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Video Abstract

Spinal cord detethering without laminectomy or laminotomy

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ABSTRACT

Background: Tethered cord syndrome occurs when there is abnormal tension on the distal spinal cord, which limits its elevation as patients grow. This results in stretching of the neural elements and microvasculature, resulting in both direct and ischemic injury.[7] Animal studies suggest that impairment of oxidative metabolic pathways may contribute to neuronal injury.[7] Associated conditions include myelomeningocele, lipomyelomeningocele, intraspinal lipomas, diastematomyelia, thickened/fatty filum terminale, and trauma.[2] Tethering may be asymptomatic or result in a variety of symptoms including lower extremity weakness/sensory deficits, bowel/bladder dysfunction, scoliosis, pes cavus, and back/leg pain.[6] Early surgical intervention has been shown to improve outcomes and may be performed prophylactically or to prevent symptom progression.[1,3] More specifically, retrospective studies demonstrate that surgical intervention in patients under the age of 2 years is associated with improved outcomes.[5] In some cases, detethering may result in clinical improvement.[3]

Case Description: We present a case of a 6-month-old male with a low-lying conus medullaris, lumbar syrinx, mildly abnormal urodynamic studies, and asymmetric utilization of his lower extremities observed during the evaluation of a Y-shaped gluteal cleft. He underwent elective spinal cord detethering via the safe and effective, minimally invasive technique described in the video.

The patient's parents gave informed consent for treatment and video recording. Institutional review board approval was deemed unnecessary.

Conclusion: Given the variety of surgical techniques used for cord detethering, this video may assist other surgeons in developing techniques that require little to no compromise of the developing bony spinal column while achieving sufficient release of the spinal cord.[4]

Keywords: Detethering, Filum terminale, Pediatric, Tethered cord

[Video 1]-Available on:

https://doi.org/10.25259/SNI_942_2021

Annotations[1-7]

1) 0:20 – Presentation magnetic resonance image
2) 1:54 – Opening of ligamentum flavum
3) 2:24 – Opening of dura

4) 2:34 – Isolation of the filum terminale
5) 2:53 – Cutting of the filum terminale

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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