PEDICLE SUBTRACTION OSTEOTOMY

ARE THE COMPLICATIONS TOO MORBID?

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DISCLOSURES

- Globus – Royalties
- I AM NOT an expert on PSO’s
- I AM (unfortunately) an expert at complications
- I don’t want any complications
- Obama is watching

69 YR OLD MALE. BACK PAIN, RIGHT L3 RADICULOPATHY

- 2010: DEXA Pre-op: T-2.1, Z-0.8
- 2011 Pain Rating: 7 back, 6 leg
- 2013 ODI: 48
OSTEOTOMY HISTORY

• Bridwell, Spine 2006
• SPO 1945 – Smith-Petersen et al, J.B.S
• SPO 1985 – Koolstra, J.B.S
• SPO 1988 – Koolstra, Spine
• Bridwell et al, Spine
• Osteotomy or flexible disk space

• PSO 1985 – Thomson, Clin Ortho
• PSO 1991 – Servat et al, Spine
• SPO 1985 – Smith-Petersen et al, JBJS
• PSO 2000 – Bridwell et al, J.B.S
• Vertebral Column Reection (short segment thoracic kyphosis, fusion)

OUTCOMES OF PSO

• Deformity surgery outcomes scores generally are EXCELLENT
• HRQOL (Bridwell, 2010)
• Pain score (VAS, NPRS)
• ODI (Kim, Bridwell, Lenke, Spine 2007)
• SRS Score
• NDI (Tokala, Spine J 2007)
• SF scores (Kim, 2007, Bridwell, 2010)
• Restoration of lordosis (multiple)
• Improvement C7 Plumb (multiple)

• Non-Operative doesn’t work, (Bridwell, Spine), Schaer, Neurosurgery, 2013; (Bru, Brash, Ochsner, 2014)

SO… WHY ARE WE HERE IF THE OUTCOMES ARE SO GOOD??

CLASSIC CNN TECHNIQUE OF DATA ANALYSIS

• “There was no mortality in this series”, Neurosurgery, 2008
• “Estimated blood loss was 3,586”), “Mean operative time 15.9 hours”, J. Neurosurg, Spine 2006
• “A total of 4% of patients experienced at least 1 major complication”, “16% had unplanned surgery within 30 days”, Spine Deformity, 2011
• “Poor spinopelvic alignment occurred in 22%”, Int. Spine Study Group, Eur Spine J, 2011
• “The prevalence of PJK was 23%”, J Kor Neurosurg, 2010
• “There were three perioperative deaths”, “three with permanent foot drop”, “one with paraplegia”, Global Spine J, 2015
• “Incidence of rod fracture was 16.2%”, Scoliosis, 2015
• “A total of 14 major complications occurred in the 12 patients”, Spine Deformity, 2013
• “29% pseudoarthrosis rate”, Spine 2007
HOW CAN WE MAKE THIS BETTER?

- Two surgeons vs. One surgeon
  - Ames et al, Spine Deformity, 2013
  - Partial PSO (Spine 2013; 2015)
  - Minimally invasive scoliosis surgery and Hyperlordotic Cage placement
  - Partial PSO (Spine 2013, 2015)
  - Minimally invasive scoliosis surgery and Hyperlordotic Cage placement
  - Other: Osteotomy Options (Spine 2005)
  - 50% less EBL
  - Exact same clinical outcomes
  - 69 year old male, back pain, right L3 radiculopathy
  - 2010 DEXA Pre-op: T-2.1, Z-0.8
  - 2011 Pain Rating: 7 back, 6 leg
  - 2011 ODI: 48

CAN WE IGNORE SAGITTAL BALANCE SOMETIMES??

- Are we chasing our tail?
  - Pseudoarthrosis
  - PJK / Adjacent segment disease
  - EBL / ICU / Infection / Readmission
  - How much is GOOD ENOUGH?