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Selective Dorsal Rhizotomy: Experience at a Rural Tertiary Care Center

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Introduction

- Selective dorsal rhizotomy (SDR) is a surgical treatment for spasticity in children.
- Beneficial for children with spastic diplegia with capacity for ambulation and access to physiotherapy
- Sometimes beneficial for children with spastic quadriplegia
- Typically practiced in urban health centers (easy access to inpatient rehabilitation).
- We present our experience performing SDR at a rural tertiary center using both inpatient and outpatient postoperative therapy.

Methods

- Retrospective chart review of 15 consecutive patients who underwent SDR between 2013 and 2017
- Modified Ashworth Scale (MAS) and Gross Motor Classification System (GMFCS) were primary outcome measures
- Analysis was conducted for factors predictive of good outcome.

Table 1. Baseline Characteristics of SDR patients

	Number (%)	Mean (SD)	Range
Female	5 (33.3)		
Age at surgery		5.86 (3.64)	3-17
Spastic diplegia (v quadriplegia)	11 (73.3)		
MAS pre-op		3.07 (.88)	1-4
GMFCS pre-op		3.8 (1.08)	2-5
History of prematurity	9 (60)		
Failed Botox or oral baclofen	12 (80)		
Primary indication for SDR			
➢ Potential for increased ease of care	4 (26.7)		
➢ Potential for increased mobility	9 (60)		
➢ Need to additionally address tethered cord	2 (13.3)		

Results

Table 2. Outcomes of SDR Surgeries at DHMC

	Number (%)	Mean (SD)	Range
Operative time (minutes)		216.1 (47.0)	168-346
Length of admission (days)		5.3 (1.72)	3-8
PT mobilization (post operative day)		1.67 (.72)	1-3
Disposition			
Home	10 (66.7)		
Rehab	5 (33.3)		
Complications			
Complications requiring re-admission	3 (20)		
➢ Fever of unknown origin	1 (6.7)		
➢ Wound infection	1 (6.7)		
➢ Suture abscess	1 (6.7)		
Complications requiring return to OR	1 (6.7)		
Follow up (months)		38.8 (31.75)	3.42-108.75
Improvement at last follow up			
As demonstrated by MAS	11 (73.3)		
As demonstrated by GMFCS	9 (60)		
As demonstrated by MAS or GMFCS	13 (86.7)		
Deterioration	0 (0)		
MAS post-op		2.2 (1.08)	1-4
GMFCS post-op		3.2 (1.37)	1-5

Figure 1. Post-operative MAS of SDR Patients

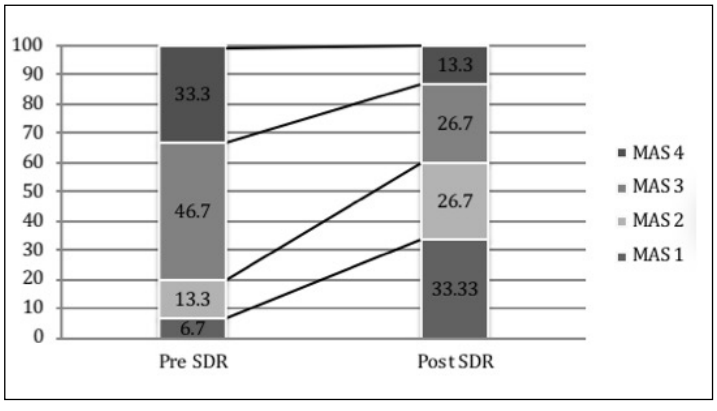
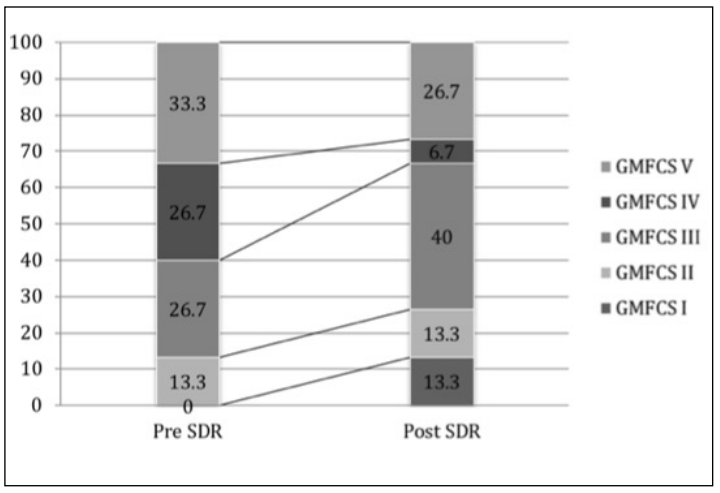


Figure 2. Post-operative GMFCS of SDR Patients



Analysis

No significant difference in postoperative improvement when comparing preoperative functional status, age at surgery, or indication for surgery (Student T-Test).
No association between improvement in MAS or GMFCS and disposition with home vs. inpatient rehabilitation (Chi-squared analysis).

Conclusions

- No patient had new neurological deficit, and no patient had new bowel or bladder dysfunction.
- 86.7% of patients demonstrated improvement following SDR
- No association between outcome and age at surgery, preoperative functional status, or use of rehabilitation after surgery.

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