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Commentary: Knowledge-based wisdom

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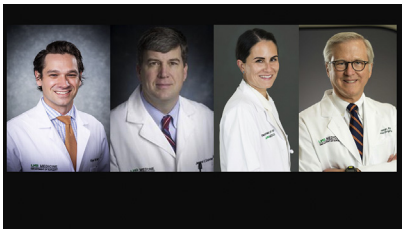

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CENTRAL MESSAGE

Spinal cord infarction secondary to aortitis from *Clotridium septicum* is a challenging problem. Knowledge-based wisdom informs optimal management.

The authors describe a 76-year-old woman with sudden onset of back pain and paraplegia. Computed tomography imaging suggested aortitis with periaortic gas, whereas magnetic resonance imaging confirmed anterior spinal cord infarction due to the obstruction of 2 anterior segmental medullary arteries.[1] The authors presume that the aortitis was due to *Clostridum septicum* originating from a tumor of the colon. This report adds to a limited number of *C speticum* case reports as cited by the authors and corroborates the poor prognosis with or without operative intervention. Other groups report a 6-month mortality of 64% for all cases and a 6-month mortality of 100% for all cases managed nonoperatively.[2,3]

It is worth noting that while this patient suffered the grave consequences of anterior spinal syndrome, she survived a year after diagnosis with antibiotic therapy. Spinal cord ischemia is unforgiving. It needs to be treated with speed, acumen, and alarm. Spinal cord perfusion exists on a collateral network concept[4,5] defined by 3 principles: (1) An axial network of small arteries exists in the spinal canal, perivertebral tissues, and paraspinous muscles that anastomose with one another and with the nutrient arteries of the spinal cord. (2) Inputs for this network include segmental aortic vessels, subclavian arteries, and hypogastric arteries. (3) This network can increase cord nutrient flow from one source when another is reduced. Contrariwise, cord nutrient flow can be reduced if an alternate low-resistance pathway is opened, that is, steal can occur. Understanding the collateral network concept guides prevention and rescue maneuvers for acute spinal cord ischemia. While the authors mention placement of a spinal drain, they did not mention other key maneuvers that can mitigate the loss of individual segmental arteries. Ultimately, maximizing perfusion pressure for the collateral network of the spinal cord drives prevention and rescue maneuvers.

Scali and colleagues[6] demonstrate the benefits of a comprehensive bundled protocol for spinal cord protection after branched and fenestrated endovascular aortic repair. Perioperative management includes naloxone infusion, methylprednisolone dosing, mean arterial pressure goal greater than 90 mm Hg, hemoglobin concentration goal 9 g/dL, and lumbar drainage at 14 cm H_2O. Rescue maneuvers for suspected spinal cord ischemia include lowering the lumbar drain to 10 cm H_2O and maintaining the cardiac index greater than 2.5 L/min. The goal mean arterial pressure is 100 mm Hg or greater and the hemoglobin concentration goal is 10 mg/dL. Medications include methylprednisolone 1 g intravenously and mannitol 12.5 g intravenously. The aim of the maneuvers is to optimize perfusion and oxygenation of the collateral network and avoid steal. In the report by Haidari and colleagues,[1] the loss of segmental cord arteries may have only represented part of the picture of spinal cord ischemia; transient hypotension associated with systemic inflammatory response syndrome may have been the real culprit.

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Wisdom is based on knowledge of a disease's natural history, relevant anatomy, and physiology. Such wisdom is foundational to developing plans for managing this challenging patient.

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