SHILLA: Techniques, Tips and Tricks

Scott J. Luhmann, M.D.

Associate Professor
Department of Orthopaedic Surgery
Washington University School of Medicine
Chief of Spine Surgery, Shriner’s Hospital
St. Louis, Missouri

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Disclosures

• Speaker’s bureau for:
  – Medtronic Sofamor Danek
  – Stryker Spine

• Consultant for:
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  – Stryker Spine
  – Orthofix
  – Depuy Synthes

• Royalties:
  – Globus Medical
SHILLA

- 3 topics
  - Metallosis
  - Rod breakage
  - Implant prominence

Pictures: Rick McCarthy
Metallosis:
Shilla growing rods in a caprine animal model: a pilot study
McCarthy RE, Sucato D, Turner JL, et al
CORR 2010

- 11 2 m/o immature goats
- Spines harvested at 6 m p-op
- Mean axial growth over construct: 48mm
- No apical spinal stenosis
Shilla growing rods in a caprine animal model: a pilot study
McCarthy RE, Sucato D, Turner JL, et al
CORR 2010

- No implant failure
- Minor wear at rod/screw
2+9 years post-implantation

Wear: Dorsal > Ventral

Wear: Caudal > Cephalad

Wear Patterns: Rods matched set screws
2+9 years post-implantation
Shilla growing rods in a caprine animal model: a pilot study

McCarthy RE, Sucato D, Turner JL, et al
CORR 2010

• Posterior
  – SHILLA screws (cephalad and caudal)
    • Metallic debris in soft tissues
    • Moderate to extensive inflammatory reaction
  – Apical (fused) segment: no debris
Shilla growing rods in a caprine animal model: a pilot study
McCarthy RE, Sucato D, Turner JL, et al
CORR 2010

- Anterior lymph nodes
  - SHILLA screws (caudal): Metallic debris
  - Apical (fused) segment: no debris
- Systemic dissemination: unknown
- Not a synovial joint
- Design improvements
SHILLA: Rod Breakage

• Do Shilla Rods Have Acceptable Complications and Fewer Surgeries?
  McCarthy RE, Luhmann SJ, Lenke LG, McCullough FL; SRS 2009
    – Rod breakage more common in:
      • Active, ambulatory children
      • 3.5 mm SS rod

• 4.5 better than 3.5
• Is 5.5 better than 4.5?
• Would rather replace broken rods than failure of bone-screw interface.
SHILLA: Rod Breakage

14.5 yrs
4.5 yrs post-SHILLA

7 y/o

12 y/o

Majority of rods break caudal to apical fusion
Apical Fusion

2 level

3 levels

4 levels
Intercalary SHILLA Screws
SHILLA: Rod Breakage

7 y/o male
NF
3-level apical fusion
6 months postop
SHILLA: Implant Prominence

- Fully seat all pedicle screws
- Larger rod size means more prominence
- Rod contouring:
  - Cephalad: bend into more kyphosis
  - Caudal: bend into lordosis
- Leave 1 inch of rod at top and bottom of construct.
5 ½ years s/p T3-L3 Shilla:
1 reoperation

6 y/o male
6 wks postop

3 y postop

4 1/2 y postop

s/p revision
11+5 yrs
Implant Prominence

5.5 SHILLA

4.5 SHILLA

5.5 CMAS
Thank you