REHABILITATION OF A PATIENT WITH POSTERIOR CORD SYNDROME

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Introduction: Posterior cord syndrome (PCS) is a rare spinal cord injury syndrome (about 0,2% of SCI¹). The posterior column is damaged resulting in a defect in light touch and proprioception, while the spinothalamic tract is left intact¹. Causes are syphilis², B12 deficiency³, posterior spinal artery infarction⁴, mineral insufficiencies⁵ or even hyperextension injuries⁶.

Purpose: To underline the importance of sensory impairment

Method: Case report presentation

Results: A 54 years old male patient was admitted in the neurosurgical department because of an inability to walk during the past week with a history of fall 10 days earlier. A month earlier he had had an anterior discectomy at the C4-5 level with no functional deficit at discharge. He presented with a muscle power deficit of both upper and lower extremities and a fracture of C5 was found in CT. After surgery, he improved having normal muscle power and a sensory deficit from C4 level (AIS D, A3 neurological level) mainly of light touch and proprioception. Despite the normal muscle power, ambulation was not functional. The defective gait (sensory ataxia, muscle tone defect with the suspicion of spasticity was excluded with neurophysiologic testing as H reflex/M ratio was normal) and the difficulty of fine movements lead to the diagnosis of posterior cord syndrome, followed by an in-patient rehabilitation program focused on visual control and sensory retraining. At discharge the patient could walk short distances with help and fine movements were improved.

Discussion and Conclusion: -PCS is the least common SCI syndrome¹

-Commonest mechanism of injury: Hyperextension and rotation⁷

-Functional impairment of sensory loss with impact on: effective exploration of environment, personal safety, motor function and quality of life⁸

-data for long term improvement in function (p<0,05 for FIM improvement greater than other syndromes¹)

- New data on neuroplasticity, underline the importance of sensory rehabilitation⁹.

Of major importance for the rehabilitation of a patient with an incomplete spinal cord injury are the thorough clinical examination and the subsequent modification of the rehabilitation program, especially dealing with sensory deficits, which substantially deteriorate gait and functional level in general.

References

1. Mckinley W, Santos K, Meade M, Brooke K. Incidence and Outcomes of Spinal Cord Injury Clinical Syndromes. *J Spinal Cord Med.* 2007;215-224.
2. Cook AW. SENSORY EFFECTS IN MAN OF LESIONS OF THE POSTERIOR COLUMNS AND OF. *Brain.* 1986;109:1003-1041.
3. Biyani S, Jha SK, Pandey S, Shukla R. Acute bilateral useless hand syndrome : a rare presenting manifestation of vitamin B 12 deficiency. *BMJ Case Rep.* 2015;12:1-3. doi:10.1136/bcr-2015-210067.
4. Matsubayashi J, Tsuchiya K, Shimizu S, et al. Posterior spinal artery syndrome showing marked swelling of the spinal cord : A clinico-pathological study. *Acad spinal cord prof.* 2013;36(1):31-35.
5. Macedo YS, Mota S, Monteiro PM, et al. Case Report Posterior Cord Syndrome and Trace Elements Deficiency as an Uncommon Presentation of Common Variable Immunodeficiency. 2017;2017.
6. Belen JG, Weingarden SI. Posterior Central Cord syndrome following a Hyperextension injury : Case Report. *Paraplegia.* 1988;26:209-211.
7. Bedbrook GM. Pathological Principles in the Management of Spinal Cord Trauma. *Paraplegia.* 1966;(4):43-56.
8. Carey L. *Textbook of Neural Repair and Rehabilitation-Chapter 16.* Vol II.; 2005.
9. Dietz V KF. Restoration of sensorimotor functions after spinal cord injury. *Brain.* 2017;(October):654-667. doi:10.1093/brain/awt262.