

From Failure to Success: Level-Dependent Spinal Anaesthesia in a Patient with Diastematomyelia – A Case Report

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BACKGROUND

Diastematomyelia is a rare split-cord malformation. In **Type I**, each hemicord lies in its own dural tube, creating **two non-communicating subarachnoid compartments** [1]. With kyphoscoliosis and prior spina bifida repair, neuraxial block becomes unpredictable.

CASE

A **22-year-old woman** weighing 44 kg (ASA II) presented for **interstitial brachytherapy** for endometrial carcinoma. She had diastematomyelia, kyphoscoliosis, vertebral anomalies and spina bifida repaired at birth, with normal neurology. Incidental staging CT showed severe dorsolumbar fusion and kyphoscoliosis, a bony septum at **T12/L1**, and a **dilated lumbar spinal canal**.

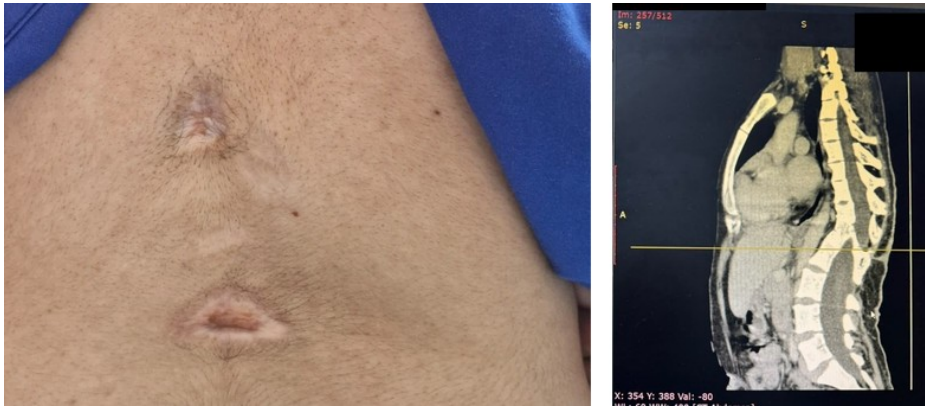


Fig 1: lumbosacral dimples. Fig 2: sagittal CT – dorsolumbar fusion/kyphoscoliosis.

TWO SESSIONS, TWO LEVELS

	Session 1: L3–4	Session 2: L4–5 (3 wk later)
Both	Sitting; 25G Whitacre; 2 mL hyperbaric bupivacaine 0.5%	
Findings	High-pressure CSF; no block at 30 min	Free CSF flow; dense block in 5 min
Outcome	Converted to GA	Spinal alone
Neuro	Intact at 30 min–4 h; no new deficit either session	

WHY DID OUTCOMES DIFFER BY LEVEL?

- Both punctures lay **caudal to the T12/L1 septum**, so hemicord compartmentalisation alone cannot explain the level-dependent result.
- Leading hypothesis:** a dilated lumbar canal likely raised local CSF volume at L3–4, diluting the injectate [2,3].
- Possible contributor:** unrecorded adhesions from the infant repair, loculating drug at L3–4 alone [4,5].
- Kyphoscoliosis impairs baricity-dependent spread [6]; high-pressure CSF is a warning sign, not reassurance. Both hypotheses remain **unconfirmed**.

WHY REATTEMPT NEURAXIAL?

- Asymptomatic, incidental anomaly; first attempt caused no neurological harm.
- NORA setting with limited airway rescue; repeat GA undesirable.
- Patient preference, informed consent, GA available throughout.

PROPOSED FRAMEWORK

Before	MRI spine if feasible; consent covers failure and GA conversion
During	Fine-gauge needle; high CSF pressure/asymmetric block = warning; assess to 30 min
Convert	Low GA threshold; GA ready before starting
After	Neuro checks (4 h here; not validated)
If failed	Adjacent level (CSF volume/adhesion may differ): hypothesis only

TAKE-HOME

Anticipate block failure in spinal dysraphism; obtain spinal MRI if feasible and keep a low GA threshold. High-pressure CSF and canal dilation are warning signs — failure at one level may not mean failure at the next (**hypothesis**).

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Written informed consent for publication was obtained. No conflicts of interest. No funding.