TLIF in Pediatric Deformity

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Co-Chairs: David Skaggs, MD, Lawrence Lenke, MD
Denver, CO
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1:15pm – 4:35pm
I. Introduction
   a. All posterior approach
      i. Segmental screws
      ii. Osteotomy
      iii. TLIF
      iv. Biologics
      v. Ready for everything done through one posterior approach
   b. Four Critical Issues with Fusions to Sacrum
      i. Secure posterior segmental instrumentation
      ii. Secure lumbosacral instrumentation (iliac screws)
      iii. Sagittal & coronal alignment/balance
      iv. ALIF vs. PLIF vs. TLIF for L5-S1/±L4-5
   c. TLIF vs. ALIF
      i. Differences/Advantages
         1. Unilateral approach for thorough discectomy/grafting
         2. Minimal dural retraction
         3. Maintain midline structures
         4. Annular incision occurs in Foramen or slightly more lateral (or medial at L5-S1)
         5. Less epidural bleeding lateral – watch out for exiting root ganglion irritation
      ii. Debate
         1. Battle anterior girth (vessels) vs. posterior dura????
         2. Same posterior approach – patient driven!
         3. 1 or 2 levels ideal, 3 levels max
         4. Same level(s) as required for stenosis decompressions esp. lateral recess/foraminal of concave fractional LS curve (L3-4/4-5/5-S1)
         5. Combine with ALIF L5-S1 if necessary
         6. More difficult with long fusion to L4/L5, to perform L5-S1 “Distraction”

II. TLIF Indications
   a. Ambulatory patients with fusion to sacrum
   b. Medium/high-grade spondylo
III. Surgical Technique
   a. Unilateral complete facetectomy
   b. Annulus exposure
   c. Epidural vein control!
   d. Distraction key for structural grafting
      i. 4 distraction steps
         1. Interspinous/laminar
         2. Contralateral screws (temp rod)
         3. Ipsilateral screws
         4. End phase
   e. Nerve root retractor
   f. Surgeon working zone
   g. Interspace/endplate distractor
   h. Discectomy/cage templating
      i. Thorough
      ii. Anteriorly positioned cage
      iii. Posterior compression after cage placement → lordosis!

IV. Limitations
   a. Maximum 3 (?)
   b. Osteoporosis – poor distraction/endplate penetration/screw loosening
   c. Marked ↑ lordosis needed (esp. L4-S1) but can make up with SPO/PSO!
   d. No decompression needed (avoid canal!)
   e. Extremely triangular disc with ↑↑ anterior vs posterior height/anterior slip
   f. Prior long fusion to L5 – tough to “distract” L5-S1

V. TLIF for Deformity
   a. Almost any lumbar level can be approached via TLIF technique
   b. TLIF appears equally efficacious as ALIF at bottom of long constructs
   c. Exposure/control epidurals/distraction are technical keys
   d. Key technical component for everything done through one posterior approach!
L5-S1 SPONDYLOPTOSIS

POST REDUCTION
PSF L4-SAC

TLIF L4-5 & L5-S1
Bibliography


