

To Fuse or Not to Fuse

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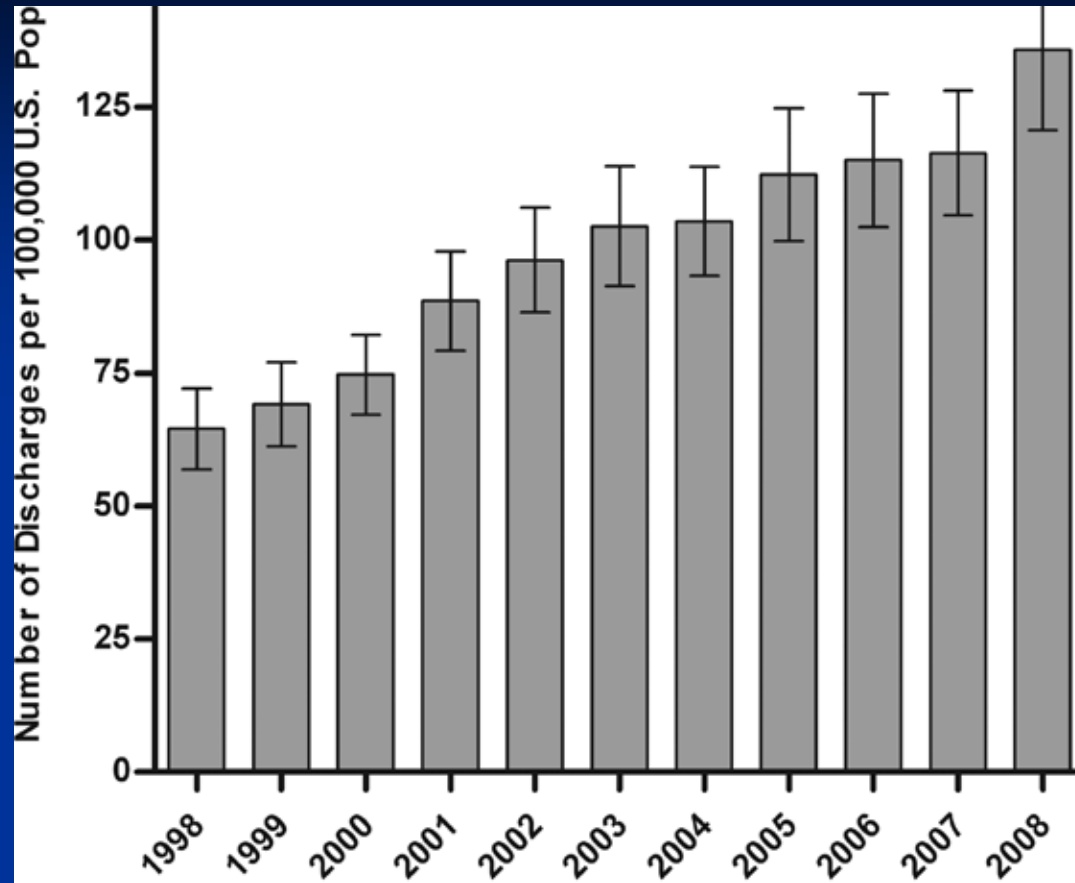
Expert Physician Evaluations, PLLP

Spine Surgeon

Twin City Orthopedics, PA



Spinal fusion in the USA



- Linear increase
- Large geographic variability
- Explosive, expensive technology

Spinal Fusion - Negative press

- n “An Operation to Ease Back Pain Bolsters the Bottom Line, Too,” NY Times, Dec, 2003
- n “With Costs Rising, Treating Back Pain Often Seems Futile, NY Times, Feb, 2004.
- n “Whistle-Blower Suit Says Device Maker Generously Rewards Doctors”, NY Times, Jan, 2006.

Indications for spinal fusion

n Loss of spinal integrity

- n Trauma
- n Tumor
- n Infection

n Progressive deformity

- n Developmental
- n Degenerative

n Pain alone

- n Responsible for the largest increase in volume

Loss of spinal integrity - Trauma

- n 54 y.o. painter fell 15 feet off of a ladder
- n Ambulance to ER
- n Right leg weak and numb

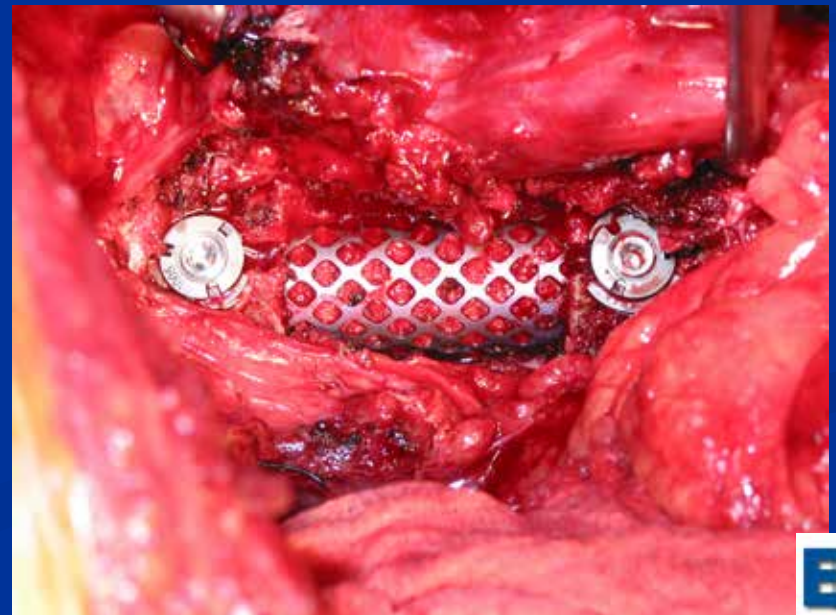
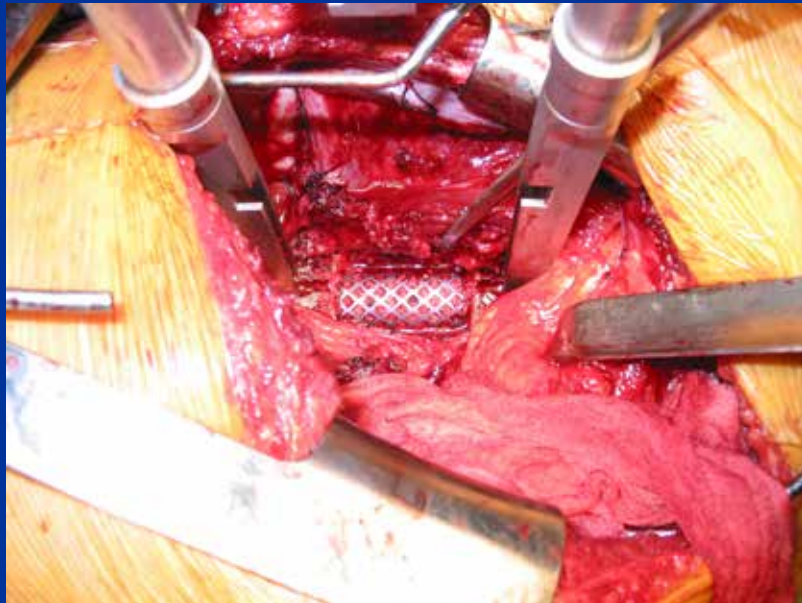
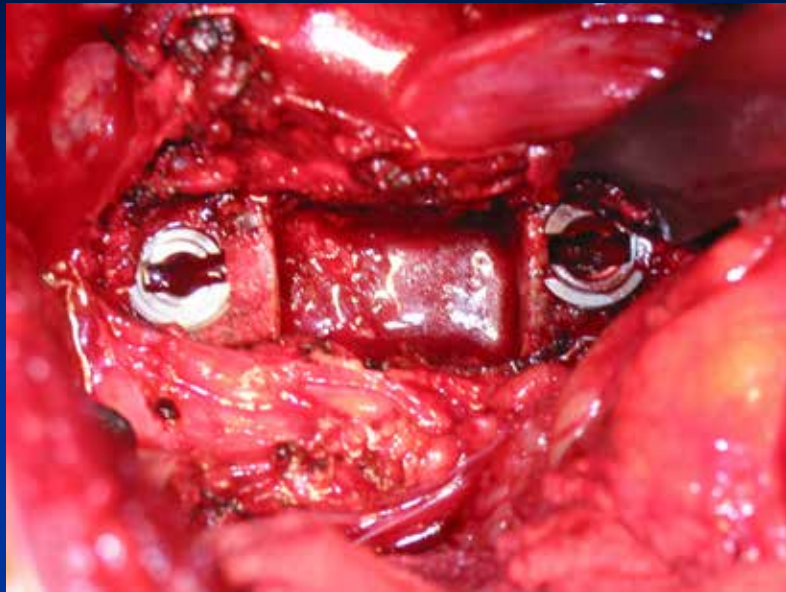
F.K. - plain x-rays



Discussion

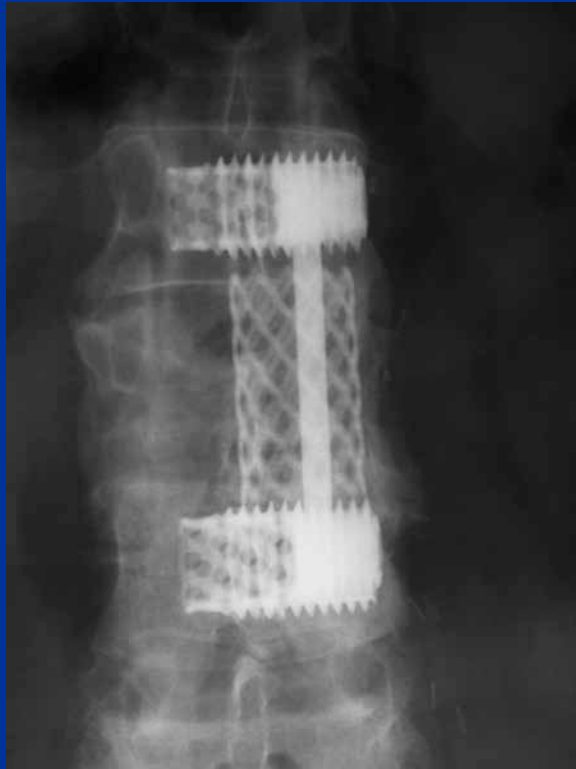
- n Not controversial
- n Obviously a work injury
- n Rare disagreement on treatment

Intraoperative



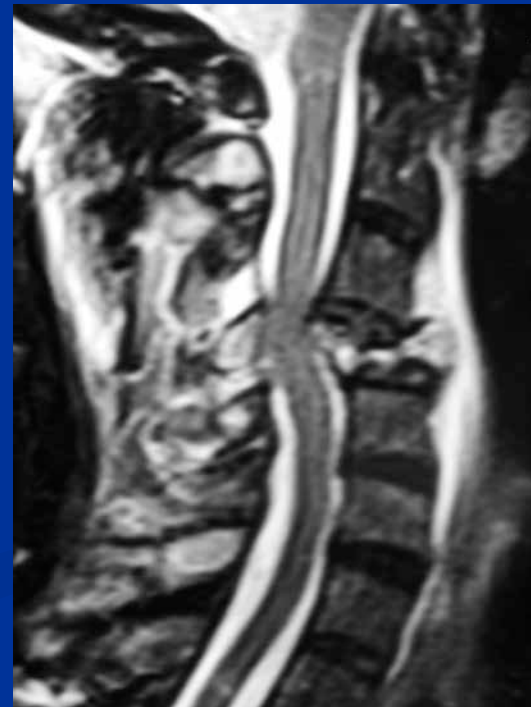
F.K. 20 months post-op

- n RTW 6 mos. after surgery
- n 35 # lifting limit



Loss of spinal integrity - Tumor

- n 54 y.o. female metastatic breast CA
- n Weakness all four extremities
- n Unable to stand
- n Unable to hold head up



Loss of spinal integrity - Tumor

- n Decompress spinal canal
- n Reconstruct spine anterior/posterior
- n Not controversial



Loss of spinal integrity - Infection

- § SL 63 y.o. male work related TKA
 - MRSA infection
 - Revised X 2 w/recurrence
 - Right AKA revised X 6
 - Progressive pain paraparesis

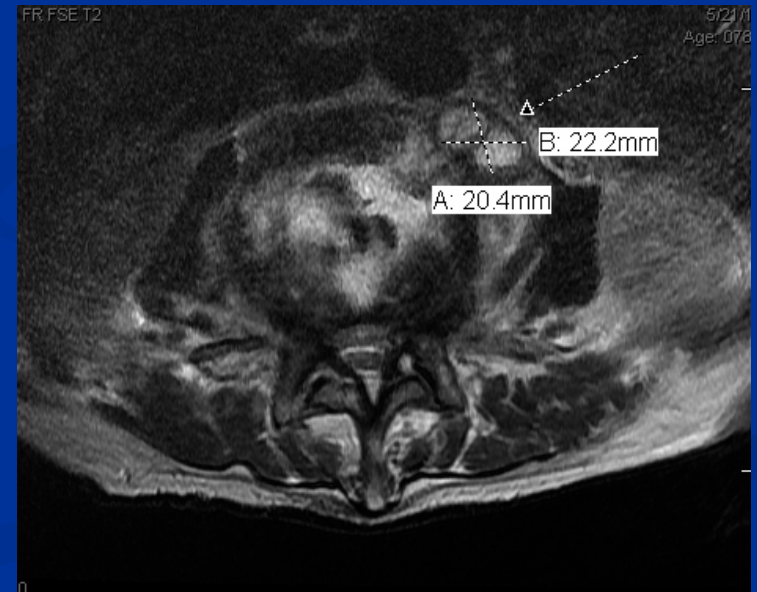
Discitis, Osteomyelitis, Psoas abscess

§ Not Controversial

§ Loss of integrity

§ Unstable

§ Neuro deficit



S.L. 3 months post-op



Sitting



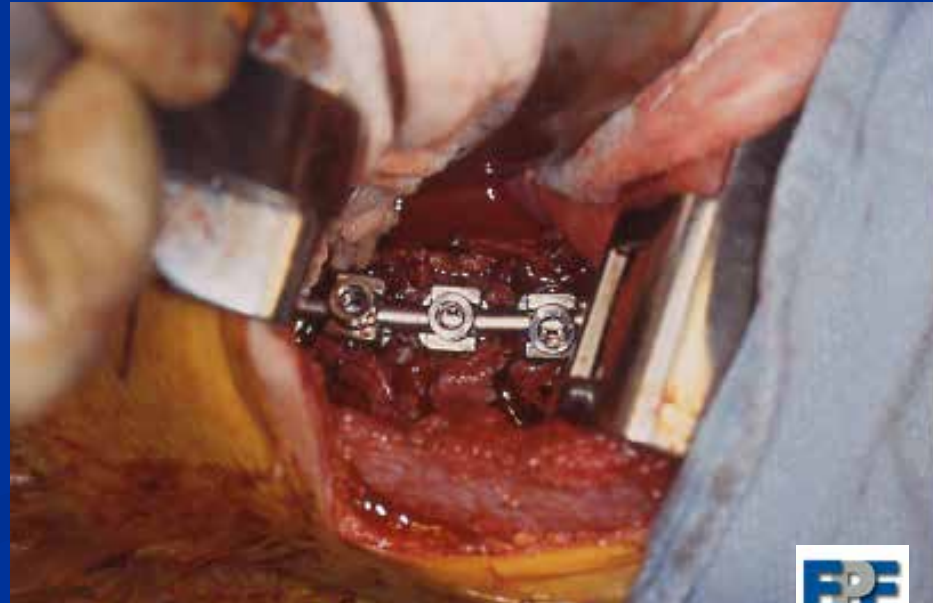
Sitting

Developmental deformity - Scoliosis



- n 12 yo, female, progressive deformity
- n Not controversial

Idiopathic Scoliosis



Idiopathic Scoliosis



Pre-op



Post-op

Idiopathic Scoliosis



Pre-op



Post-op

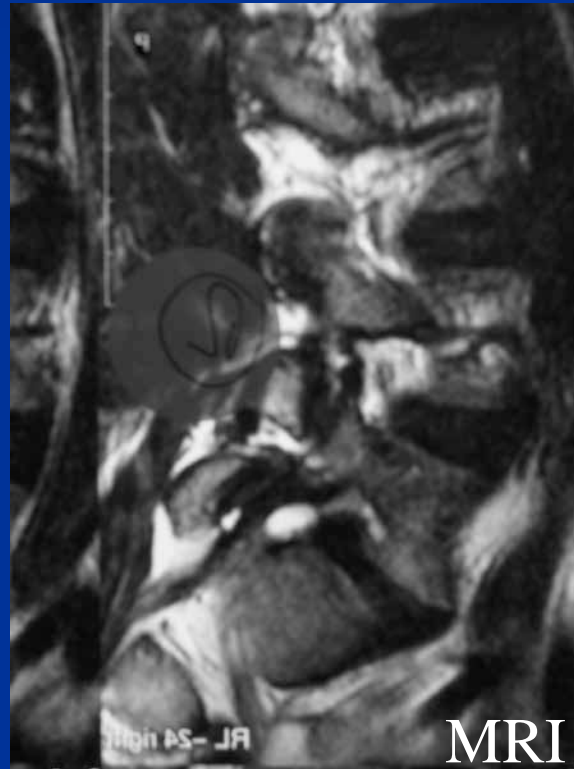
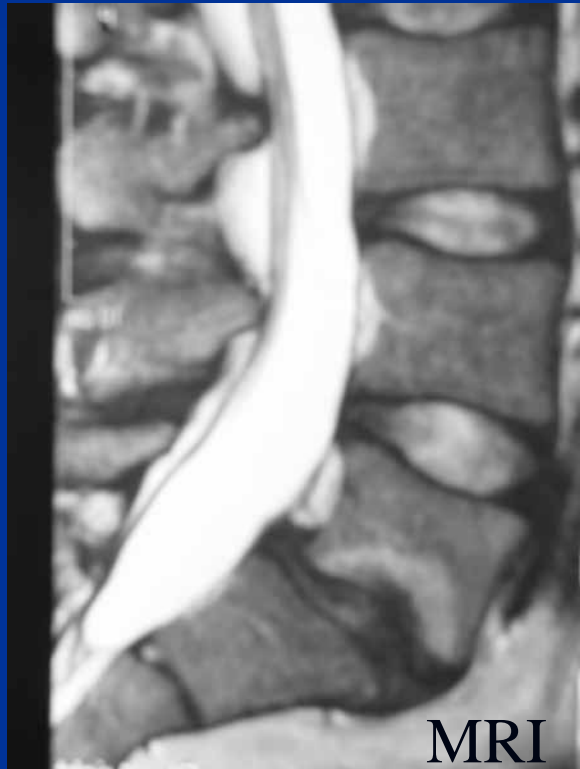
Developmental deformity - Spondylolisthesis

n JP 31 y.o. male

n Back and leg pain

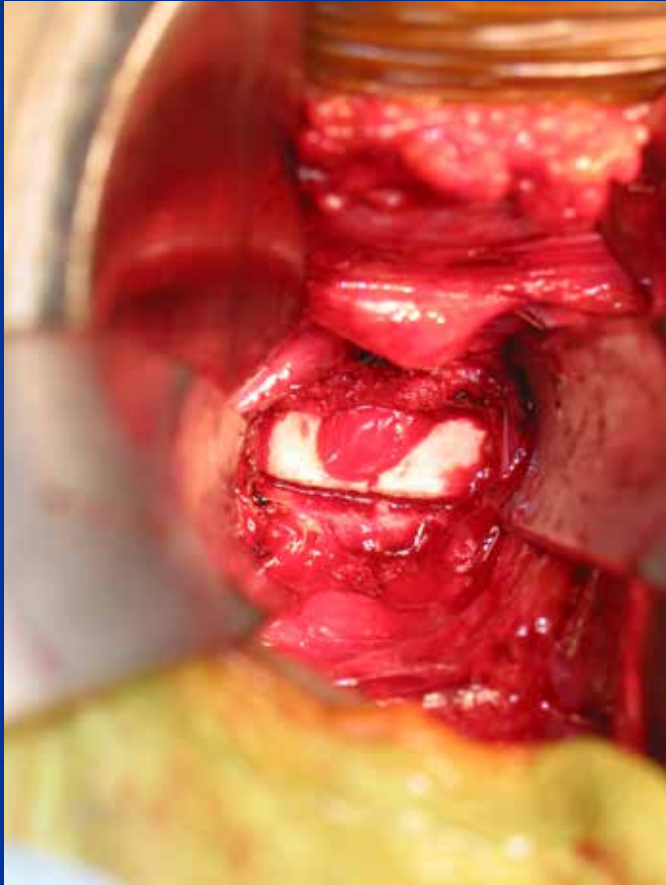
n Failed cons. care

n Not controversial

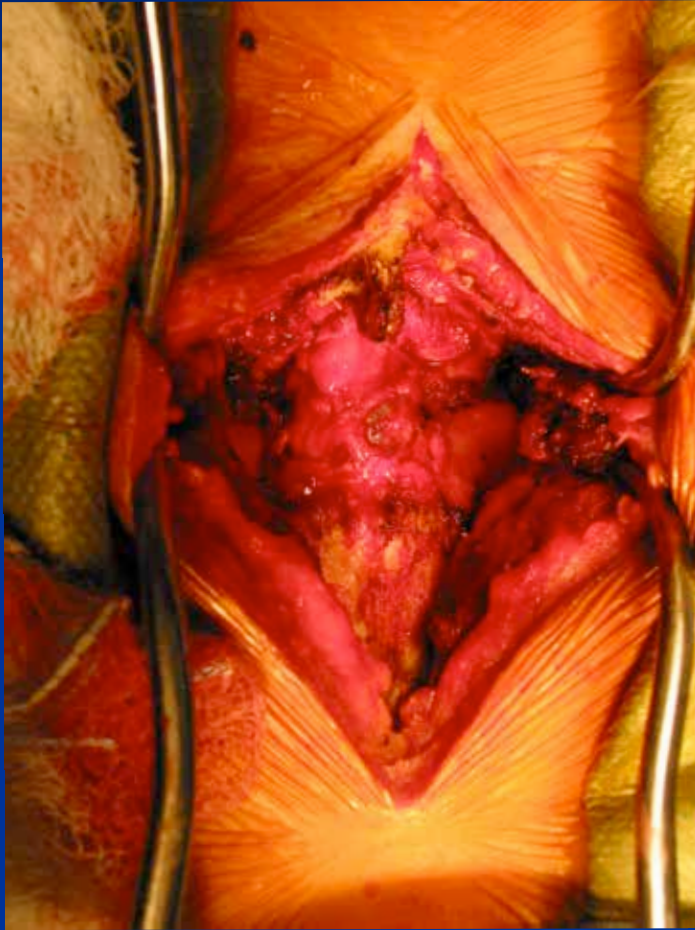


Developmental deformity - Spondylolisthesis

n ALDF w/femoral ring



Developmental deformity - Spondylolisthesis



- n Remove Gill body
- n Foraminal decompression



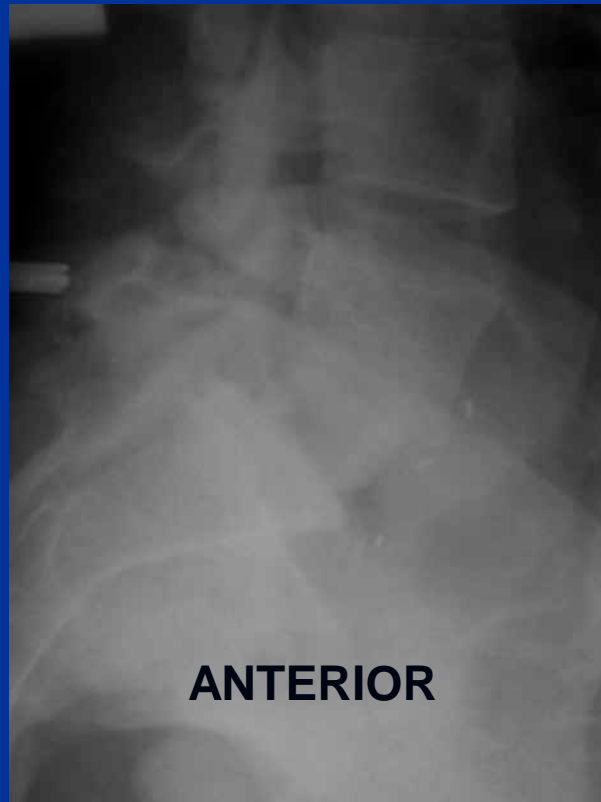
Developmental deformity - Spondylolisthesis

- n Instrument
- n Complete reduction



Developmental deformity - Spondylolisthesis

- n RTW 3 mo. after surgery
- n 35 # lifting limit 6 mo. after surgery



Spinal fusion for back pain

- n Very controversial
- n Indications are not clear
- n Outcomes are unpredictable
- n Vast majority of patients should be treated non-operatively

Good non-operative treatment

- n Reassurance
- n NSAIDS
- n Physical Therapy
 - n Trunk stabilization
 - n MedX type
 - n Aerobic exercise
- n Minimize narcotics
- n *Appropriate* injections
 - n Epidural or nerve root
 - n Facet joint
 - n Sacroiliac
- n Keep working
 - n w/restrictions



Bad non-operative treatment

- n MRI when not indicated
- n Narcotic medication
- n Complete disability
- n Trial & error injections
 - n Trigger point
 - n Facet blocks
 - n Epidural steroids
- n Discography

Spinal fusion for pain

n Positive factors

- n Significant Pathology
- n One or two levels
- n Normal weight
- n Non smoker or quit
- n Completed rehab

n Negative factors

- n Mild pathology
- n Multi-level involvement
- n Obese/Deconditioned
- n Smokes or otherwise chemically dependent
- n Work injury
- n Psychological issues
- n Childhood abuse
- n Incongruency signs

Determining the Source of pain

- n MRI
 - n Very sensitive
 - n Not specific
 - n Rarely normal
- n When to get one
 - n Leg pain
 - n Neuro deficit
 - n Failed cons. Care
 - n Symptoms > 6 wks.
- n Injections
 - n Epidural
 - n Nerve root
 - n Facet
- n Discography
 - n Controversial

Injections

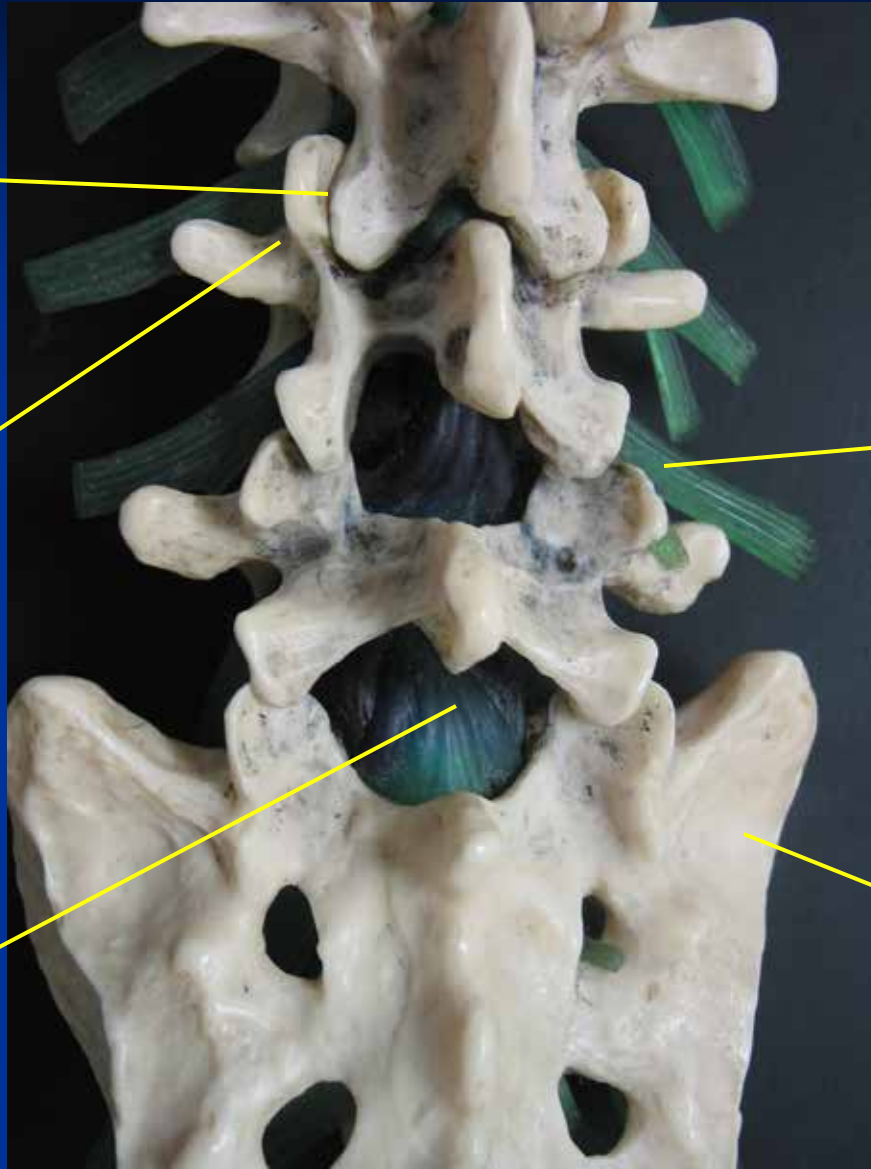
Facet block

Facet nerve block

Nerve root

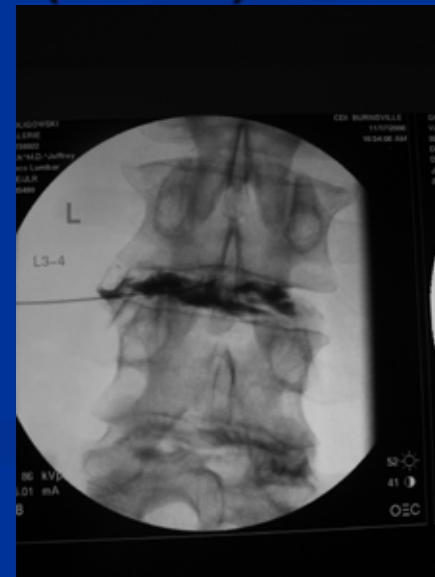
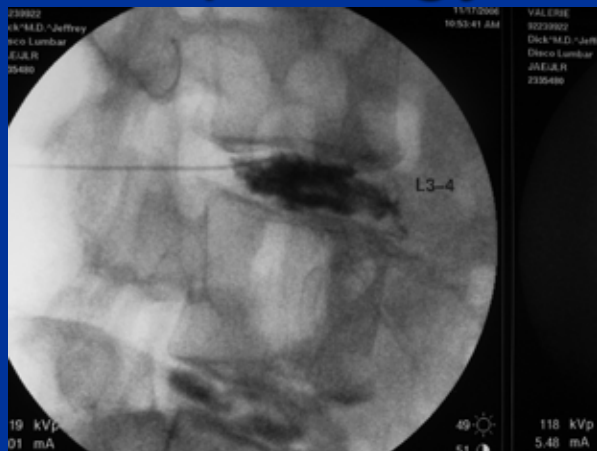
Epidural

Sacroiliac



Discography

- n Requires a skilled discographer
- n Pt. rates pain on 0-10 scale
 - n volume & pressure of injectant helpful
- n Concordant or non-concordant pain
- n Requires a control level (0/10)
- n Disc morphology



Discography

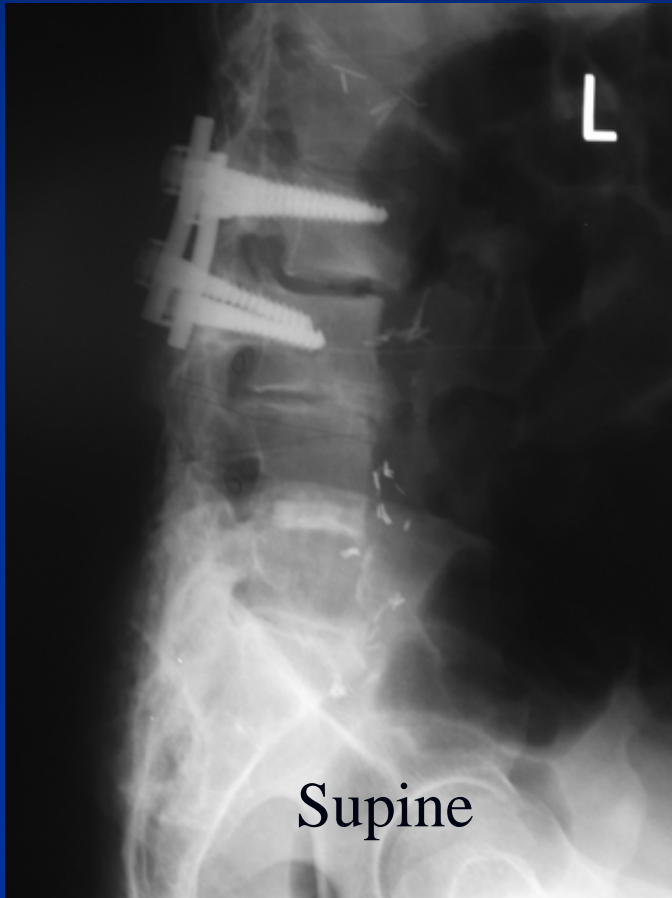
- Predicts positive outcome just 50–60%
 - Carragee, Spine, Aug. 2006.
- Accelerates disc degeneration
 - Should never be done unless pt. is fusion candidate
 - Carragee, Spine, 2009
- When used appropriately rules more patients out than in.
- The best predictor of outcome is pt. selection.

55 y.o. firefighter injured at age 25

- n Completely disabled since age 44
- n S/p ten lumbar surgeries.
 - n Decompressions
 - n Attempted fusion L2-Sacrum
 - n Epidural morphine pump for chronic pain
- n L2-3 fusion 10 mo ago
- n Worse than before last surgery
- n Never quit smoking
- n Brought in by QRC



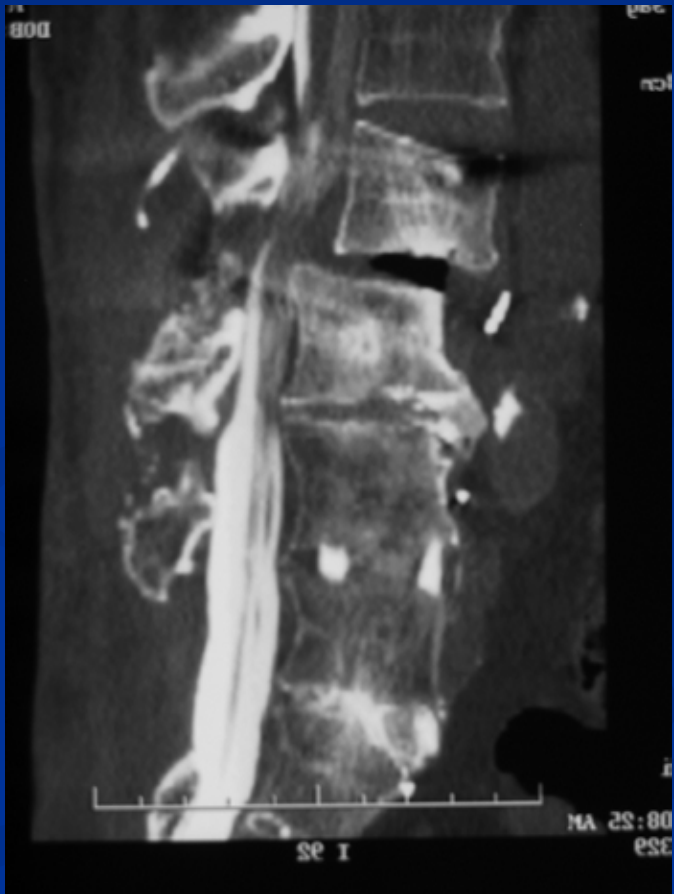
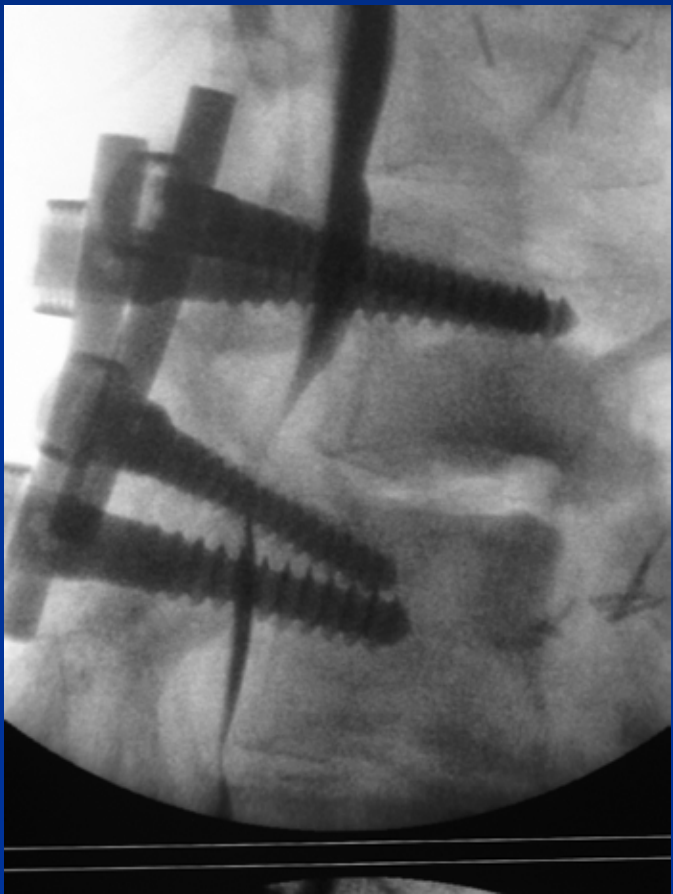
Loose hardware/instability



Pseudoarthrosis

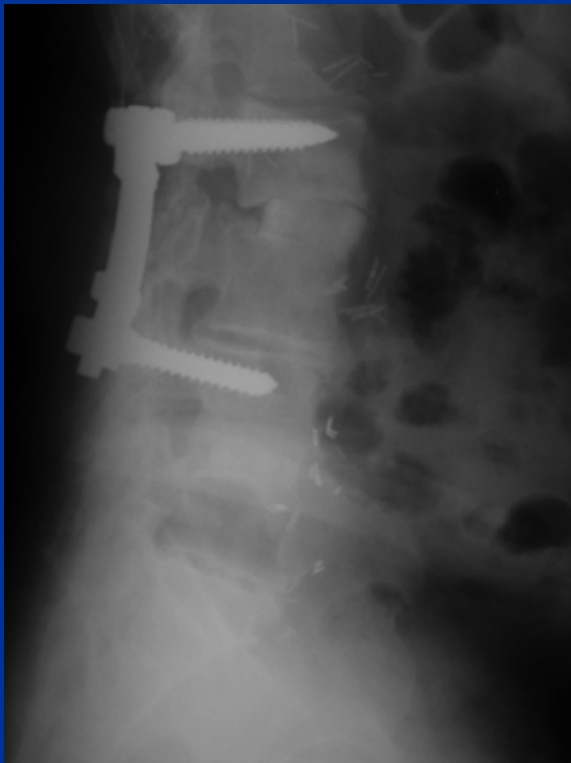


Spinal stenosis



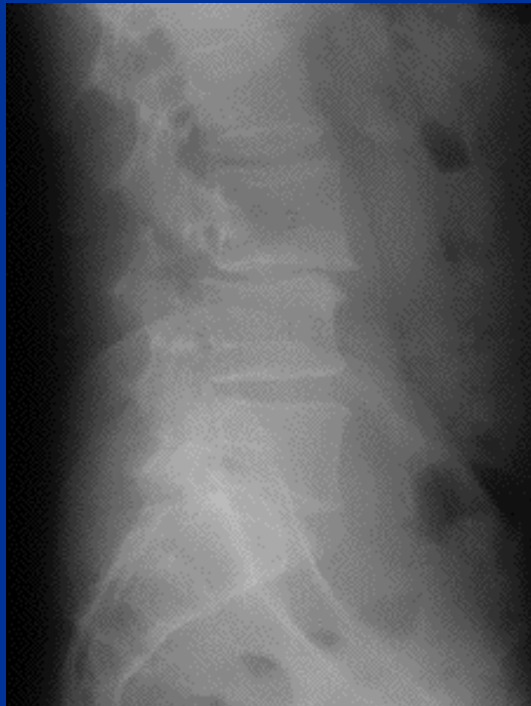
Treatment

- n Quit smoking
- n Revision anterior & posterior fusion L2-4
- n Femoral ring allograft
- n Infuse
- n Wean narcotics



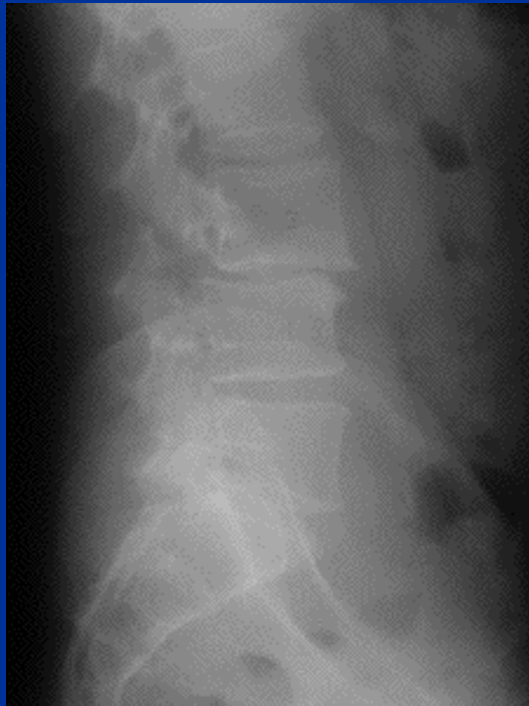
42 y.o. male Factory worker

- n Gradual onset low back pain
- n 10 pound lifting limit for 3 months
- n Failed NSAID, conventional PT
- n Doesn't like narcotic medication



Treatment L3-4 spondylolisthesis

- n Aggressive rehab program
- n MedX pre/post evaluation
- n 3 months supervised, home maintenance



Outcome L3-4 spondylolisthesis

- n 50% improvement
- n RTW Full time
- n 35# permanent lifting limit

37 y.o. male

- n School teacher
- n Six year h/o LBP
- n Work injuries X 2
- n 90% Back pain, 10% L buttock pain
- n VAS = 7 (back)
- n VAS = 7 (buttock)

M.K. Treatment

- n Anti inflammatory medication
- n Epidural steroid injections (2)
- n Vicodin 5-6 tabs per week X 5 mo.

M.K. Exam

- n 71 inches, 175 lbs.
- n Mild limitation active motion
- n Normal neuro exam
- n Negative incongruency signs

M.K. plain films



M.K. MRI



M.K. Treatment

- n Wean narcotics
- n MedX program
- n Fusion or TDR candidate?



M.K. Outcome

- n Completed MedX
- n VAS 6/10 (not much better)
- n No narcotics
- n Confident
- n “not afraid of pain anymore”
- n Went back to work

48 y.o. male - Similar pt. different Rx

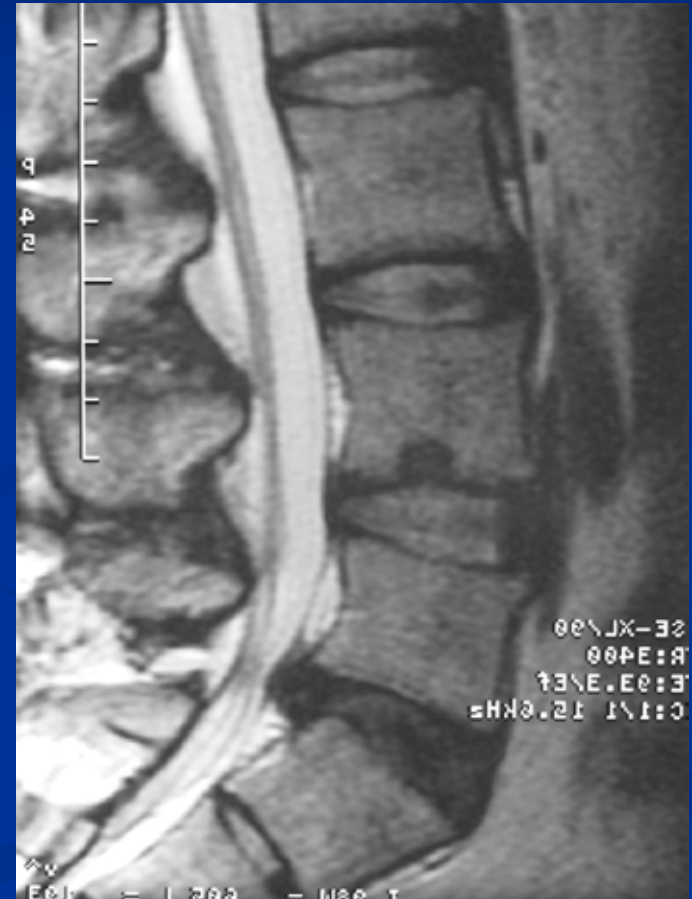
- n Head orthopaedic OR nurse
- n Four year h/o LBP
- n Discectomies X 2 (6 years ago)
- n 100% Back pain
- n VAS = 6 (back)
- n Former marathon runner
- n Never off work

Treatment

- n Anti inflammatory medication
- n 3 courses P.T. over years
- n Intermittent narcotics
- n MedX rehab.

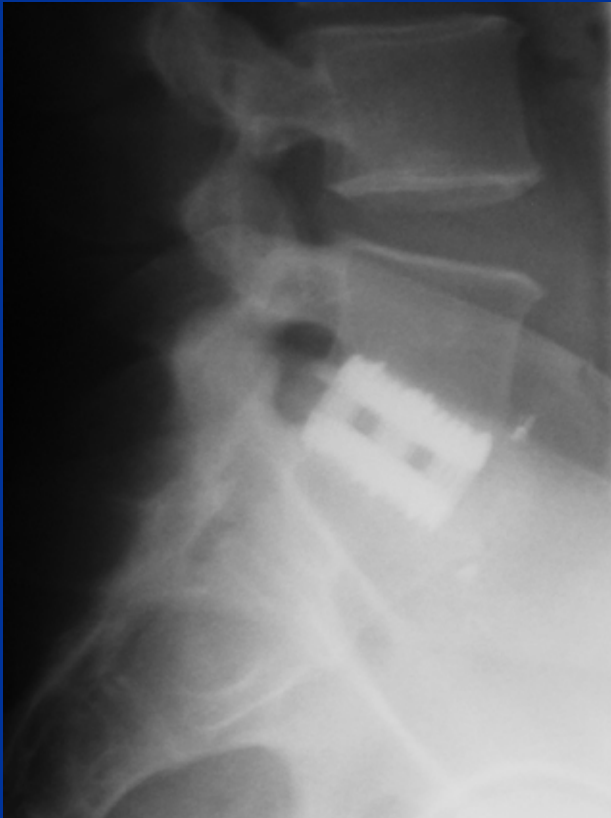
Exam

- n 73 inches, 190 lbs.
- n Mild limitation motion
- n Absent L Achille's reflex
- n Paresthesias L plantar foot
- n No incongruency signs



Anterior spinal fusion

- n Off work for 3 weeks
- n No restrictions after 4 months



Disability Recipe for LBP

- n Prescribe narcotics
- n Complete disability for weeks at a time
- n Get an MRI scan before six weeks
- n Order trial & error injections
- n Order only passive treatments with PT or DC
- n Ignore lifestyle factors
 - n Weight/diet
 - n Nicotine
 - n Exercise

If I owned a WC insurance co.

- n Double premiums
 - n Smokers
 - n Men > 20% body fat
 - n Women > 25% body fat
- n 20% discount
 - n 45-60 min exercise class.
 - n Injury prevention class
 - n Safety monitor
 - n Only providers with good outcomes.

Thank-You

