Teaching NeuroImage: Neurovascular Consequences of Autonomic Dysreflexia

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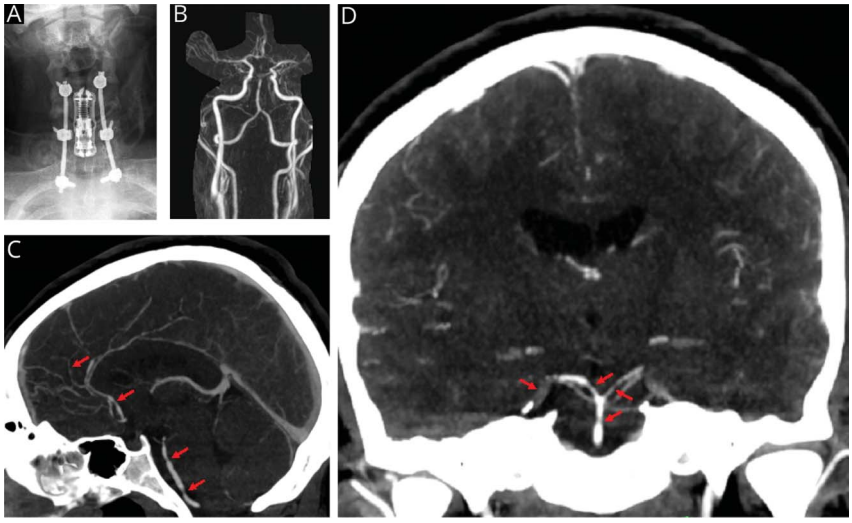
Figure 1 Multifocal Cerebrovascular Narrowing in a Patient With Subacute Traumatic Spinal Cord Injury



(A) Spinal hardware placed after traumatic accident. Anterior cervical fusion from C4 to C7 as well as posterior spinal fusion hardware extending from C4 to the upper thoracic spine. (B–D) Computed tomography angiography completed upon clinical worsening of acute headache and vision loss. Arrows illustrate diffuse vasospasm of both posterior and anterior vascular distributions.

An 18-year-old man with C6 quadriparesis presented with two 30-minute episodes of thunderclap headache, vision loss, new urinary incontinence, hypertension (200s/90s), and bradycardia more than 24 hours. Imaging demonstrated multifocal cerebrovascular narrowing (Figure 1), restricted diffusion, and hyperintense T2/FLAIR signal (Figure 2); transcranial Dopplers (TCDs) displayed increased velocities. Reversible cerebral vasoconstriction syndrome (RCVS) was diagnosed.

Neurogenic bladder perhaps triggered autonomic dysreflexia (AD) and thus RCVS.

Injury above the T6 spinal cord level eliminates supraspinal modulation and can result in AD, defined as episodic hypertension and bradycardia initiated by unrestrained sympathetic reflexes.[1,2] After suprapubic catheter placement, the episodes ceased, TCD velocities normalized, and vision returned.

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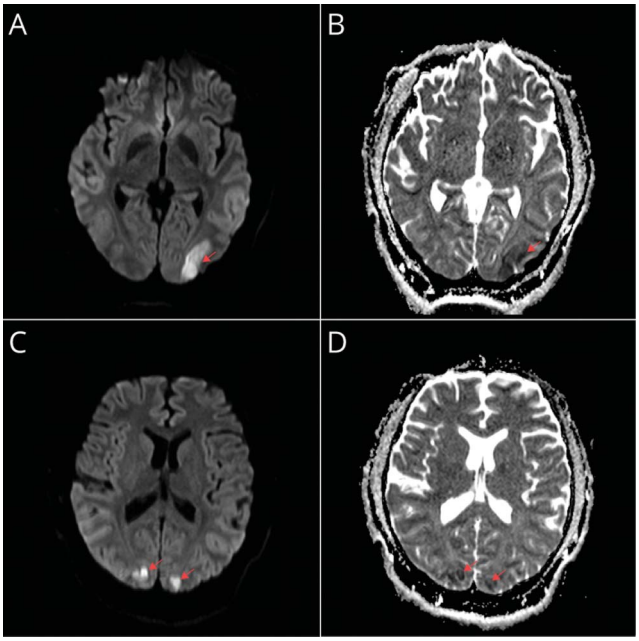
Figure 2 MRI Brain Images Illustrate the Evolution of the Patient's Clinical Course



Panels A and B were obtained on admission; diffusion weighted imaging (DWI) (A) and apparent diffusion coefficient (ADC) map (B) demonstrated a left parieto-occipital lobe acute infarct. Panels C and D were completed on acute worsening of headache and vision loss, with DWI (C) and ADC map (D) showing additional ischemic infarcts.

Appendix Authors

Name	Location	Contribution
Christina M. Lineback, MD	Department of Neurology, Northwestern University Feinberg School of Medicine, Chicago, IL	Drafting/revision of the manuscript for content, including medical writing for content, and a major role in the acquisition of data
Eric W. Moffet, MD	Department of Neurology, Northwestern University Feinberg School of Medicine, Chicago, IL	Drafting/revision of the manuscript for content, including medical writing for content
Minjee Kim, MD	Department of Neurology, Northwestern University Feinberg School of Medicine, Chicago, IL	Drafting/revision of the manuscript for content, including medical writing for content

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