

Jinhee Choi¹, Woosik Choi¹, Hyun Ji Hwang¹, Ra-Yu Yun^{1*}

Department of Rehabilitation Medicine, Pusan National University Yangsan Hospital¹

Introduction

Extracorporeal membrane oxygenation (ECMO) is a device used when cardiac or respiratory failure occurs. However, motor weakness of the lower extremities can occur to patients after ECMO insertion. And it can make cardiac rehabilitation difficult. So, it is crucial to differentiate this muscle weakness from other conditions such as cerebral infarction, spinal cord infarction, critical illness myopathy, critical illness polyneuropathy, or femoral neuropathy. Symptoms of spinal cord infarction typically include muscle weakness, paresthesia, loss of sensation, and urinary and fecal incontinence. However, these symptoms rarely manifest as motor dysfunction alone. We report a case of anterior cord syndrome following ECMO insertion. In clinical practice, this disease can be easily overlooked or misdiagnosed.

Case report

A 68-year-old male with a history of a cerebral vascular accident in 2019 was previously independent in daily activities and had no difficulties with outdoor level gait. On 15th September 2023, he experienced dyspnea and subsequently suffered cardiac arrest on the way to a hospital. ECMO was inserted immediately upon admission. As the patient's condition improved, ECMO weaning was performed on 27th September 2023. However, after the ECMO weaning, the patient complained of weakness in both lower extremities. On physical examination, hip flexion graded as 2/2 and ankle dorsiflexion as 3/2, but no sensory deficits was noted, and the deep tendon reflexes on the lower extremities were normoactive.

In order to diagnose the etiology of the patient’s lower limb weakness, brain magnetic resonance imaging (MRI) diffusion, spinal cord MRI, electromyography and nerve conduction studies were conducted. Initially, these tests were misinterpreted that it had no abnormalities. And this led to the patient being referred to our hospital for further evaluation. Since the patient only complained of motor weakness without any sensory symptom, we expected that the infarction might have occurred in the anterior horn cells of the spinal cord. The evoked potential test performed at our hospital was interpreted as a suspicion of a central nervous system lesion. Therefore, brain MRI diffusion and spinal cord MRI were reinterpreted at our hospital and we found bilateral anterior horn infarcts of the spinal cord at T11 and T12 (Fig. 1). However, it was already too late to proceed with neurosurgical acute treatment for spinal infarction.

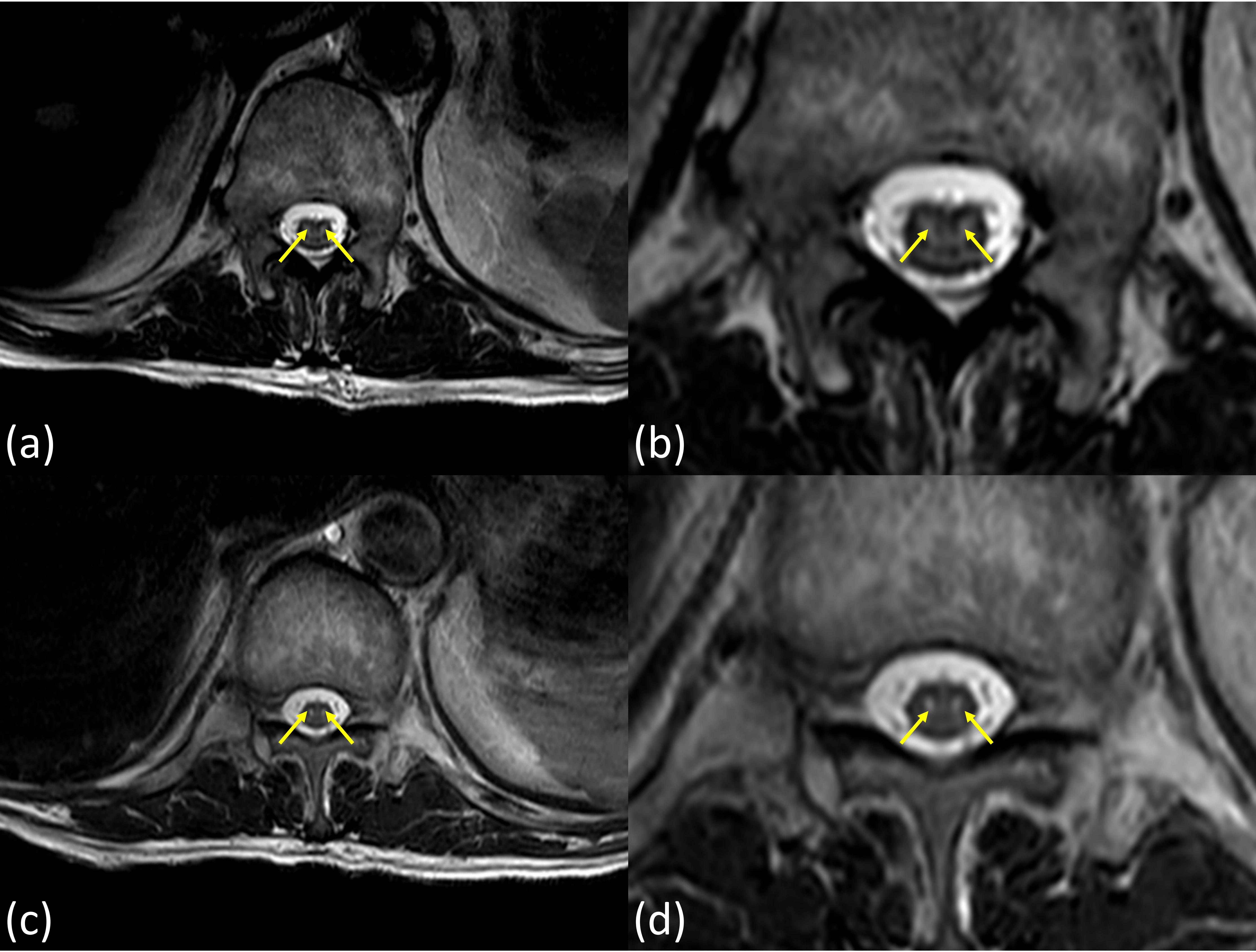


Figure 1. Axial T2-weighted MRI of spinal cord at 14 days after ECMO removal which demonstrates high signal intensity in the anterior horn of the spinal cord at T11 level (a),(b) and at T12 level (c),(d).

Conclusion

Diagnosing spinal cord infarctions that occur restricted in the anterior horn cells of the spinal cord can be difficult. Therefore, in patients who complain of motor weakness after ECMO insertion, it is essential to consider spinal cord infarction as a potential cause and to conduct spinal cord diffusion imaging for diagnosis.

* Corresponding author’s e-mail: dryunry@gmail.com