

Spina Bifida Effects on Chronic Dystonia and Rehabilitation Outcomes Payton E. Lange Department of Allied Health Science: Carthage College

Introduction

Spina bifida is caused in patients due to spinal obstruction and lack of cerebrospinal (cushioning and nutrient) fluid. Spina Bifida's tethered cord syndrome (build up of scar tissue) can cause a lesion on the spinal cord, which can potentially damage the nerve surrounding the cord and causing dysfunction of the nervous system. One of those dysfunctions is Dystonia (abnormal muscle contractions). Dystonia is a severely debilitating outcome of spinal cord damage, and it can affect up to 40% of Spina Bifida patients. The purpose of this case presentation is to display the unknown nature of Spina Bifida-associated dystonia and its unpredictability regarding rehabilitation outcomes (e.g., functionality).





Figure 2. MRI Image of Cervical. . Lesion Post-OP Cyst Removal

Case Description

This 19-year-old male patient was born with Spina Bifida, and this specific type caused a fluid-filled lesion to form on the spinal cord. The patient had damage to the L1-L3 area of their spinal cord, which has caused dystonia in their lower extremities, localized mainly in the talocrural (ankle) region. The PT goals were to improve his knee and ankle mobility to assist with more functional walking and standing without AFO braces.



Figure 3. Demonstration of Plantar with and without brace (respectively) Flexion for Spina Bifida patient





Figure 5. PT Treatment session components & Home Program provided to patient

e Exercise ram	Sets/Repetitions
flexion (toes-up) -band stretch	3x10: hold for 20 seconds
without braces er supervision only)	QID (4x per day): 10 minutes
ar flexion (toes-) band stretch	3x10: hold for 20 seconds
Raise (holding onto ort)	3x10: hold for two seconds
e Leg Balance for r ol	3x: 30s each side
ling w/out braces	QID (4x per day): 30 minutes

Test and Measu

MAS Dystonia

Manual Muscle

ROM Plantar Flexion (degree

Table 1. Initial examination vs. re-evaluation test and measure results.

This case report highlights how the nerve damage from a Spina Bifida lesion causes chronic dystonia for patients. However, despite this patient having nonreversible damage, the PT noticed small but significant improvements with dystonia management and motor control in the talocrural (ankle) region, which isn't usually the case, as most patients have worse prognosis. Implementing these exercises and treatment at both PT and home could temporarily relieve some of the Dystonia a patient may be experiencing. In conclusion, this case report displays how Spina Bifida can vary in terms of rehabilitation measurements and outcomes, and further research should be conducted. Screening for syringomyelia should also be considered in cases of abnormal dystonia in the presence of suggestive clinical findings (e.g., abnormal motor findings)

Acknowledgements & References

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Patient Outcomes		
res	Initial Examination	Re-evaluation
	Clonus/Tone score: 4	Clonus/Tone score: 4
Testing	Left ankle: -4/5 Right ankle: +3/5	Left ankle -4/5 Right Ankle: -4/5
S)	Normal 45-55 degrees R: 36 degrees L: 39 degrees	Normal 45-55 degrees R: 39 degrees L: 40 degrees

Conclusions