

A Case of Surfer's Myelopathy in a Professional Dancer

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- Surfer's Myelopathy is a rare condition in which hyperextension injury leads to anterior spinal cord infarction
- Etiology is thought to be due to any strenuous activity that involves prolonged hyperextension of the spine.

Case Description:

- A 28-year-old professional dancer presented with sudden-onset back pain, bilateral lower extremity weakness, and bladder incontinence after falling asleep on a stretching apparatus.
- He was noted to have an anterior spinal cord infarct and diagnosed with T9 ASIA B SCI.
- The patient was transferred to acute inpatient rehabilitation.
- Repeat ASIA exam 20 days following initial injury was T9 ASIA C.

Discussion: Surfer's myelopathy may present as:

1. Complete infarction typically presents with bilateral paralysis below affected level along with pain and temperature sensation loss.
2. Incomplete infarcts may present as:
Anterior Horn Syndrome (areflexia and flaccid paralysis)
Man-in-Barrel Syndrome (brachial diplegia) dependent on injury level

ASIA INTERNATIONAL STANDARDS FOR NEUROLOGICAL CLASSIFICATION OF SPINAL CORD INJURY (ISNCSCI)

Patient Name: _____ Examiner Name: _____

RIGHT			LEFT		
MOTOR KEY MUSCLES			MOTOR KEY MUSCLES		
	Light Touch (LTR)	Pin Prick (PPR)		Light Touch (LTL)	Pin Prick (PPL)
UER (Upper Extremity Right)			UEL (Upper Extremity Left)		
Elbow flexors C5	5	2	Elbow flexors C5	5	2
Wrist extensors C6	5	2	Wrist extensors C6	5	2
Elbow extensors C7	5	2	Elbow extensors C7	5	2
Finger flexors C8	5	2	Finger flexors C8	5	2
Finger abductors (little finger) T1	5	2	Finger abductors (little finger) T1	5	2
Comments (Non-key Muscle? Reason for NT? Pain? Non-SCI condition?):			Comments (Non-key Muscle? Reason for NT? Pain? Non-SCI condition?):		
LER (Lower Extremity Right)			LEL (Lower Extremity Left)		
Hip flexors L2	1	2	Hip flexors L2	1	2
Knee extensors L3	1	2	Knee extensors L3	1	2
Ankle dorsiflexors L4	1	2	Ankle dorsiflexors L4	1	2
Long toe extensors L5	1	2	Long toe extensors L5	1	2
Ankle plantar flexors S1	0	1	Ankle plantar flexors S1	0	1
(VAC) Voluntary Anal Contraction (Yes/No) <input type="checkbox"/>			(VAC) Voluntary Anal Contraction (Yes/No) <input type="checkbox"/>		
RIGHT TOTALS (MAXIMUM) (50) (56) (56)			LEFT TOTALS (MAXIMUM) (50) (56) (56)		
MOTOR SUBSCORES UER <input type="checkbox"/> + UEL <input type="checkbox"/> = UEMS TOTAL <input type="checkbox"/> LER <input type="checkbox"/> + LEL <input type="checkbox"/> = LEMS TOTAL <input type="checkbox"/>			MOTOR SUBSCORES UEL <input type="checkbox"/> + UEL <input type="checkbox"/> = UEMS TOTAL <input type="checkbox"/> LER <input type="checkbox"/> + LEL <input type="checkbox"/> = LEMS TOTAL <input type="checkbox"/>		
SENSORY SUBSCORES LTR <input type="checkbox"/> + LTL <input type="checkbox"/> = LT TOTAL <input type="checkbox"/> PPR <input type="checkbox"/> + PPL <input type="checkbox"/> = PP TOTAL <input type="checkbox"/>			SENSORY SUBSCORES LTR <input type="checkbox"/> + LTL <input type="checkbox"/> = LT TOTAL <input type="checkbox"/> PPR <input type="checkbox"/> + PPL <input type="checkbox"/> = PP TOTAL <input type="checkbox"/>		
NEUROLOGICAL LEVELS 1. SENSORY <input type="checkbox"/> 2. MOTOR <input type="checkbox"/>			NEUROLOGICAL LEVELS 1. SENSORY <input type="checkbox"/> 2. MOTOR <input type="checkbox"/>		
3. NEUROLOGICAL LEVEL OF INJURY (NL) <input type="checkbox"/>			3. NEUROLOGICAL LEVEL OF INJURY (NL) <input type="checkbox"/>		
4. COMPLETE OR INCOMPLETE? <input type="checkbox"/>			4. COMPLETE OR INCOMPLETE? <input type="checkbox"/>		
5. ASIA IMPAIRMENT SCALE (AIS) <input type="checkbox"/>			5. ASIA IMPAIRMENT SCALE (AIS) <input type="checkbox"/>		
6. ZONE OF PARTIAL PRESERVATION <input type="checkbox"/>			6. ZONE OF PARTIAL PRESERVATION <input type="checkbox"/>		

Figure: ASIA exam performed at acute rehabilitation 20 days following initial injury.

Discussion Continued:

- Currently, the mainstay of treatment is combined physical and occupational therapy, ideally in an acute rehab center with physiatrist oversight
- Goal is to prevent and manage complications associated with SCI
- Functional outcomes for these individuals show independent ambulation in 11-46% and wheelchair dependence in 20-57% of cases.
- Treatment with corticosteroids remains a controversial topic due to the limited research and rarity of this condition.

Conclusions

- Surfer's myelopathy should be on the differential in the setting of acute low back pain, lower extremity weakness, sensory changes, and bladder changes in young athletes.
- MRI serves as the best imaging modality.
- To date, specialized spinal cord rehabilitation remains the cornerstone of treatment.

References

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- Maharaj MM, P. K. (2016). Surfer's myelopathy: a rare presentation in a non-surfing setting and review of the literature. . *Journal of Spine Surgery*, 2(3):222-226. .
- Tong, A. Z. (2020). Ischemic damage may play an important role in spinal cord injury during dancing. *Spinal Cord* 58, 1310–1316.