EMBOLISM IS EMERGING AS A MAJOR CAUSE OF SPINAL CORD INJURY AFTER DESCENDING AND THORACOABDOMINAL AORTIC REPAIR WITH A CONTEMPORARY APPROACH

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Objectives: We reviewed the magnetic resonance imaging (MRI) findings of the spinal cord in patients who had spinal cord injury after descending and thoracoabdominal aortic repair to investigate the specific cause of the injury.

Methods: Between 2000 and 2012, 746 patients underwent descending or thoracoabdominal aortic surgery; 480 had open repair with adjuncts of spinal cord protection (distal perfusion, cerebrospinal fluid drainage, reattachment of intercostal arteries, and hypothermia), and 266 had endovascular repair. Twenty-six (3.5%) had spinal cord injury. Of them, 18 (14 open repair and 4 endovascular repair) had postoperative spinal cord MRI. Preoperative identification of the Adamkiewicz artery was obtained in all patients. Aortic pathology was dissection in two, non-dissection in 15, and infection in one.

Results: There were three types of MRI findings: sporadic infarction involving the wide range of spinal cord (sporadic), focal and asymmetrical infarction within a few segments of vertebrae (focal), and diffuse and symmetrical infarction around the level of the Adamkiewicz artery (diffuse). In endovascular repair, sporadic infarction was observed in all (4/4). In open repair, sporadic infarction was observed in 3 (21%), focal infarction in 7 (50%), and diffuse infarction in 4 (29%). In all patients who had sporadic or focal infarction, the aortic pathology was non-dissection.

Conclusions: From these findings, embolism would be one of the major causes of spinal cord injury in the era of adjuncts to optimize spinal cord haemodynamics during aortic repair.