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Spontaneous Conus Medullary Infarction in the Absence of Cardiovascular Risk Factors

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Background & Purpose

- Spinal cord infarction (SCI) is rare and most often occurs in individuals with predisposing cardiovascular risk factors and traumatic injuries.
- As there are no distinct diagnostic criteria for SCI, diagnosis is difficult in patients presenting without predisposing factors and is often mistaken for transverse myelitis.
- Delay in early diagnosis contributes to the high case fatality rate of SCI.

Clinical Case

- A 42-year-old man with no medical history presented with sudden lower back pain when lifting a heavy box followed by rapid progression of bilateral leg paralysis, saddle anesthesia, and urinary retention.
- Physical exam was consistent with spinal shock and demonstrated he was paraplegic, had a sensory level to L1, absent reflexes on bilateral lower extremities, and loss of rectal tone.
- Initial neuroimaging of the thoracic spine and lumbar spine demonstrated no clear pathology.
- Repeat T2-weighted MRI of the thoracic spine and lumbar spine a day later revealed restricted diffusion in the conus medullaris suggestive of a SCI.
- The diffusion weighted imaging of the lumbar spine also demonstrated restriction consistent with acute infarct.
- The patient then had a CT angiogram of his chest demonstrating a left lower lobe pulmonary embolus.
- An ultrasound of his right leg then revealed a non-occlusive deep venous thrombus.
- The etiology of his SCI was likely to be from a hypercoagulable state. He is now undergoing a hypercoagulable work.

Diagnostic Imaging



Figure 1. (A) On initial presentation, T2 weighted MRI of the thoracic spine and **(B)** lumbar spine with L5-S1 without significant spinal canal stenosis.



Figure 2. (C) Repeated T2-weighted MRI of the thoracic spine increase in signal intensity of the distal conus from T11-T12 levels and **(D, E)** diffusion-weighted imaging with restricted diffusion.

Discussion & Conclusions

- The etiology of SCI is varied but is most often attributed to surgery, arteriosclerosis, shock, infection, thrombus or embolus [1].
- In the setting of spinal shock with the absence of structural abnormalities and cardiovascular risk factors, transverse myelitis is the most often presumed diagnosis [2].
- However, recent literature has suggested a significant underdiagnosis of SCI with one large study demonstrating that 18% of patients who are sent for evaluation of transverse myelitis are ultimately diagnosed with SCI [1].
- In considering SCI in the setting of spinal shock, DWI imaging can be promptly pursued to make a timely and definitive diagnosis [3].
- Although T2-weighted images are obtained initially, the sensitivity of MRI is limited in the first several hours of infarct, making DWI the preferred imaging technique [4].
- Recent studies have proposed a potential diagnostic criteria for SCI I which do not include cardiovascular risk factors, thereby enhancing diagnosis of SCI [5].
- Additionally, with timely diagnosis of SCI, thrombolytic therapy can be considered as a treatment modality as published case reports demonstrate good functional recovery [6].
- This case highlights the importance of including SCI in the differential of a patient with acute paraparesis even in the absence of co-existing risk factors.

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