

## A Second Chance to Live and Move: Lumbosacral Spinal Cord Ischemia-Infarction after Cardiac Arrest and the Artery of Adamkiewicz

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**Abstract :** Introduction: Out-of-hospital cardiac arrest (OHCA) can carry a high mortality. For survivors, the most common complication is hypoxic-ischemic brain injury (HIBI). Rarely, lumbosacral spinal cord and/or other spinal cord artery ischemia can occur due to anatomic variation and variable mean arterial pressure after the return of spontaneous circulation. We present a case of an OHCA survivor who later woke up with bilateral leg weakness with preserved sensation (ASIA grade B, L2 level). Methods: We describe a clinical, radiographic, and laboratory presentation, as well as a National Library of Medicine (NLM) search engine methodology, characterizing incidence/prevalence of this entity is discussed. A 70-year-old male, a longtime smoker, and alcohol user, suddenly collapsed at a bar surrounded by friends. He had complained of chest pain before collapsing. 911 was called. EMS arrived, and the patient was in pulseless electrical activity (PEA), cardiopulmonary resuscitation (CPR) was initiated, and the patient was intubated, and a LUCAS device was applied for continuous, high-quality CPR in the field by EMS. In the ED, central lines were placed, and thrombolysis was administered for a suspected Pulmonary Embolism (PE). It was a prolonged code that lasted 90 minutes. The code continued with the eventual return of spontaneous circulation. The patient was placed on an epinephrine and norepinephrine drip to maintain blood pressure. ECHO was performed and showed a "D-shaped" ventricle worrisome for PE as well as an ejection fraction around 30%. A CT with PE protocol was performed and confirmed bilateral PE. Results: The patient woke up 24 hours later, following commands, and was extubated. He was found paraplegic below L2 with preserved sensation, with hypotonia and areflexia consistent with "spinal shock" or anterior spinal cord syndrome. MRI thoracic and lumbar spine showed a conus medullaris level spinal cord infarction. The patient was given IV steroids upon initial discovery of cord infarct. NLM search using "cardiac arrest" and "spinal cord infarction" revealed 57 results, with only 8 review articles. Risk factors include age, atherosclerotic disease, and intraaortic balloon pump placement. AoA (Artery of Adamkiewicz) anatomic variation along with existing atherosclerotic factors and low perfusion were also known risk factors. Conclusion: Acute paraplegia from anterior spinal cord infarction of the AoA territory after cardiac arrest is rare. Larger prospective, multicenter trials are needed to examine potential interventions of hypothermia, lumbar drains, which are sometimes used in aortic surgery to reduce ischemia and/or other neuroprotectants.

**Keywords :** cardiac arrest, spinal cord infarction, artery of Adamkiewicz, paraplegia

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