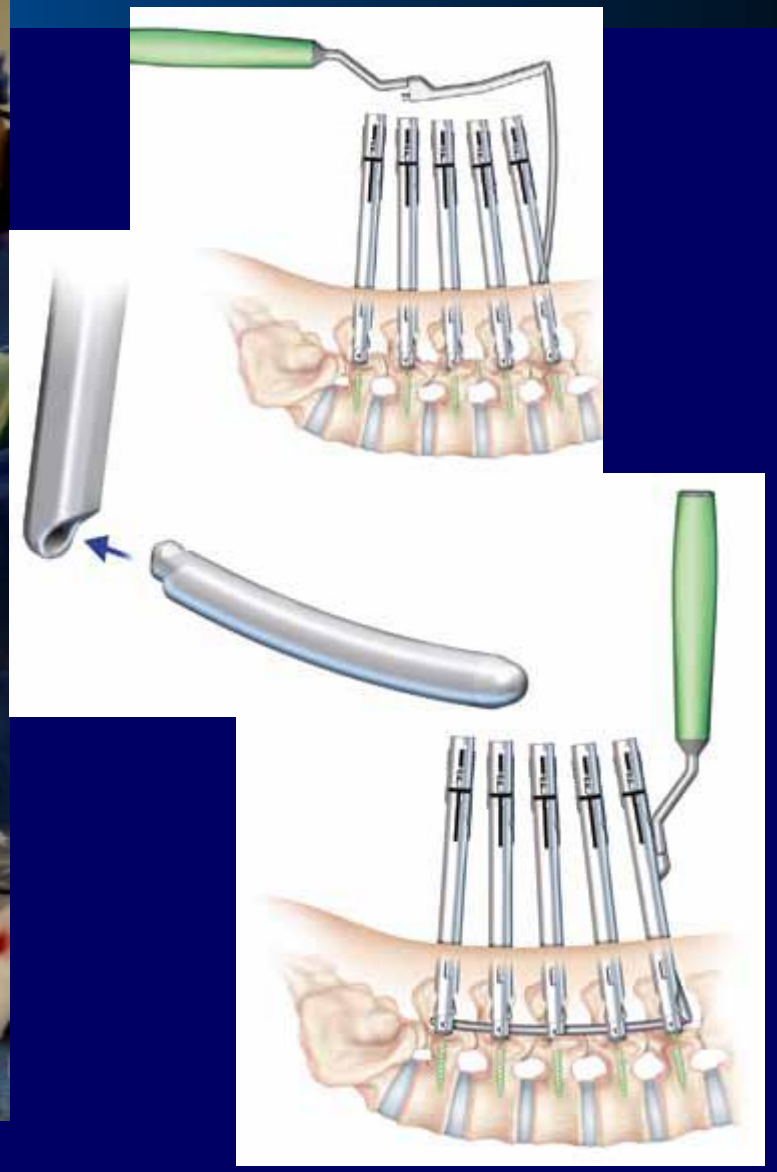
I advance the Jamshidi needles until medial wall of pedicles (no spinal canal!) and then I do a lateral view



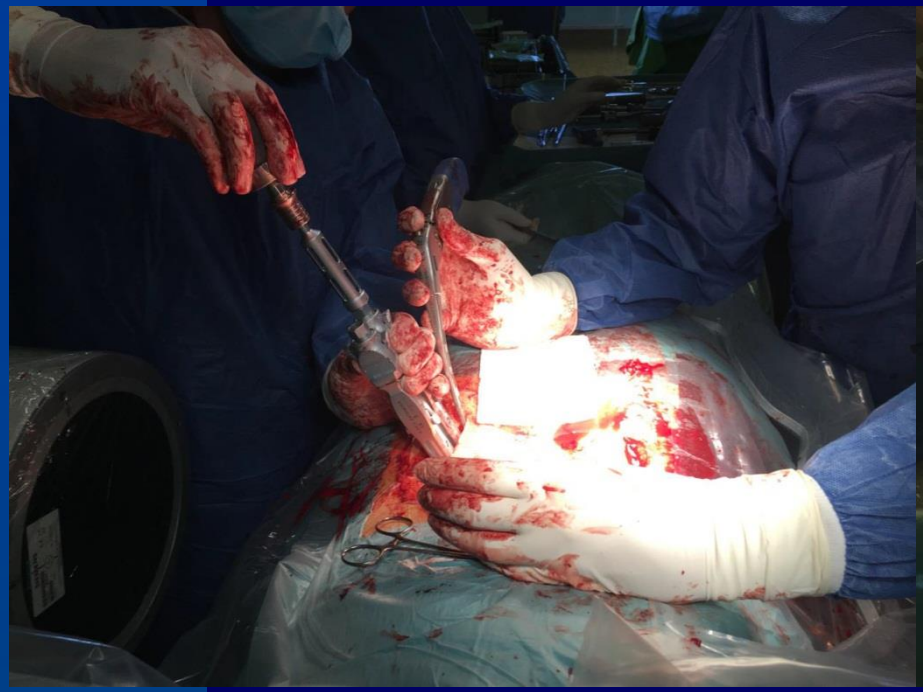
I put the K-wires and go to the next vertebra
All K-wires are in place, I tap and put the screws

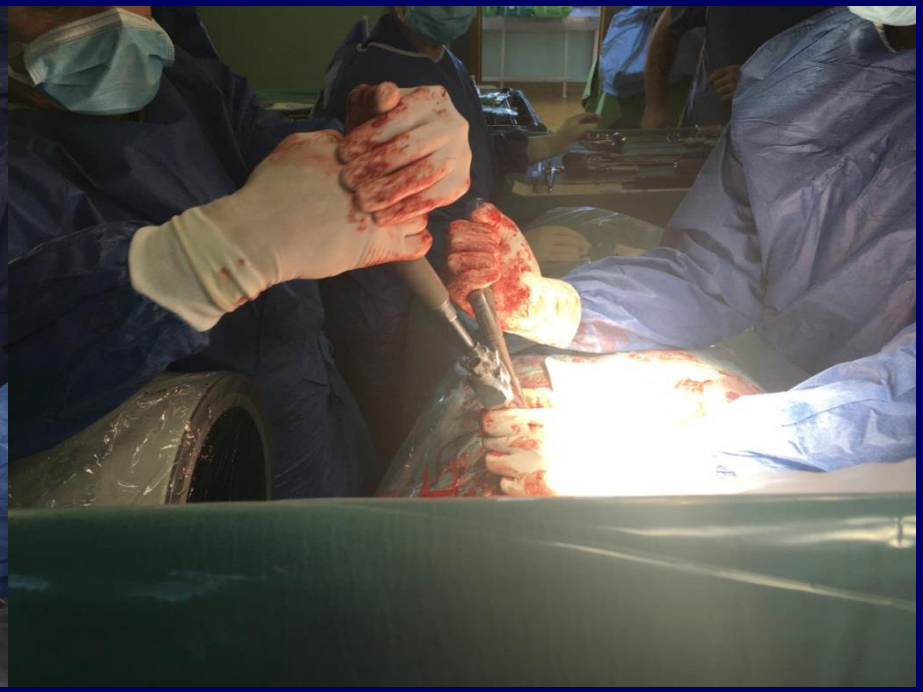







Putting the rod: no limits

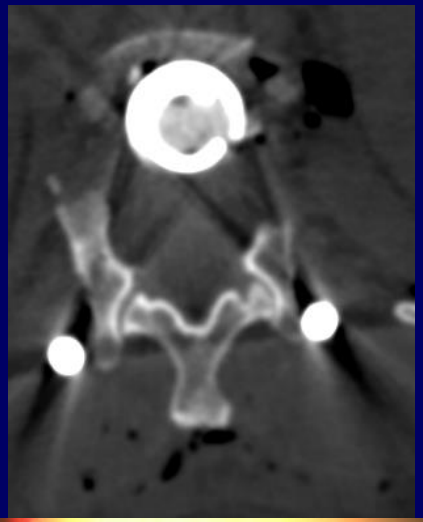


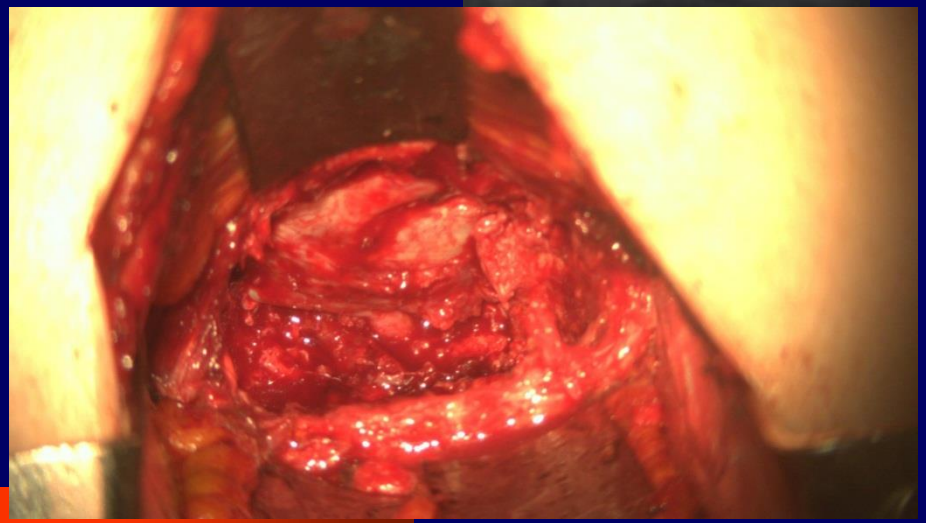
Finally reducing the rod and tightening the set screws



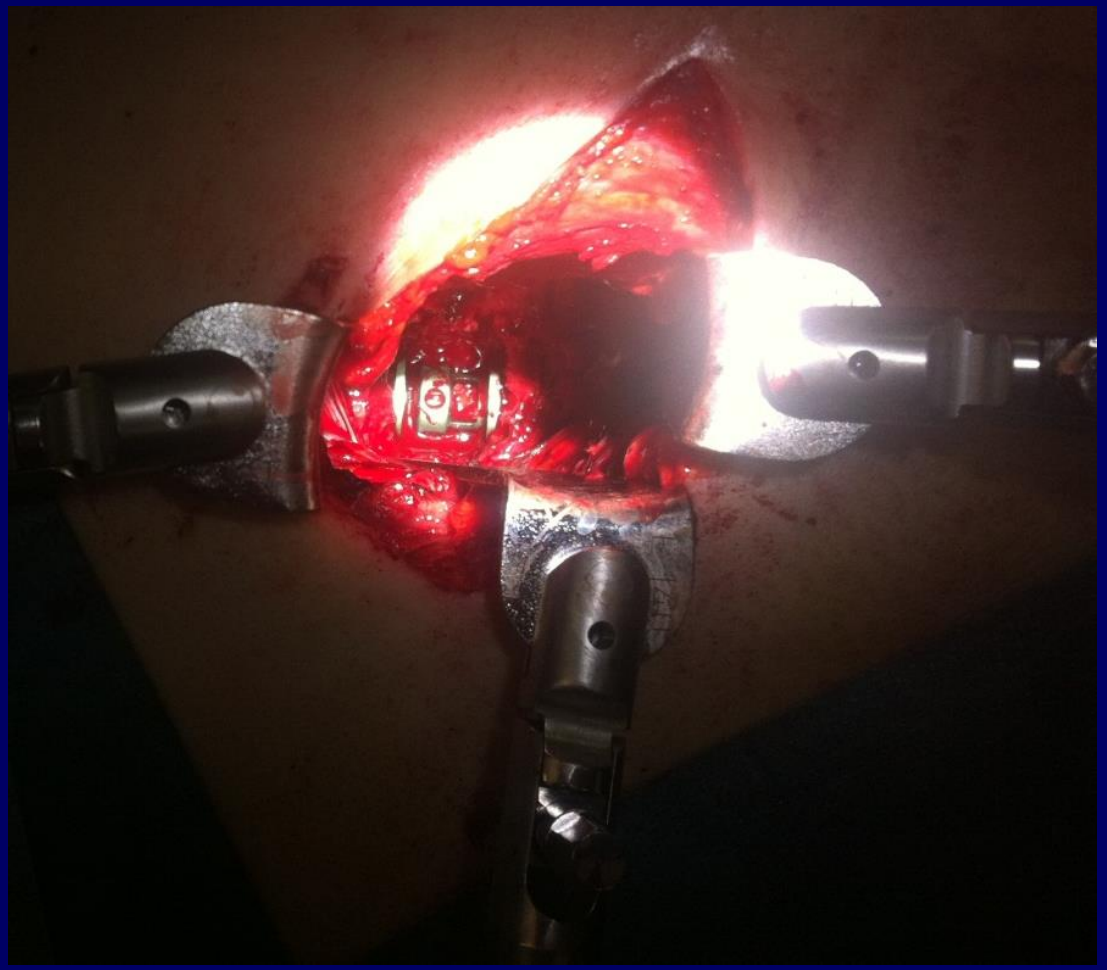


In burst or C-type fractures with neurological signs I do MIS corpectomy (anterior decompression) and stablize the spine with MIS screws

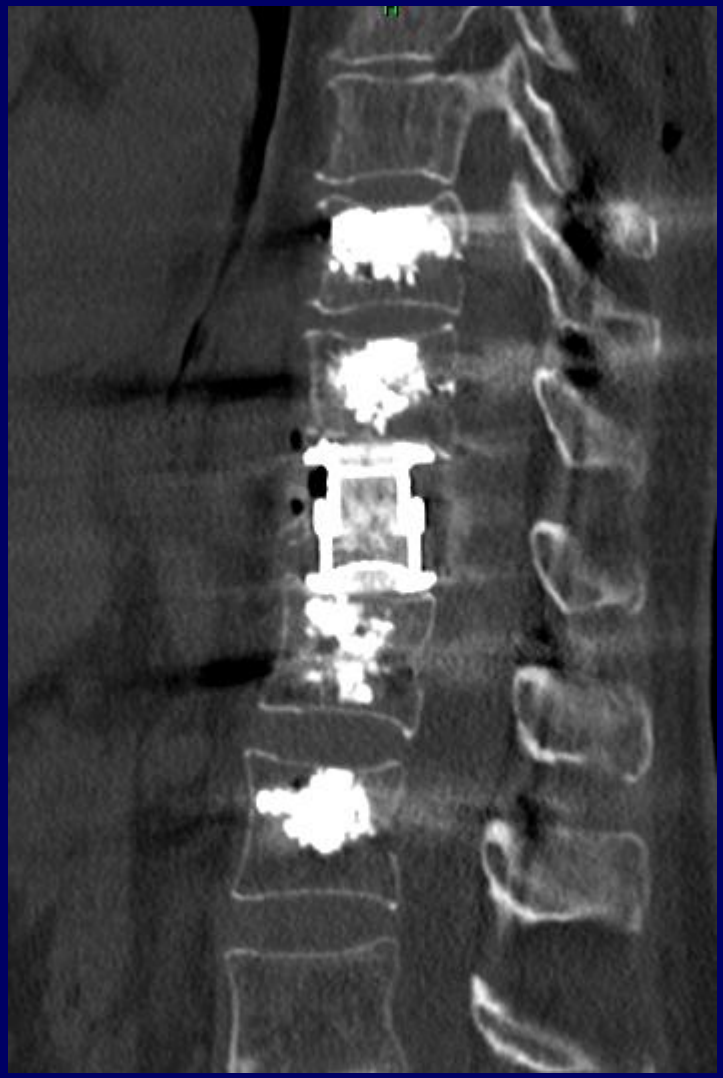




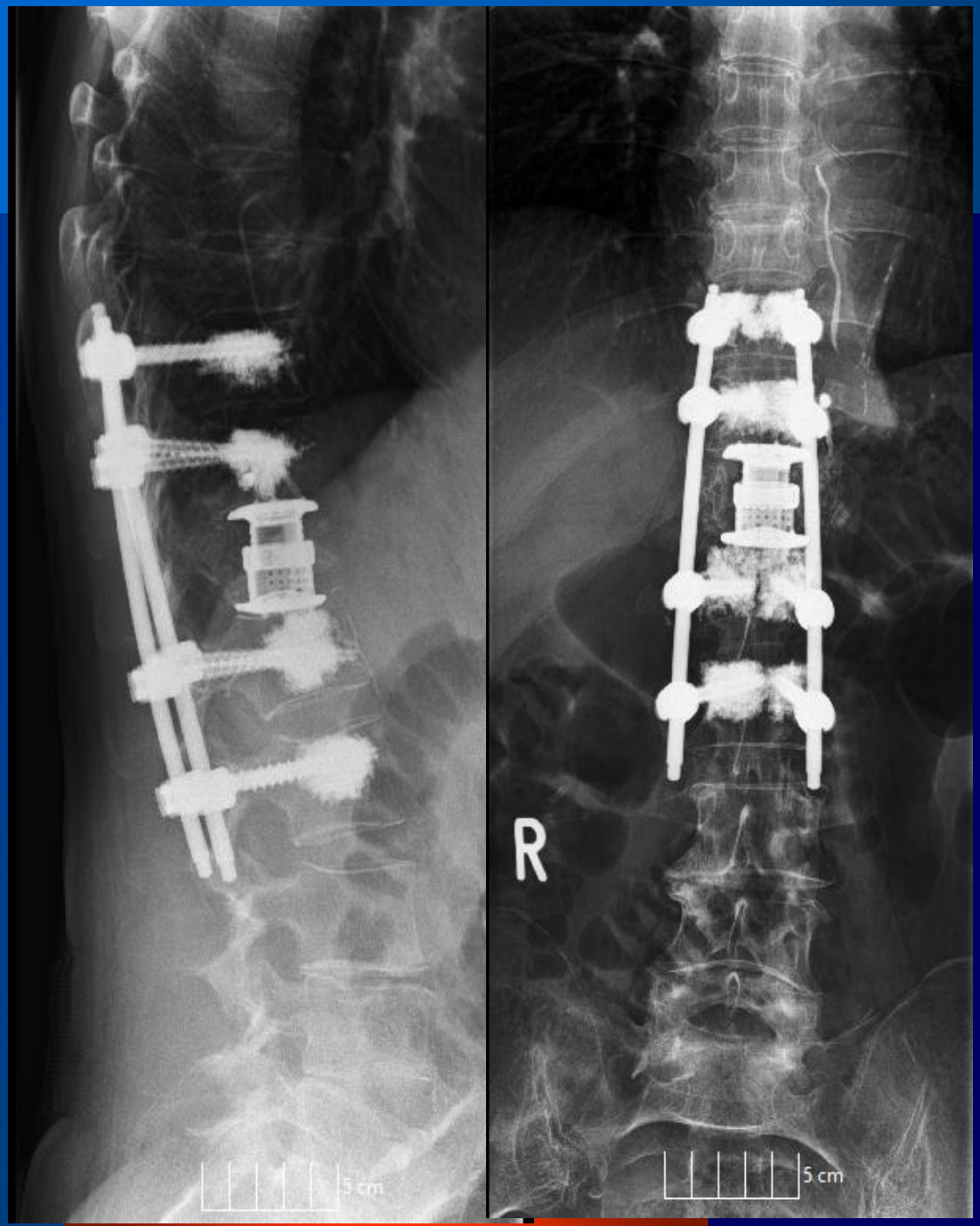
Corpectomy can be done with MIS in the thoracic spine (extra or intrapleural approach)



Corpectomy and kyphosis correction in osteoporotic fracture with MIS



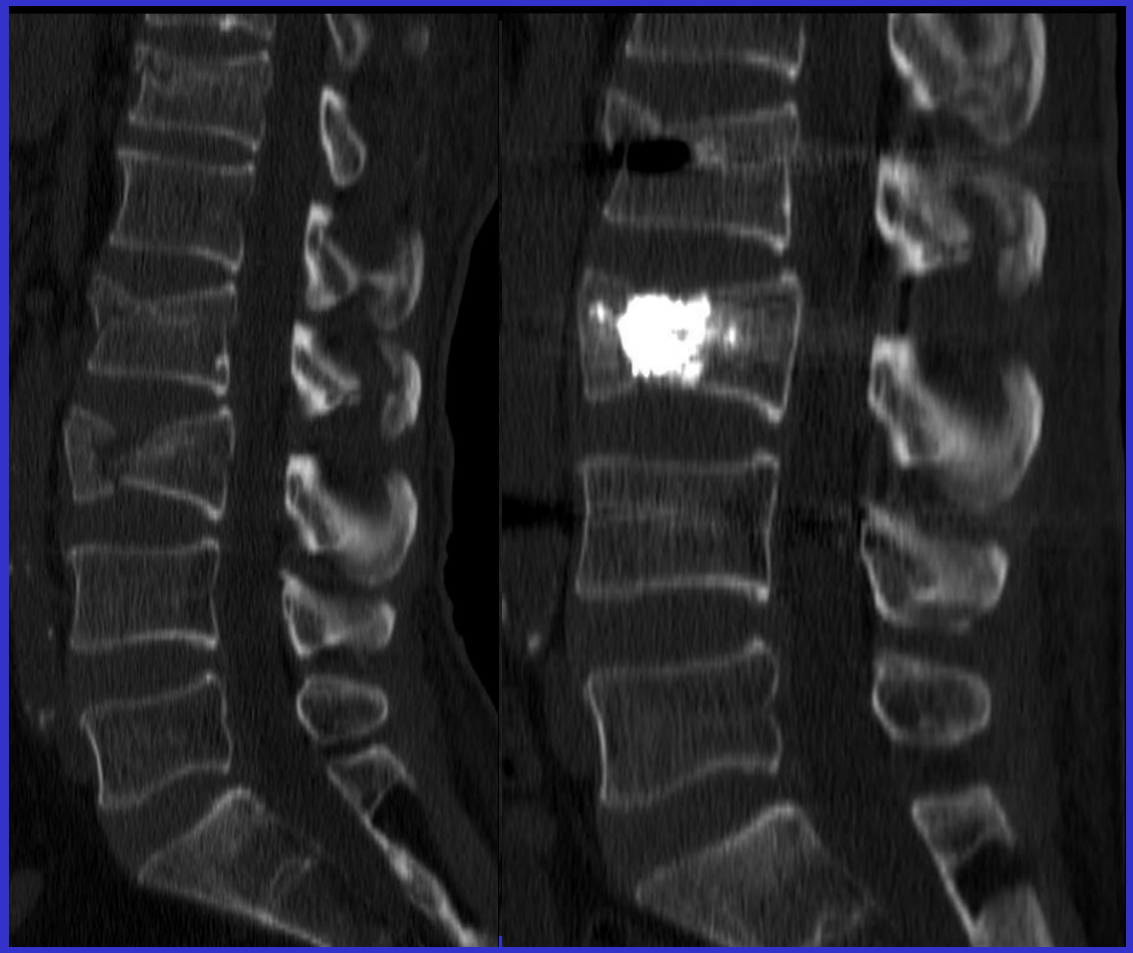
Post. Op. 6 weeks



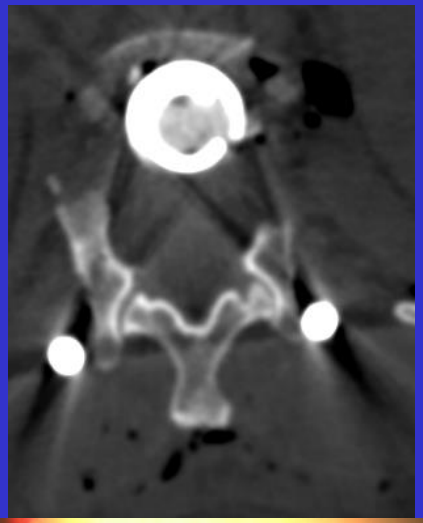
Post. Op. 6 months

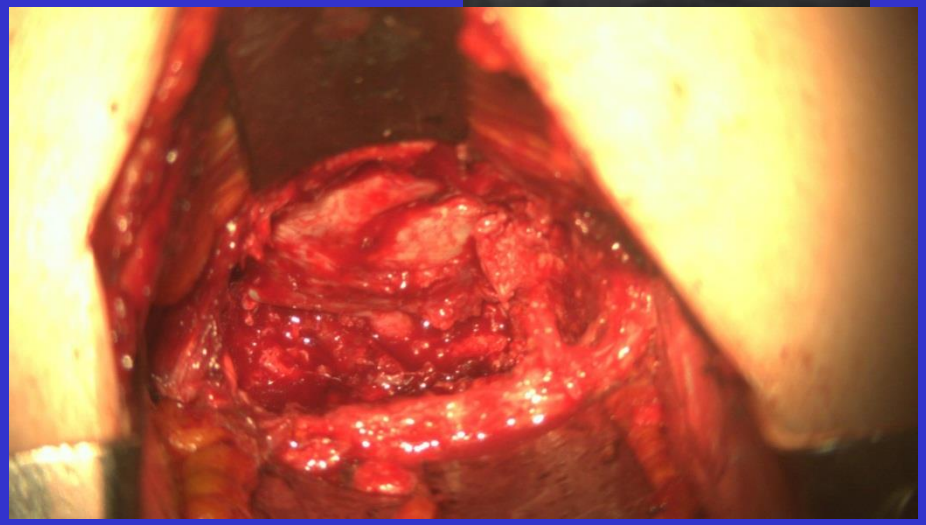
Good kyphosis correction

A1 - wedge and A2 – split fracture



A3 fracture (same approach in A4)





B2 distraction injury (ligamentous)

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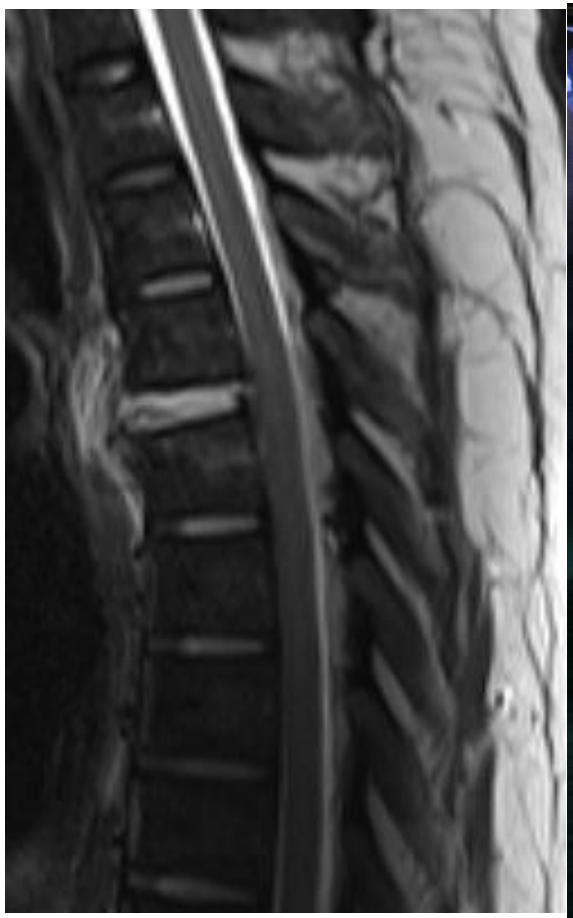
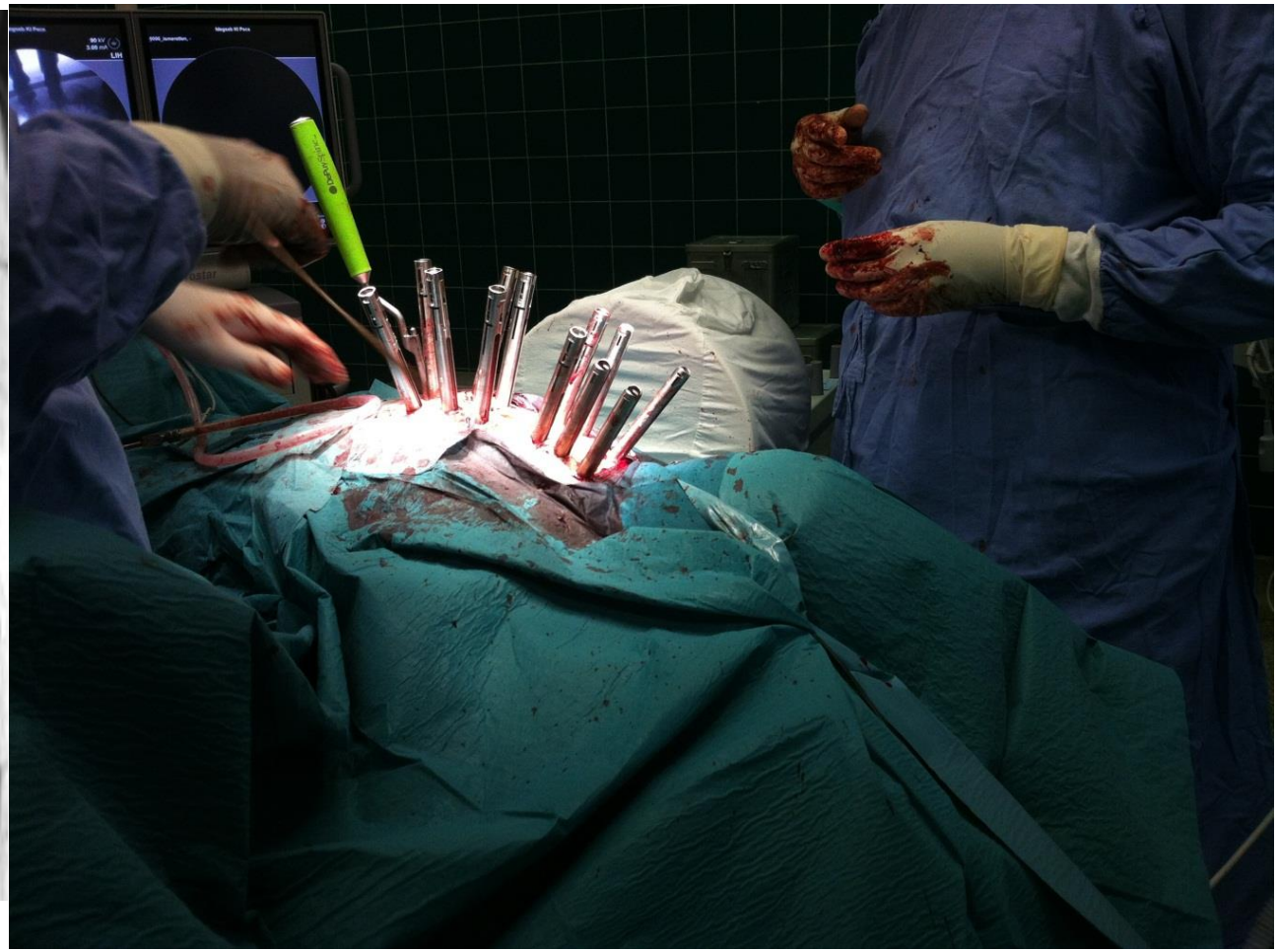
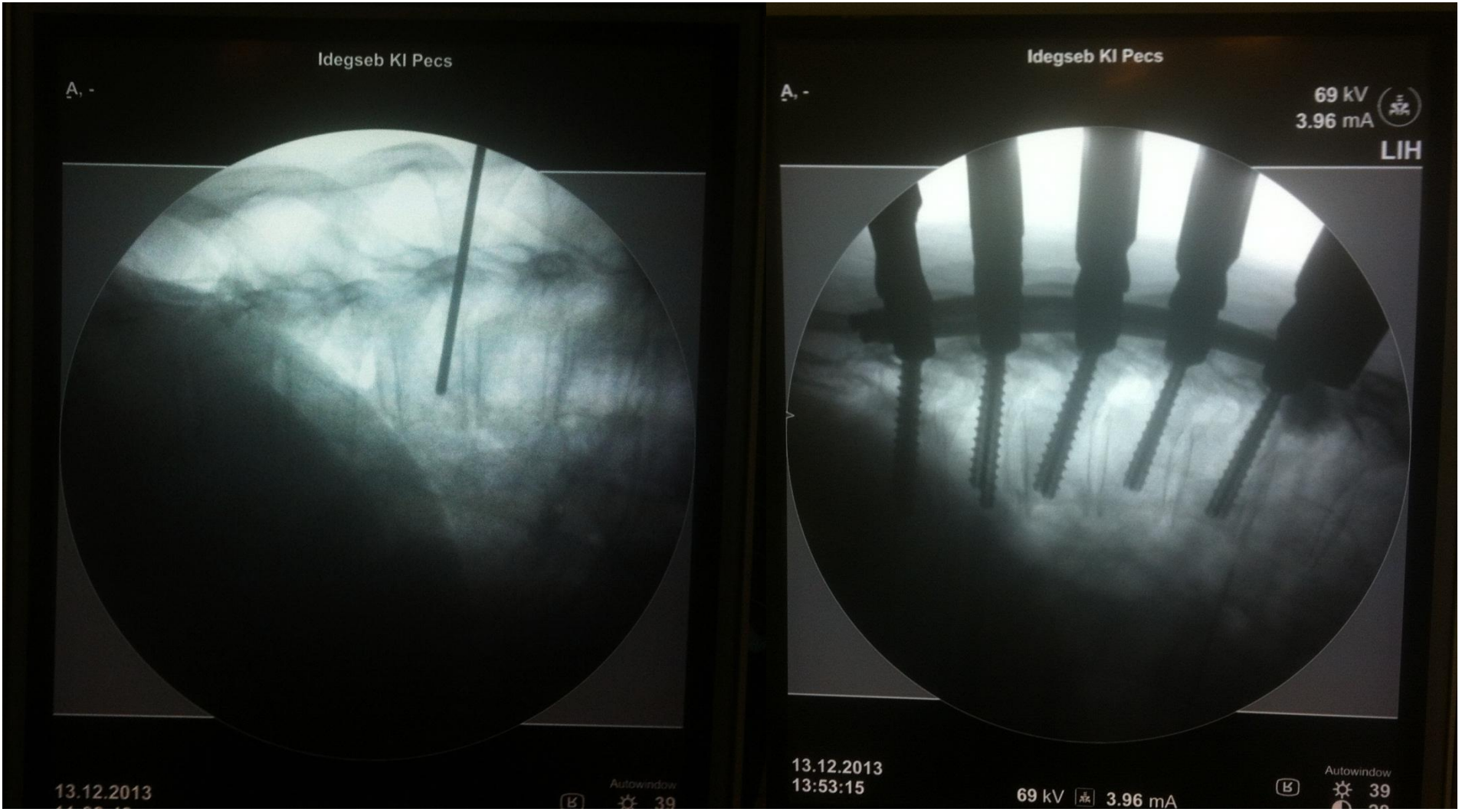
1 year control

B3 - Th.IV-Th.V disc rupture

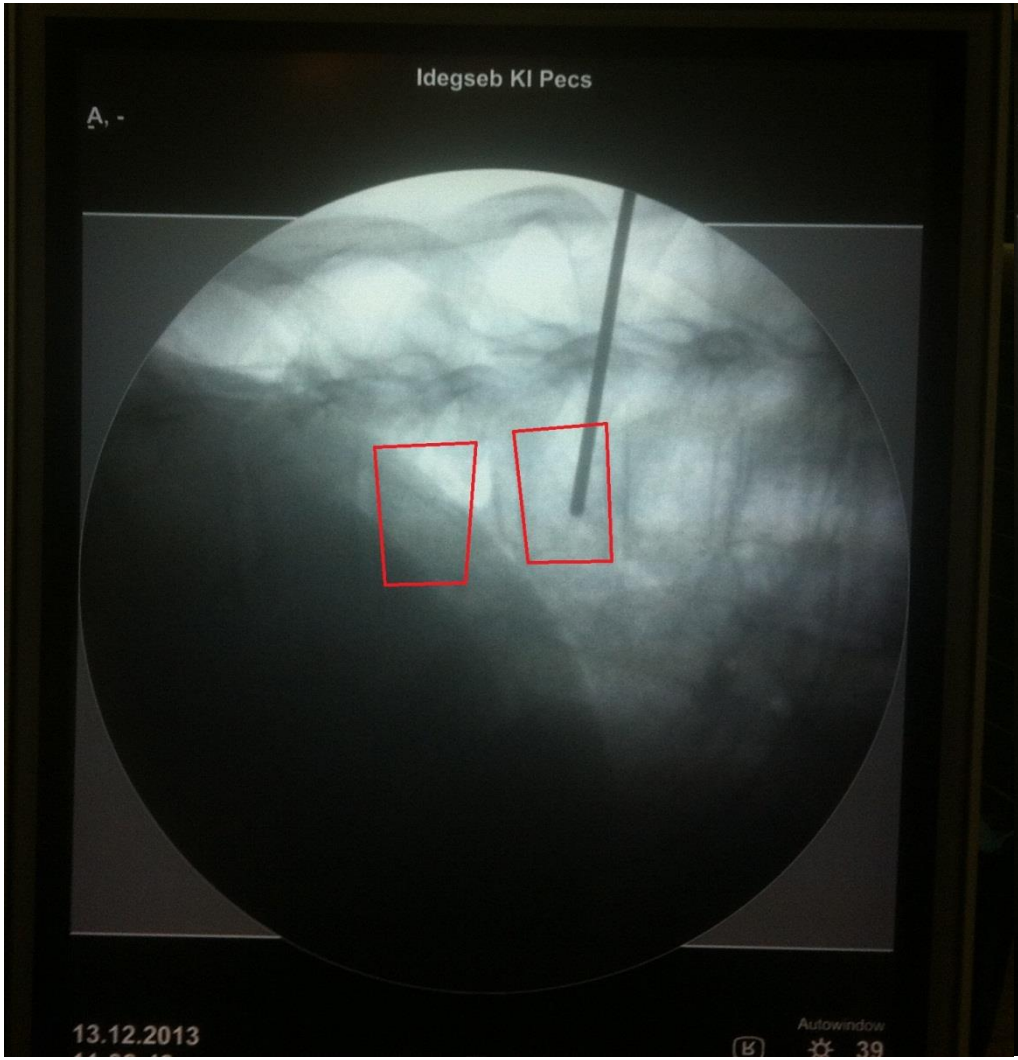




B3 fracture reduction with MIS



B3 fracture reduction with MIS

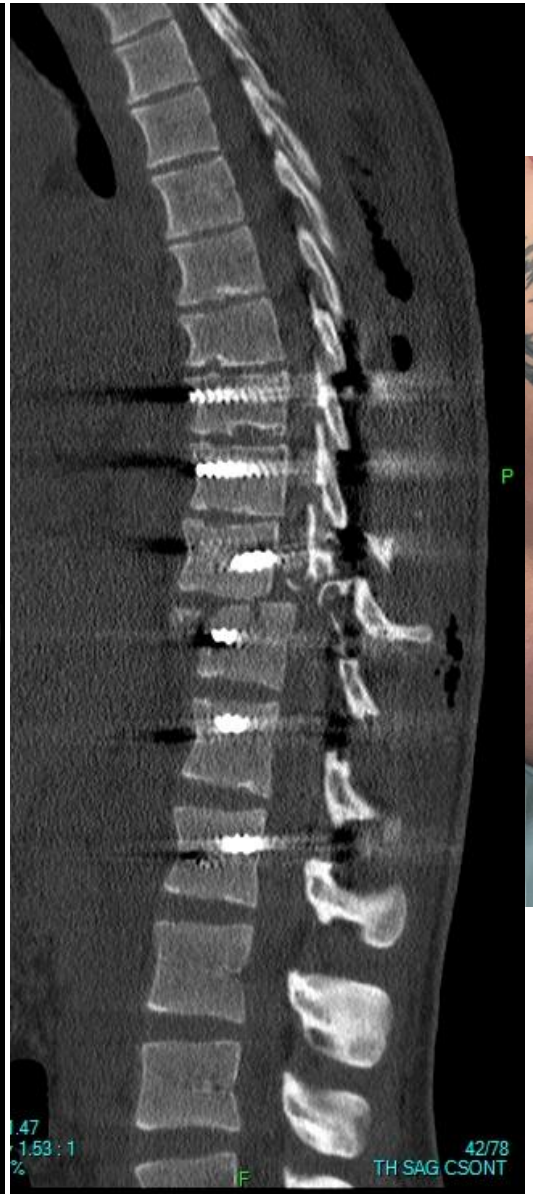


C-type injury

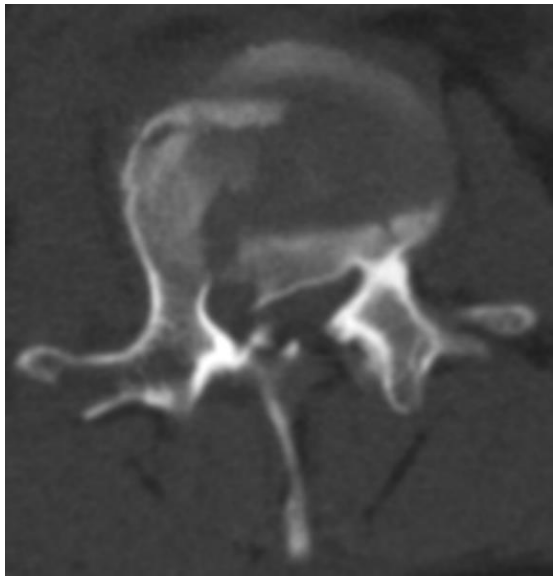
Indirekt decompression – traction for 20-30s in the OR (muscle relaxants!!!)

MIS fixation in C fractures (paraplegia) (Blood loss: 50ml, Op time: 80 min)

C-type injury

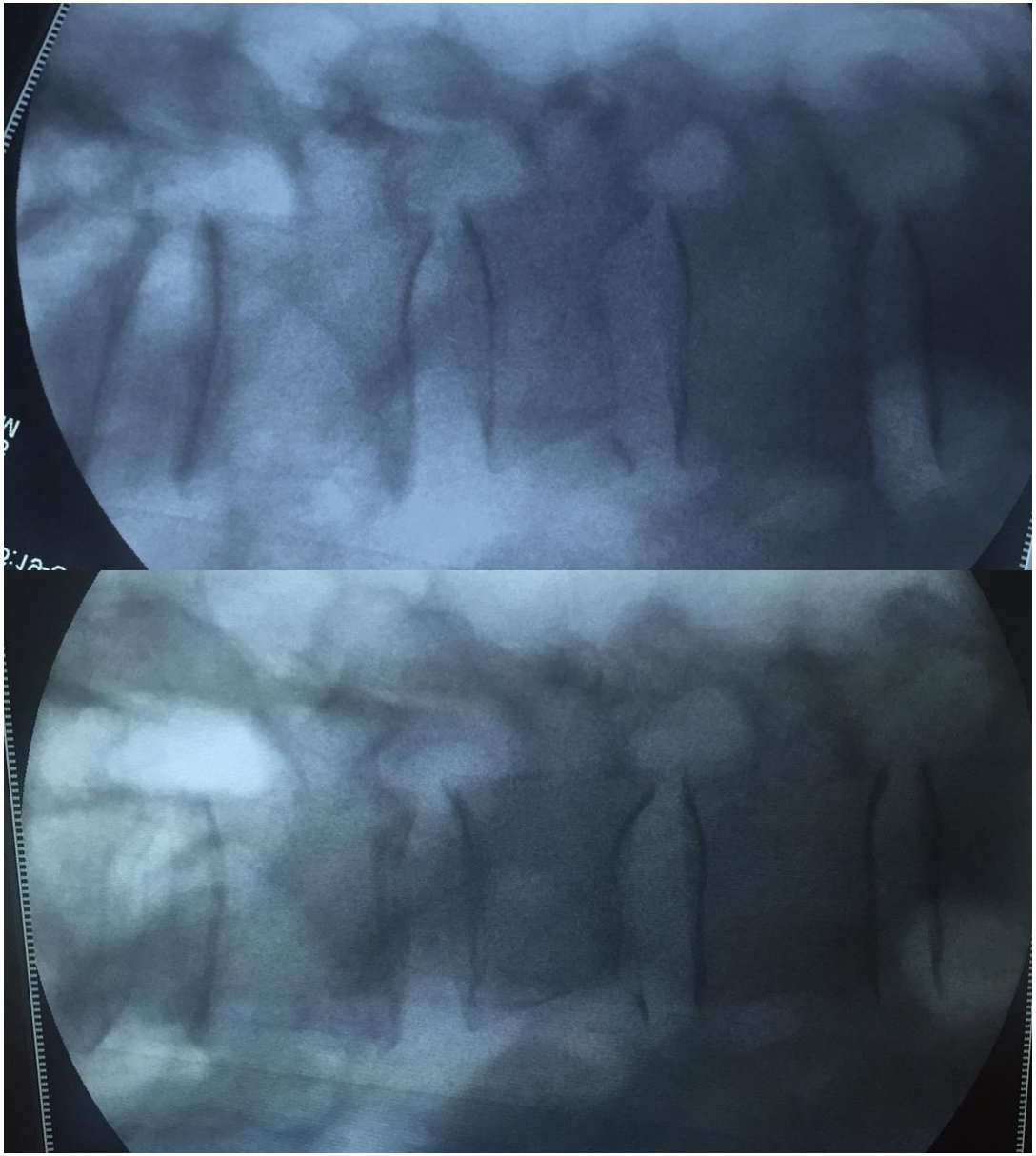


„C” type fracture: neurologically intact!!

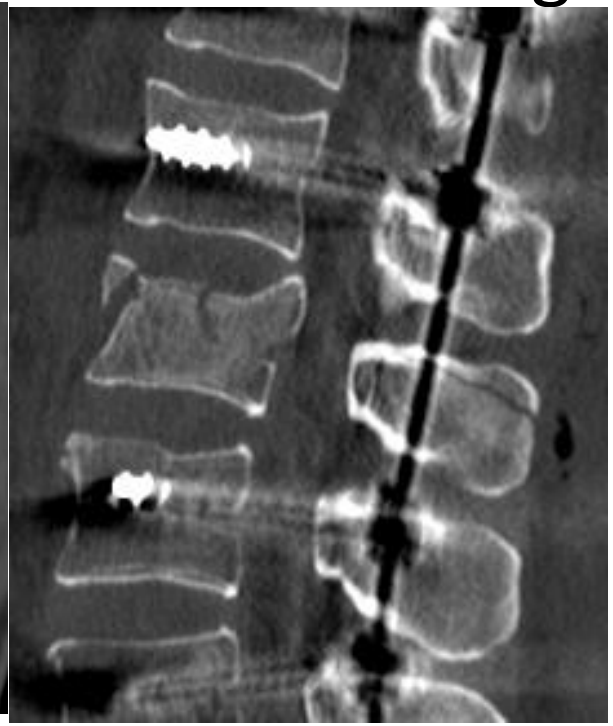


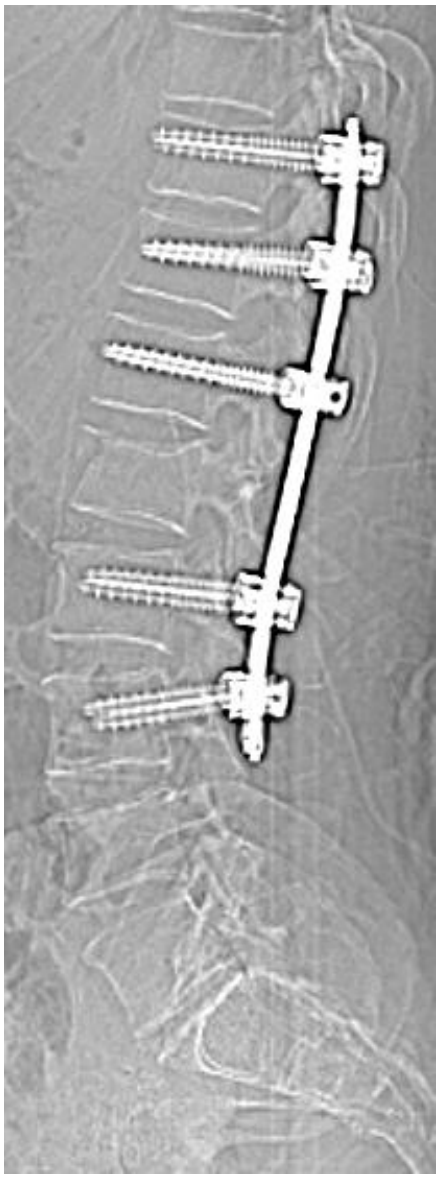
Indirekt decompression – traction for 20-30s in the OR (muscle relaxants!!!)

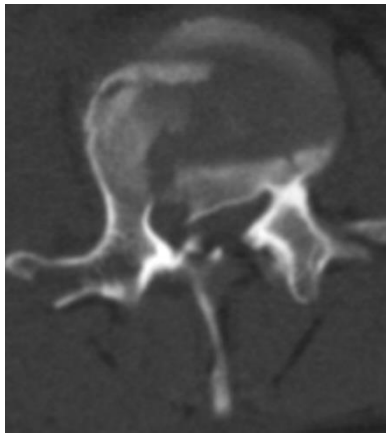
Indirect decompression – vertebra height increases

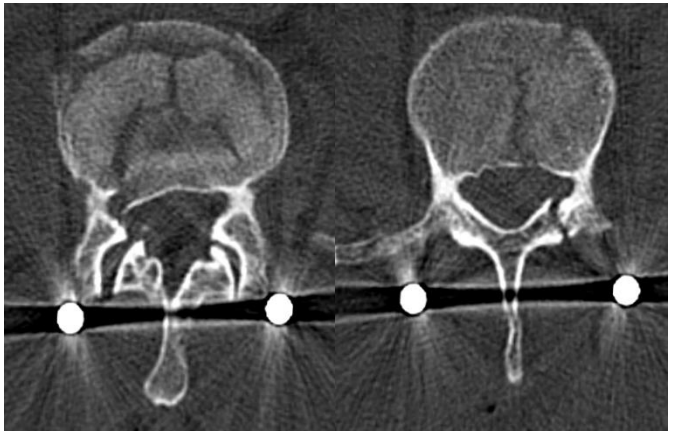


Increase in the size of spinal canal and the vertebral height

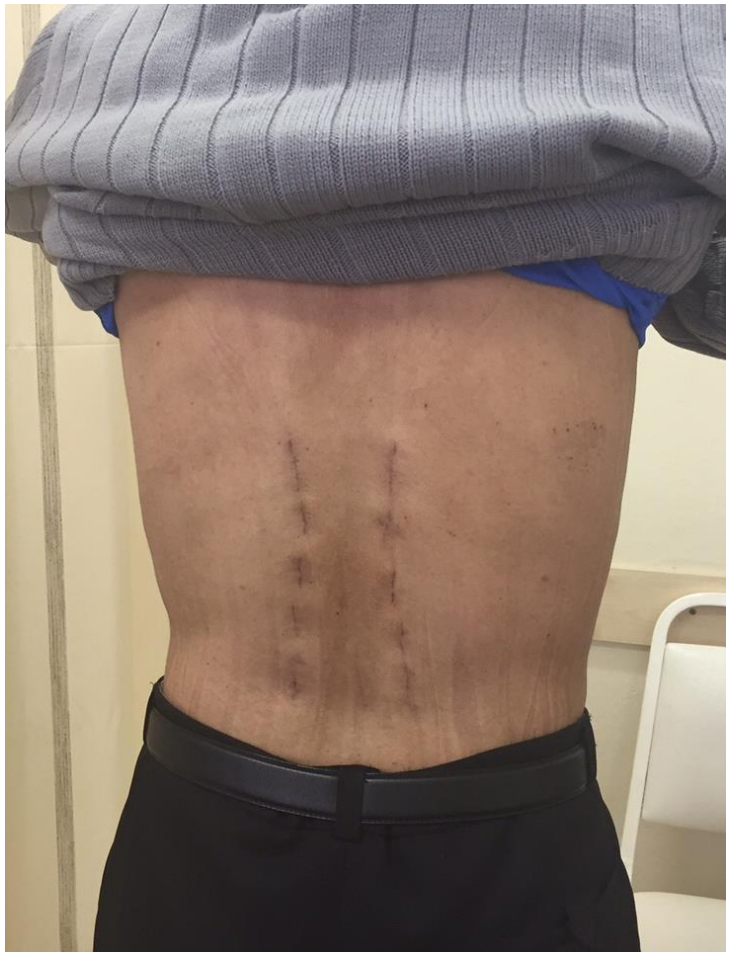


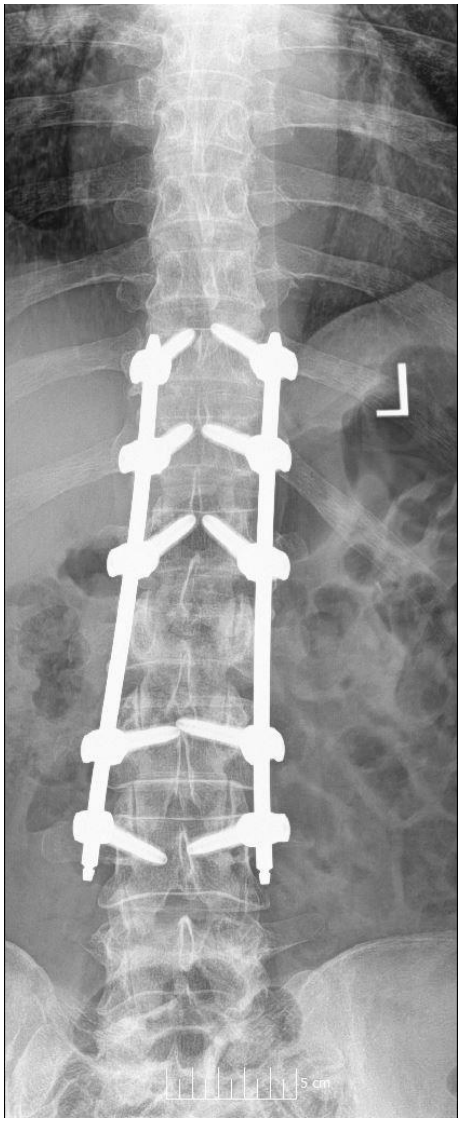


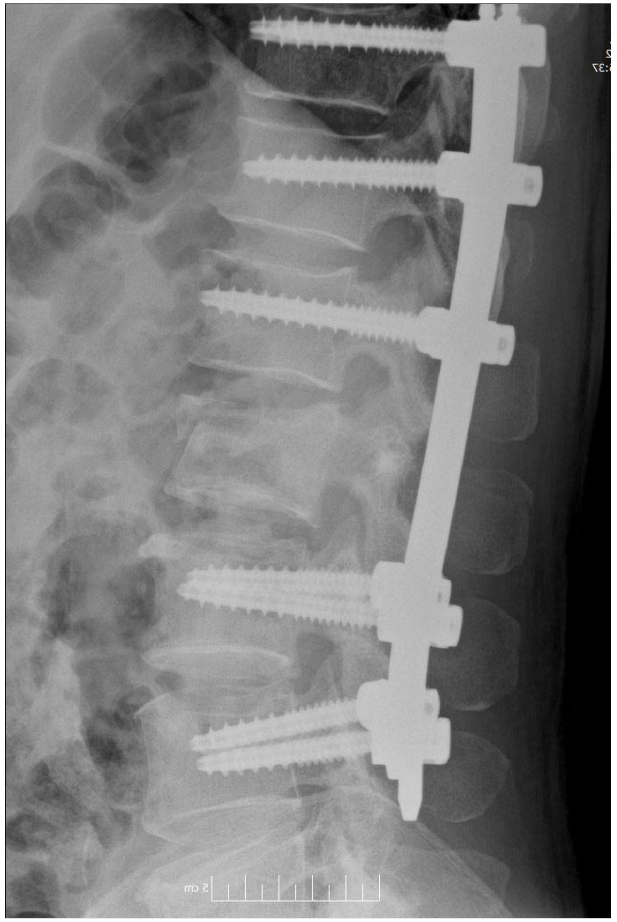




3 month control







Summary -MIS

- Damage control in polytrauma
- Minimal blood loss
- It can be done very fast in the OR
- Lower infection rate
- Indirect decompression

- Very limited need for open surgery in trauma