Treatment of Cauda Equina Syndrome: Turning the Tide with Non-Surgical Success

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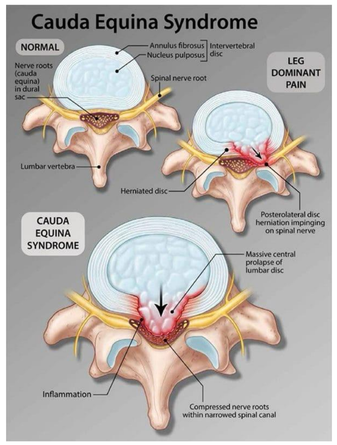
BACKGROUND

- Cauda equina syndrome (CES) is a neurological emergency that typically necessitates urgent decompression to prevent permanent neurological deficits
- Emerging evidence suggests that surgery may not always be required, particularly in late-presenting cases where neurological deficits have stabilized
- In such instances, nonoperative management, including medical therapy and rehabilitation, may be a reasonable alternative

INTRODUCTION

Cauda Equina Syndrome (CES) Overview

- **Cause:** Compression of lumbosacral nerve roots
- **Key symptoms:** Saddle anesthesia, bowel/bladder dysfunction, lower extremity weakness, and sensory loss.



Challenges in CES Management

1. **Timing of presentation** (early vs. late onset)
2. **Degree of neurological deficits**
   (mild, stable vs. severe, progressive)
3. **Etiology of CES** (mechanical vs. non-mechanical causes)

Non-Surgical Treatment Considerations

- **Incomplete deficits** may improve with corticosteroids, neuropathic pain management, and rehab.
- **Elderly patients** require individualized care to weigh surgical risks vs. benefits.

CASE REPORT

Chief Concern

- Progressive bilateral lower extremity weakness, unsteady gait, and urinary symptoms.

History of Present Illness (HPI)

- **Patient:** 80-year-old male presenting for 2-3 weeks of progressive weakness and falls despite use of single point cane. He also reported pain with urination and one episode of bowel incontinence.

Physical Exam

- Remarkable for 3/5 strength deficits in 3/5 hip flexors/knee extensors, 4/5 ankle dorsiflexion, saddle anesthesia, absent ankle, diminished patellar reflexes, and a positive Romberg sign. Urinary retention was identified and subsequently relieved with Foley catheter insertion. Joints displayed full ROM and absent deformities/injuries from falls.

Hospital Course

- **Diagnosis:** Cauda equina syndrome (CES) due to symptom constellation and lumbar stenosis at L4-5 from MRI imaging.

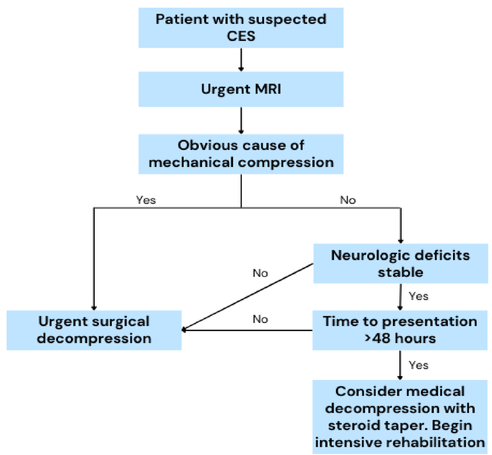
Management

- Corticosteroids (Decadron) and gabapentin for neuropathic pain.
- Foley catheterization for urinary retention.
- Acute rehab

Outcome

- Ambulatory at discharge with full return of bowel/bladder function.
- Significant functional recovery.

Decision Tree Flowchart



DISCUSSION

Surgical vs. Non-Surgical Management of CES

- **Surgical Decompression (Within 48 Hours):**
  - Goal: Acutely prevents irreversible nerve damage
  - Improves long-term functional recovery
  - Postoperative recovery can delay rehabilitation, prolonging functional impairment
- **Late-Presenting or Complete CES:**
  - Goal: Reversing damage and preserving neurologic function
  - Immediate rehabilitation and functional improvement

Case Consideration: When Surgery May Not Be Necessary

- Stable neurological deficits for several weeks
- No active neurological decline
- Surgical risks outweighed potential benefits

Medical Management & Rehabilitation

- Steroid taper regimen (Dexamethasone)

Days 1-3	4-6 mg q6-8h or 8 mg q12h
Days 4-6	4 mg q12h
Days 7-9	2 mg q12h
Day 10	1 mg q12h

TAKE-HOME POINTS

- **Individualized care** is key to CES management and outcomes.
- **Non-surgical approaches** may be appropriate for stable, late-presenting CES or non-compressive causes.
- **Future research** should refine nonoperative management criteria and optimize rehabilitation strategies for long-term recovery.

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