

SPECIAL CONSIDERATIONS FOR REFRACTORY BACK PAIN FOLLOWING SPINE SURGERY IN PATIENTS WITH ACHONDROPLASIA

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Introduction

Achondroplasia is:

- the most common form of dwarfism (1 in 25,000 births)
- 90% of children under the age of 1 have thoracolumbar kyphosis
- Although the majority of cases will spontaneously resolve with ambulation, 10-15% will develop fixed Thoracolumbar kyphosis
- Slump positioning or prolonged periods of spinal flexion can exacerbate kyphosis, resulting in compensatory hyperlordosis, increased pelvic tilt, and fixed flexion deformity of the hip
- The most feared complication is cord or cauda equina compression (11% of cases)
- Neurogenic pain will occur in 75% of this patient population, but it remains underdiagnosed and undertreated

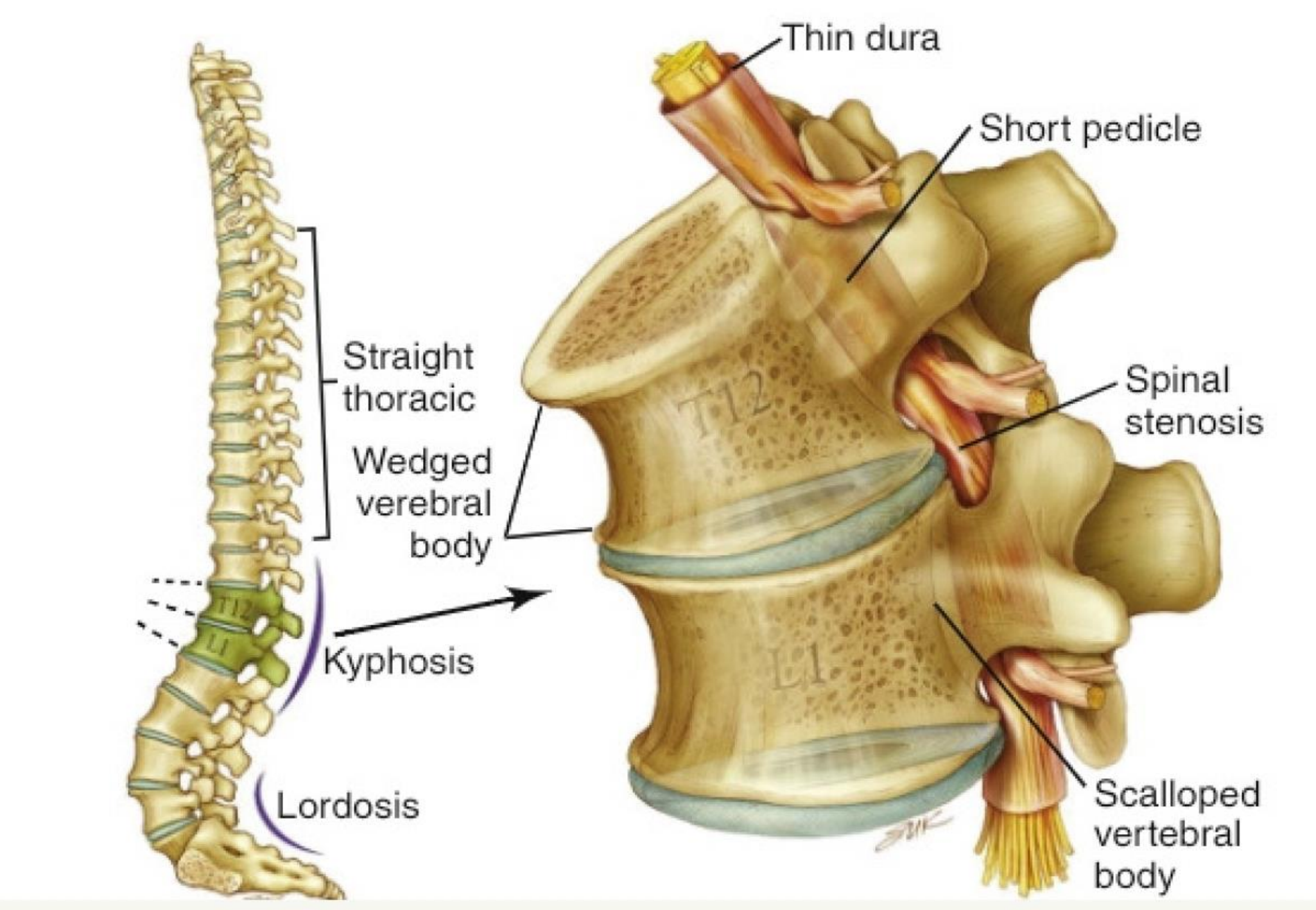


Figure 1: The anatomy of the achondroplastic spine is unique due to the scalloping vertebral body, abbreviated and thickened pedicles, bulging intervertebral discs, and decreased interpedicular distance in the lumbar region.

Case Presentation

- The patient is a 44 year old man with a history of achondroplasia complicated by central stenosis and associated neural foraminal narrowing secondary to thoracolumbar kyphosis status post laminectomy (age 19) and recent T10- pelvis fusion presented for worsening back pain
 - He endorsed urinary incontinence and erectile dysfunction post-operatively
- Physical Exam:
- 5/5 strength
 - Stable gait without assistance
 - Decreased sensation on the bilateral lower extremity, notably in the L3-L5 dermatomal region
 - Straight leg raise and lumbar facet loading were positive

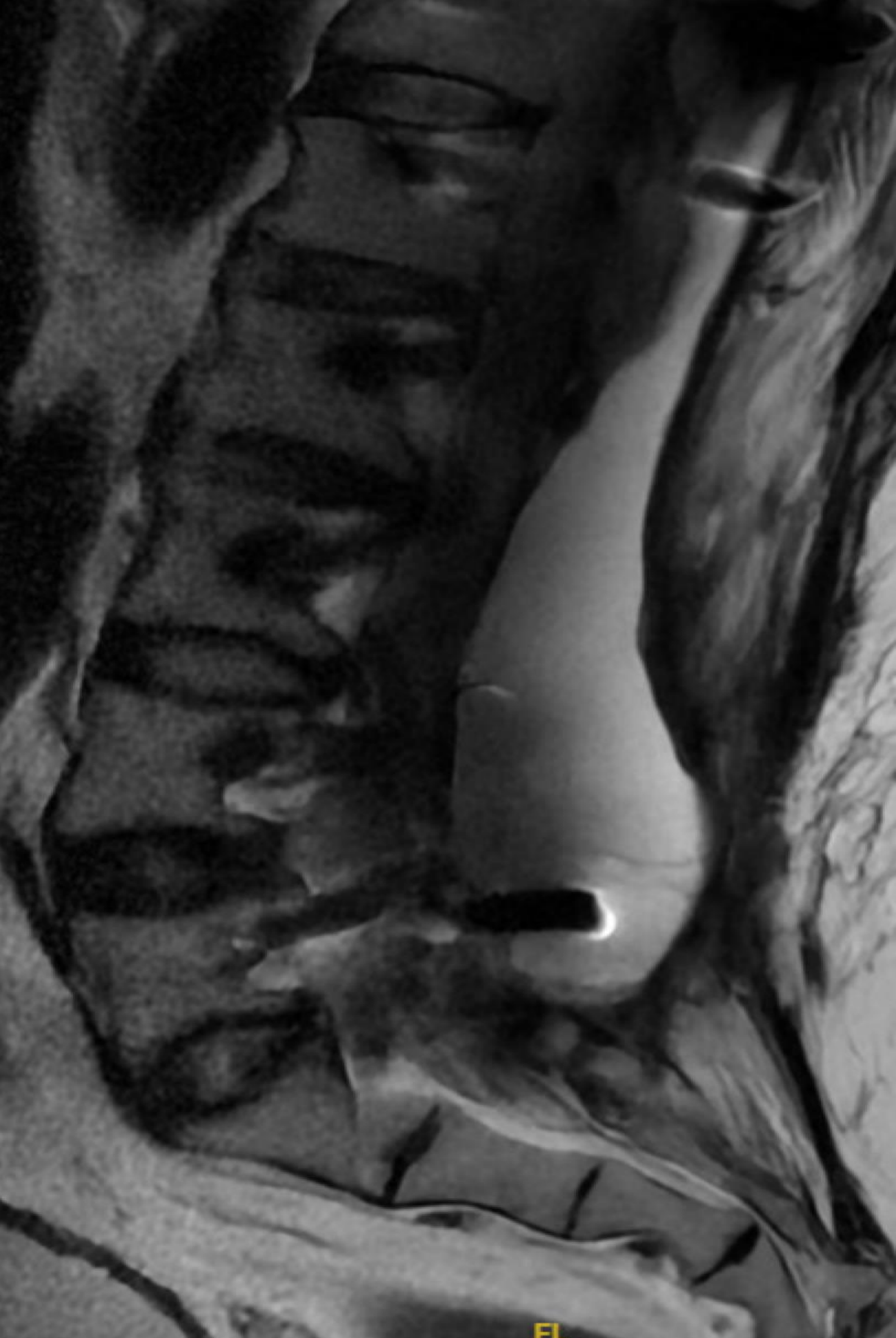


Figure 2: MRI T2 weighted Image of his lumbar spine s/p surgery. Post-surgical changes at T10-pelvis. Pseudomeningocele noted from T10-L5.

Discussion

- Our plan: medical management
- Oral regiment included: Meloxicam, Pregabalin, Lidocaine 5% patches, tramadol, and tizanidine
- Adjuvant therapy was also recommended which included physical and aqua therapy
- Outcome: the patient was able to achieve moderate pain relief with titration of Norco and Gabapentin. However, his pain continues to limit his ADL, and he is open to other interventions.
- Caudal epidural is a potential option for future treatments
- Given that Thoracolumbar kyphosis is a lifelong disease, prophylactic management should start during infancy and throughout childhood:
 - limiting an infant from the seated position until the infant can sit independently
 - Avoiding equipment that reinforce characteristics of kyphosis such as a baby-sling or umbrella stroller is also recommended
- Anticipatory guidance
- Early neurogenic pain diagnosis
- Weight loss
- Physical therapy
- Brace therapy may prevent progression
- If conservative management fails, surgical intervention may be beneficial

Discussion

Table 3 Outcomes and complications for first time spine surgery and repeat spine surgery

Outcomes	First spine surgery	Repeat spine surgery
Good outcome	118	161
No improvement	13	11
Re-hospitalized within 1 month of surgery	4	2
Repeated procedure within 1 year of surgery	4	6
<i>Complications</i>		
Anesthetic complication	2	0
Bleeding	1	0
Poor wound healing	3	1
Pseudarthroses	1	4
Paresthesia	7	7
Dislocation	0	0
Pulmonary complication	1	1
Infection	3	6
Worsened medical status	2	2
Other	21	25
Unknown	17	23

Conclusion

Currently, limited data and guidance exist for the management of achondroplastic patients. It is worth noting that anticipatory guidance should start early in life, and initiative should be taken to reduce the progression of disease during childhood.

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