

Non-Fusion Growth Directed Procedures

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Growth Guidance

- What is it?
 - A technique for growing rod treatment of spinal deformities that has come from an understanding of 3 basic premises regarding this problem

Premise #1

- The spine itself (not an external driver) has the potential for growth and therefore the force to correct the problem
- The problem = loss of truncal height



Premise #2

- If the apophyses are turned from vertical to horizontal they will contribute to truncal height



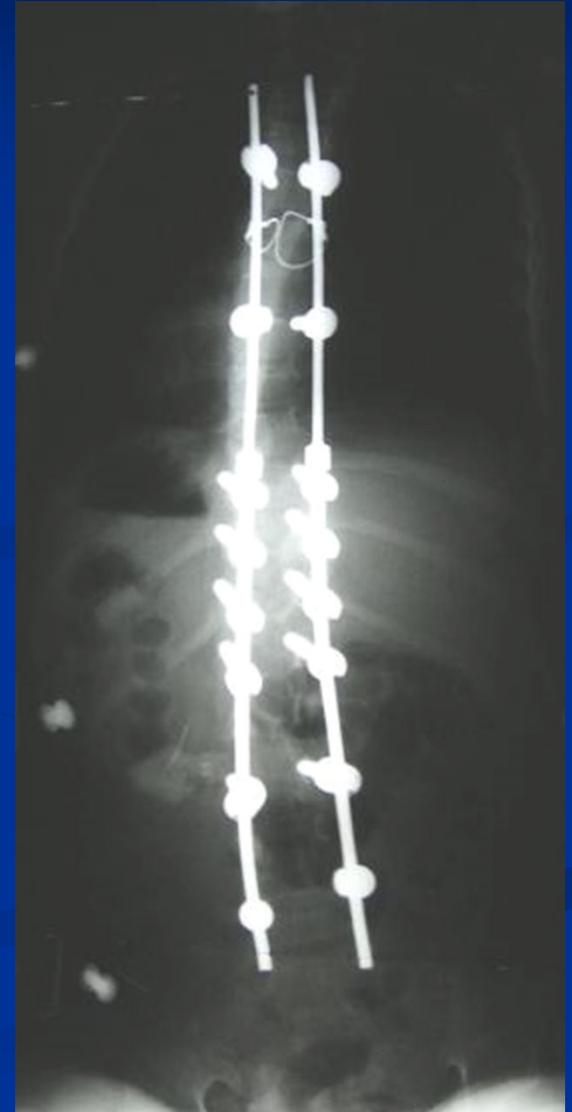
Premise #3

- The apex is the driver of the 3-D components of the spinal deformity
 - The ends of the curve are normal growth centers
 - The apex is where the pathology resides

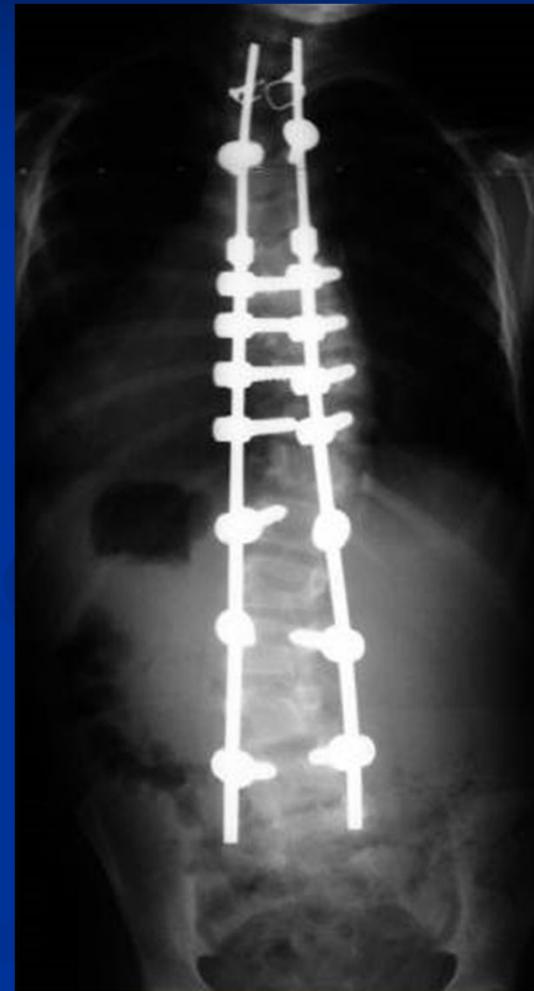


Conclusion

- Correct the apex in all planes and guide the ends of the former curve to continue growing vertically



Shilla was developed from these principles



Historical

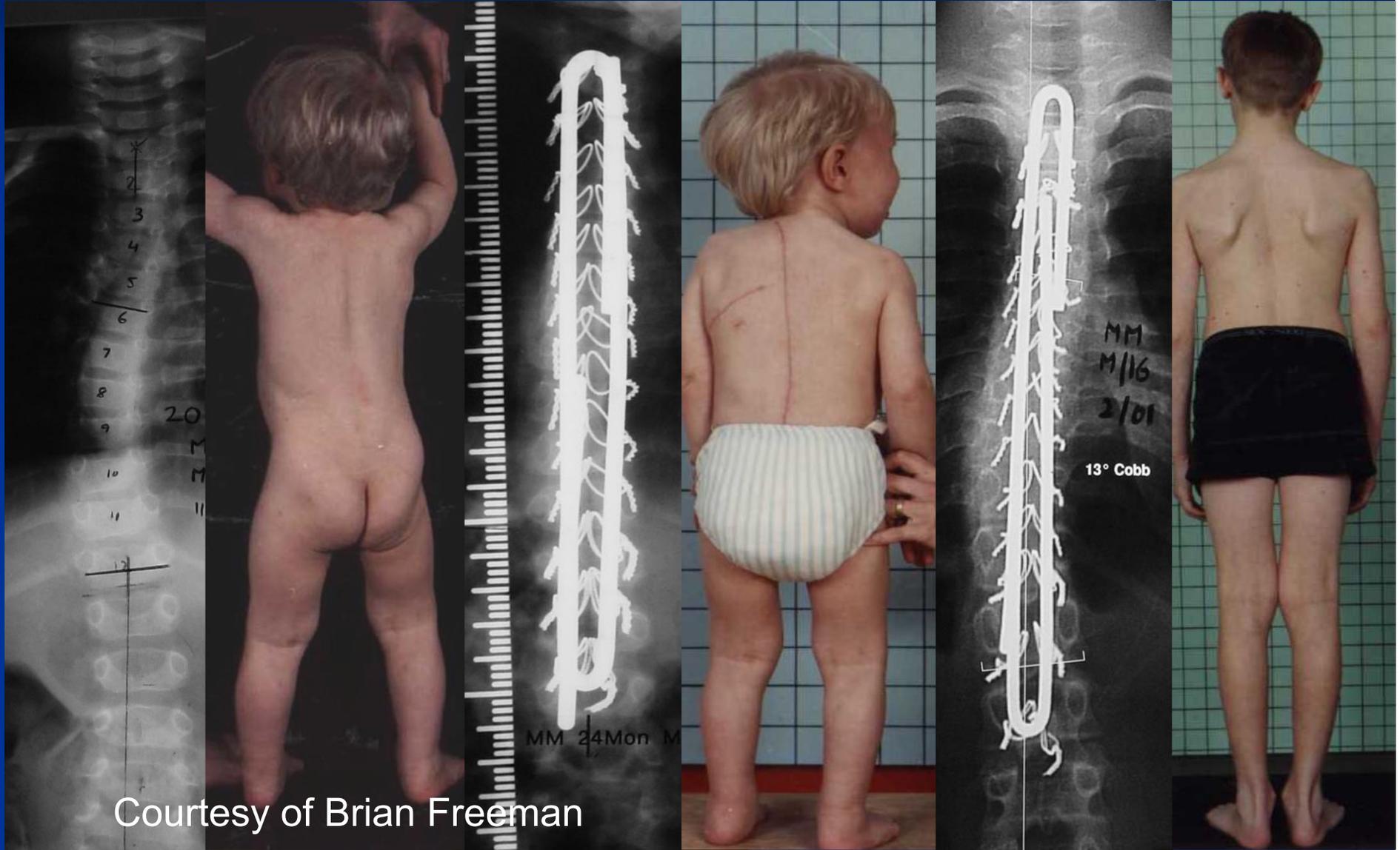
Luque Trolley

- A grow guidance system

1 yr

2 yrs

16 yrs

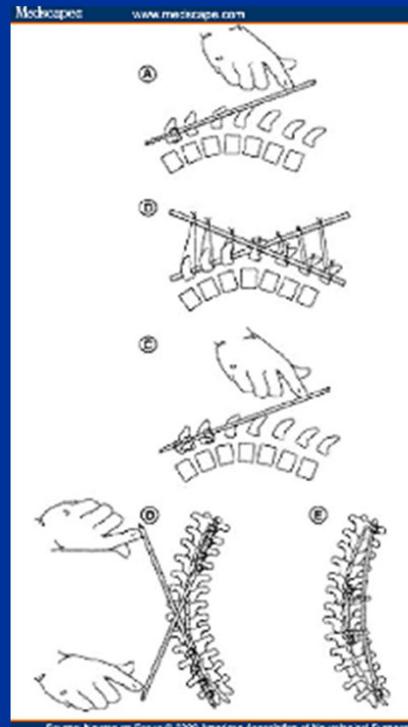
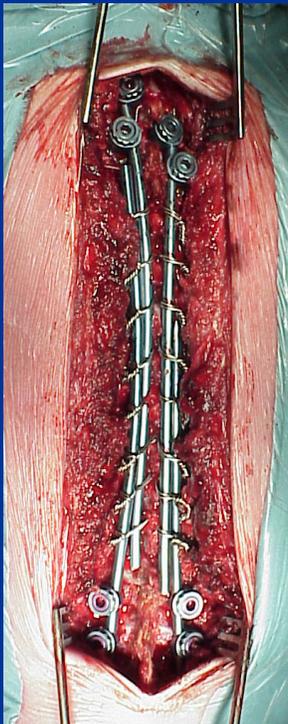


Courtesy of Brian Freeman

Luque Technique

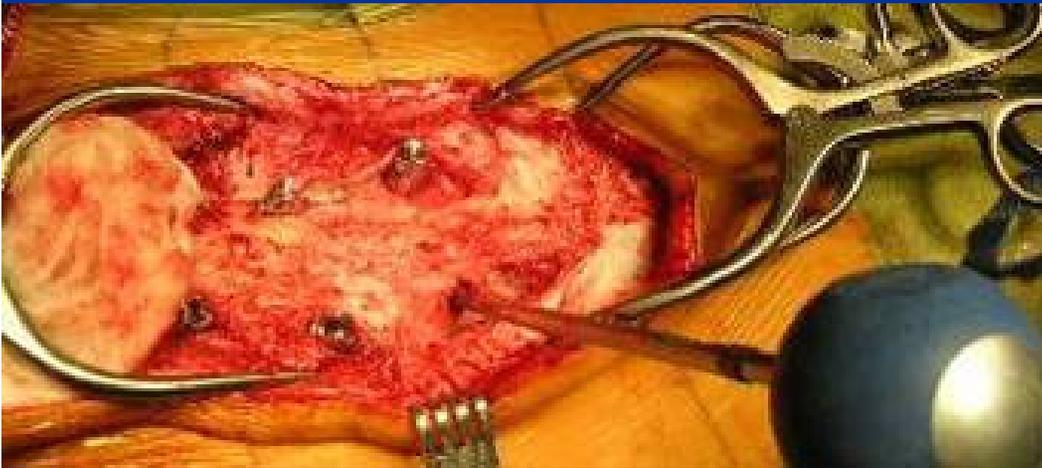
Problem:

- Failed to consistently harness growth due to faulty anchor placement



Technique to supply functional anchors

- Extraperiosteal placement – from muscle layer
- Firm pedicle screw fixation



Technique

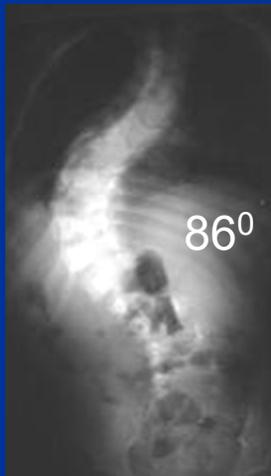
- Multiaxial screws capture rods without binding therefore slides
- Rod fixed at apex



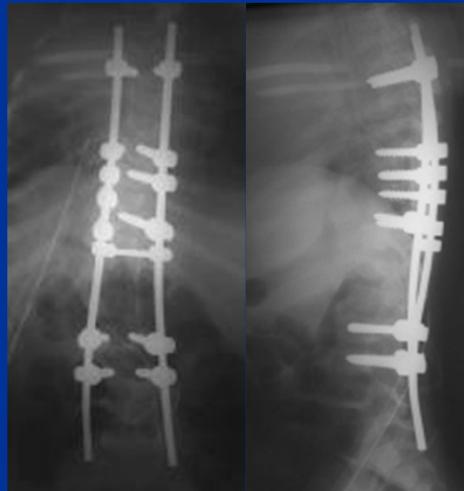
Conclusion

- “Growth guidance” harnesses power of spinal growth
- Redirects growth to vertical direction
- Does not constrain ends of curve
- Preserves growth and ultimately motion where it is most needed

Preop



Immediate Postop



3 1/2 yrs postop

