



Surfer's Myelopathy Treated with Steroids and Induced Hypertension: A Case Report



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Abstract

Surfer's myelopathy is a rare cause of non-traumatic spinal cord injury (SCI). We present the case of an 18-year-old male who developed paraplegia after surfing for the first time, with imaging consistent with a thoracic spinal cord infarction. He was treated with high-dose steroids and induced hypertension, before undergoing six weeks of inpatient rehabilitation.

Case Description

A healthy, athletic 18-year-old male presented with gradual onset bilateral lower extremity weakness after a surfing lesson, without preceding trauma or injury. MRI of the thoracolumbar spine showed a long segment of hyperintense T2 signal in the central spinal cord extending from T5-T12 that was consistent with infarction. ASIA Impairment Scale (AIS) exam showed a Grade C injury at the level of T7 with neurogenic bladder and bowel.

He was treated for 10 days with dexamethasone (10mg IV every 6 hours) and an induced hypertension protocol using IV phenylephrine and normal saline to maintain a mean arterial pressure above 90mmHg. After inpatient rehabilitation, AIS score improved to Grade D at the level of L2, with volitional bowel and bladder function.

Imaging



Figures 1 and 2:
T2 sagittal MRI with contrast of the thoracic spine. Note the hyperintense signal within the spinal cord extending from T5-T12 (*left*). Findings are nonspecific but reflect spinal cord infarction. Turbo inversion recovery magnitude with magnified image (*right*) highlights the central cord signal change.

Discussion

Surfer's myelopathy was first described in a 2004 published case series of nine patients that developed thoracic SCI after taking surfing lessons in Hawaii. The mechanism of injury to the spinal cord in surfer's myelopathy is hypothesized to be related to prolonged static hyperextension that occurs when learning how to surf, or repeated flexion and extension when standing up on the surfboard. This postural effect seems to lead to ischemic injury and infarction of the spinal cord due to the affected watershed area. The vascular injury may be due to occlusion or vasospasm of the great anterior radicular artery of Adamkiewicz, avulsion of the perforating vessels, increased intra-spinal pressure, or fibrocartilaginous embolism. No predisposing factors were identified in any studies.

Treatment protocols in published cases varied greatly and included combinations of high-dose steroids, induced systemic hypertension, intravenous immune globulin, aggressive hydration, and even CSF drainage. Prognosis and recovery were variable in the literature, and seem dependent on the severity of the initial injury. Improvement of spinal cord perfusion may play a role in recovery. The most recent guidelines from the American Association of Neurological Surgeons and the Congress of Neurological Surgeons for SCI also recommend maintaining MAP between 85 and 90 mmHg for the first seven days following an acute spinal cord injury.

Conclusion

Surfer's myelopathy is a rare cause of SCI that classically occurs in novice surfers. In popular surfing regions such as Hawaii and Southern California, physicians must be aware of this clinical presentation as timely recognition and treatment may impact overall prognosis. Though there is no published gold-standard treatment protocol, we propose that high-dose dexamethasone and an induced hypertension protocol after the initial injury may play a role in successful recovery.

References

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