

Hang T-10: Riding the Waves of Surfer's Myelopathy A Case Report

Caroline A. Lewis, M.D.¹, Gabrielle N. Avancena, B.S.², Marissa B. McCay, M.D.¹
Icahn School of Medicine at Mount Sinai Department of Rehabilitation & Human Performance¹
City University of New York School of Medicine²

Introduction

- Surfer's myelopathy (SM) is a rare, nontraumatic injury to the spinal cord, often from hyperextension causing vascular compression and subsequent insufficiency.
- The thoracic spinal cord is at greatest risk of ischemia due to poor collateral vascular supply.
- The variable levels of thoracic spinal cord involvement may be explained by the variable origins of the artery of Adamkiewicz, arising from T5-T8 in 15%, T9-T12 in 75%, and L1-L2 in 10% of the population.
- Most commonly it affects young, healthy novice surfers who have no pre-existing spinal disease, as well as other sports that involve hyperextension to the lumbar spine, such as gymnasts, cheerleaders, acrobats, ballerinas, and those participating in Pilates and yoga.
- The estimated incidence of SM ranges from a minimum of 2.2 to maximum of 6.6 injuries per 1000 hours of surfing.
- The neurological recovery typically occurs within 24-72 hours when a T2 MRI image typically shows an increased signal in the central spinal cord. However, cases of complete paraplegia have also been reported.

Case Description

- A 26-year-old female presented to the hospital for emergent neurosurgical evaluation following acute onset bilateral lower extremity paresthesia, paraplegia, and urinary retention after one hour of surfing.
- Bilateral lower extremities 0/5 strength and areflexic with decreased sensation to light touch below T11.
- MRI spinal survey demonstrated anterior cord signal change with cord edema from T8 to base of cord.
- Patient received 3 days of empiric steroids and an LP drain was placed to decrease intrathecal pressure.
- Drain removed after 8 days following visualization of the artery of Adamkiewicz on angiogram.
- Patient was diagnosed with anterior spinal cord infarction consistent with Surfer's Myelopathy.
- She was admitted to SCI Rehabilitation and was diagnosed with T10 AIS C incomplete paraplegia.
- Patient progressed well with therapies, and on discharge had 5/5 hip flexion, knee extension, and PF. She had 4/5 DF, and still had decreased sensation below L2. Patient able to ambulate 150 ft. with bilateral Loftstrand crutches and bilateral AFOs.

Figures



Figure 1:
MRI Spine showing T2 hyperintensity within the cord from T7 through L1



Figure 2:
Spinal Angiogram demonstrating normal Artery of Adamkiewicz at left T11

Discussion

- Surfer's Myelopathy is caused predominantly by hyperextension of the back, which can lead to compression of the artery of Adamkiewicz, and subsequently vascular insufficiency in the lower extremities.
- Initial presentation includes back pain within one hour of injury, bilateral lower extremity paresis, urinary incontinence or retention, and absent light touch and pain sensations.
- MRI is the modality of choice to identify early ischemic changes to the anterior spinal cord following injury.
- Management involves IV tPa, lumbar puncture, administration of steroids, and acute rehabilitation.
- Preventative measures include education on proper body positioning, stretching, and core muscle strengthening.
- Prognosis is typically complete to near-complete recovery.

Conclusion

Surfer's Myelopathy, while rare, can cause significant neurological deficits amongst new surfers and other at-risk individuals. Rehabilitation plays a key role in the recovery of this population. Thus, awareness and education on its presentation is vital.

References

1. From the Departments of Neurosurgery and Neurology. (n.d.). *Surfer's myelopathy : Spine*. LWW. Retrieved January 15, 2023, from https://journals.lww.com/spinejournal/Fulltext/2004/08150/Surfer_s_Myelopathy.25.aspx
2. Rehabilitation, *D. of O. and. (n.d.). *Surfer's myelopathy: A rare form of spinal cord infarction... : Neurosurgery*. LWW. Retrieved January 15, 2023, from https://journals.lww.com/neurosurgery/Fulltext/2016/05000/Surfer_s_Myelopathy__A_Rare_Form_of_Spinal_Cord.2.aspx
3. *Surfer's Myelopathy: aradiologicstudyof23cases - American Journal of ...* (n.d.). Retrieved January 16, 2023, from <http://www.ajnr.org/content/ajnr/34/12/2393.full.pdf>
4. Gandhi, J., Lee, M. Y., Joshi, G., & Khan, S. A. (2021, January). *Surfer's myelopathy: A review of etiology, pathogenesis, evaluation, and Management*. The journal of spinal cord medicine. Retrieved January 15, 2023, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7919899/>
5. J., T. T. P. P. J. C. G. M. (n.d.). *Surfer's myelopathy*. Spine. Retrieved January 15, 2023, from <https://pubmed.ncbi.nlm.nih.gov/15303045/>
6. Choi, J. H., Ha, J.-K., Kim, C. H., & Park, J. H. (2018, November). *Surfer's myelopathy : Case series and literature review*. Journal of Korean Neurosurgical Society. Retrieved January 15, 2023, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6280062/>
7. Nakamoto, B. K., Siu, A. M., Hashiba, K. A., Sinclair, B. T., Baker, B. J., Gerber, M. S., McMurtry, A. M., Pearce, A. M., & Pearce, J. W. (2013, December 1). *Surfer's myelopathy: A Radiologic Study of 23 cases*. American Journal of Neuroradiology. Retrieved January 15, 2023, from <http://www.ajnr.org/content/34/12/2393>