

Who Should Have An Operation For Degenerative Scoliosis?

Mr M J H McCarthy
AO Spine Cardiff
November 2011



Aims / Objectives

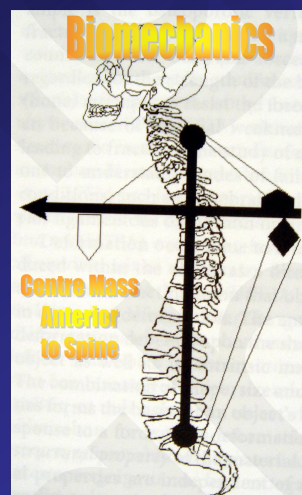
- Degenerative scoliosis is a complex disorder. The primary surgical aims are to decompress the neural elements, normalize both sagittal balance and coronal and rotational deformity, fixate to the sacrum/ilium when appropriate, and optimize conditions for osteogenesis and fusion.

AO Principles

- Anatomic Reduction
- Stable Internal Fixation
- Atraumatic Technique
- Early Active Mobilisation

Clinical Instability

The loss of the ability of the spine under physiological loads to maintain its pattern of displacement so that there is no initial or additional neurological deficit, no major deformity and no incapacitating pain



Goals for Surgery

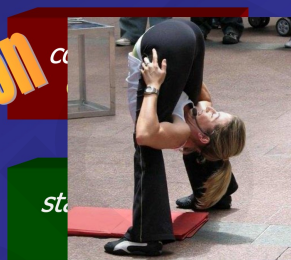
Neurology

clearance of canal compromise

Prevention of neurological deficit

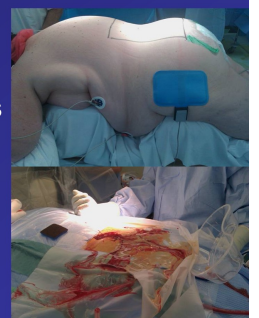
Realign
Stabilize
Decompress
Prevent Late Pain / Deformity

Biomechanics



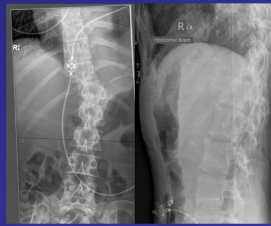
The Personalities

- Personality of the patient
 - Age
 - Comorbidity
 - Bone stock
 - Energy of injury / other injuries
 - Time since injury



The Personalities

- Personality of the fracture
 - Canal compromise
 - Neurologic compromise
 - Kyphosis
 - Anterior collapse
 - Progression



Munted

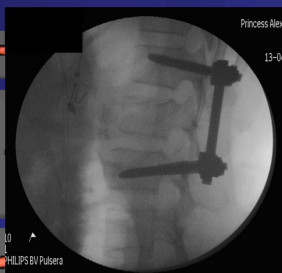
The Personalities

- Personality of the surgeon



Anterior or posterior surgery

Posterior surgery is mainstay



posterior approach technically easy low morbidity

short segment pedicle fixation reduction of deformity & canal compromise

posterior approach Important for dislocation / realign

Anterior or posterior surgery

posterior fixation cannot provide anterior column support

Corpectomy direct cord decompression vs. posterior indirect

Cons: Infrequent Specialist Training

Anterior surgery for significant anterior comminution

correction of deformity

stabilization of instability

- Posterior
 - Realign
 - Restore Tension Band
 - Ligamentotaxis
 - Indirect Canal Decompression
- Anterior
 - Column support
 - Decompression
- Posterior Qs
 - Short or long
 - +/- Fracture screws
 - +/- Cross Links
 - Decompression
 - Fuse
- Anterior Qs
 - Structural Allograft
 - Cage Autograft
 - Expandable Cage
 - Rods or Plate

Aims / Objectives

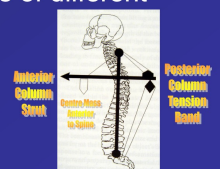
- Fixation
 - Front, Back, Both
 - Does it matter?
- Describe the aims of surgical fixation in the spine
- Explain the rationale and mechanics of different approaches
- Summarise evidence of outcome

Depends on #

Realign Stabilize Decompress Prevent Late Pain / Deformity

Realign, stabilise, decompress

Pick your paper AO A3 #3 P...



Conclusion

- Fix Early (if you are going to fix!)
- Realign Posteriorly
 - Make sure the pedicles are big enough to screw
 - Indirect Decompression
- Do Anterior Surgery Electively



Absolute Indications for Surgery

- Indications for decompression
 - Worsening neurological deficit in the presence of demonstrable neural compression despite attempts at postural reduction
- Indications for stabilisation
 - All cases requiring decompression
 - Complete ligamentous disruption associated with dislocation
- Open Thoracolumbar burst fractures
- Patient with complete neurological deficit
- Multiply injured patient

Relative Indications for Surgery

- Decompression surgery (+ stabilisation)
 - Dynamic neurology
 - Stable incomplete neurology in presence of demonstrable neural compression
- Stabilisation surgery
 - Loss of anterior body height >50%
 - Kyphosis >20-30 degrees
 - Canal stenosis >50%
 - Disruption of posterior ligamentous complex

“Accepted” Indications for Surgery Thoracolumbar Burst Fractures

- Progressive neurologic deficit
- Progressive kyphosis ass. with neurologic deficit
- CT evidence of spinal canal compromise associated with an incomplete neurologic deficit
- Greater than 50% loss of vertebral body height
- Kyphosis greater than 30 degrees at level of #
- Spinal canal compromise greater than 50%

J Spinal Disord. 1990 Mar;3(1):39-46.

Results – Poor Bone

