

Epilepsy-Related Fall Leading to Cervical Myelopathy and Depressive Adjustment Disorder: A Case Report

Luckyana Ayuningtias¹, Fadil²

¹Department of Neurology, Dr Soetomo General Academic Hospital, Surabaya

²Department of Neurology, Universitas Airlangga, Surabaya

luckyanaayuningtias@yahoo.com.sg, fadil.saraf@gmail.com*

ABSTRACT

Background: Cervical spinal cord injury (SCI) represents a severe neurological emergency that can lead to long-term disability. In patients with uncontrolled epilepsy, seizure-related falls significantly increase the risk of traumatic SCI. Beyond physical sequelae, such cases frequently involve complex psychological consequences, including adjustment disorders and depressive reactions, which warrant multidisciplinary management.

Case Presentation: We report the case of a 50-year-old male with a longstanding history of epilepsy who presented with tetraparesis following a seizure-related fall. Magnetic resonance imaging revealed cervical spinal cord edema, multilevel disc herniations, and degenerative changes. Electroencephalography indicated left temporal epileptogenic dysfunction with mild diffuse encephalopathy. The patient underwent decompressive laminoplasty, resulting in partial motor recovery. He was diagnosed with adjustment disorder with depressive reaction according to ICD-10/PPDGJ-III criteria. Seizure control and psychiatric symptoms improved with antiepileptic and anxiolytic pharmacotherapy.

Conclusion: This case highlights the interplay between epilepsy, neurological trauma, and psychological comorbidities. Patients with uncontrolled seizures face an elevated risk of severe secondary injuries that can lead to complex physical and psychological sequelae. Comprehensive management—including surgical intervention, consistent antiseizure therapy, and psychological support—is essential to optimize recovery and quality of life.

KEYWORDS: epilepsy, spinal cord injury, tetraparesis, adjustment disorder, psychological sequelae, case report.

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INTRODUCTION

Cervical spinal cord injury is a neurological emergency that can result in significant morbidity, including tetraparesis. Falls are one of the leading causes of spinal cord trauma, and in patients with uncontrolled epilepsy, seizure-related falls further increase the risk of severe injury.^{1,2} Early diagnosis and comprehensive management are critical to preventing secondary complications, improving functional outcomes, and optimizing quality of life.

CASE PRESENTATION

A 50-year-old male presented to the Emergency Department with weakness in all four extremities following a fall from approximately two meters while repairing the roof of his house. The patient fell backward, striking the ground with his head and neck first. He subsequently reported reddish-colored urine after the incident.

According to family members, the patient had a known history of epilepsy, with seizures characterized by tonic-clonic movements of both arms and legs, upward eye deviation, frothing at the mouth, occasional tongue biting, but without urinary incontinence. Seizure frequency was poorly documented; however, one month earlier, the patient reportedly experienced up to 20 seizures in a single day but did not seek medical care. The patient admitted to irregular use of antiseizure medications and instead relied on traditional herbal preparations applied topically to the head. On the morning of presentation, the patient experienced a seizure episode prior to the fall, although it was unwitnessed.

The patient had a body mass index of 20.1 kg/m², with stable vital signs. Neurological examination revealed tetraparesis of the upper motor neuron type, paresthesia at the C4 dermatome and below, hyperreflexia, and a positive Hoffman sign.

Cervical MRI (August 1, 2025) showed bone marrow edema at C3–C4, spinal cord edema at C2–C3, disc herniation at C3–C4, degenerative changes with syndesmophytes at C5–C6 with intradiscal fluid collection, disc herniation at C4–C5 and C7–T1 causing mild central canal stenosis, and hypertrophy of the ligamentum flavum and bilateral facet joints at C7–T1 leading to mild lateral recess and foraminal stenosis.(Fig.1)

EEG found sharp waves in the left temporal region, intermittent slow activity (ISA) in the left frontotemporal region, generalized ISA, and background slow activity (BSA), consistent with left temporal epileptogenic dysfunction and mild diffuse

encephalopathy.(Fig.2)

The patient was diagnosed with **cervical spinal cord injury with tetraparesis, epilepsy with secondary generalized seizures, and adjustment disorder with brief depressive reaction** in accordance with ICD-10/PPDGJ-III criteria.

The patient was initiated on Phenytoin 100 mg three times daily and Clobazam 5 mg once daily. On August 8, 2025, he underwent decompressive laminoplasty. Postoperatively, motor function improved in the upper extremities but remained impaired in the lower extremities. Sensory complaints persisted unchanged. No further seizures occurred during hospitalization. Symptoms of anxiety and sleep disturbance improved following Clobazam therapy.

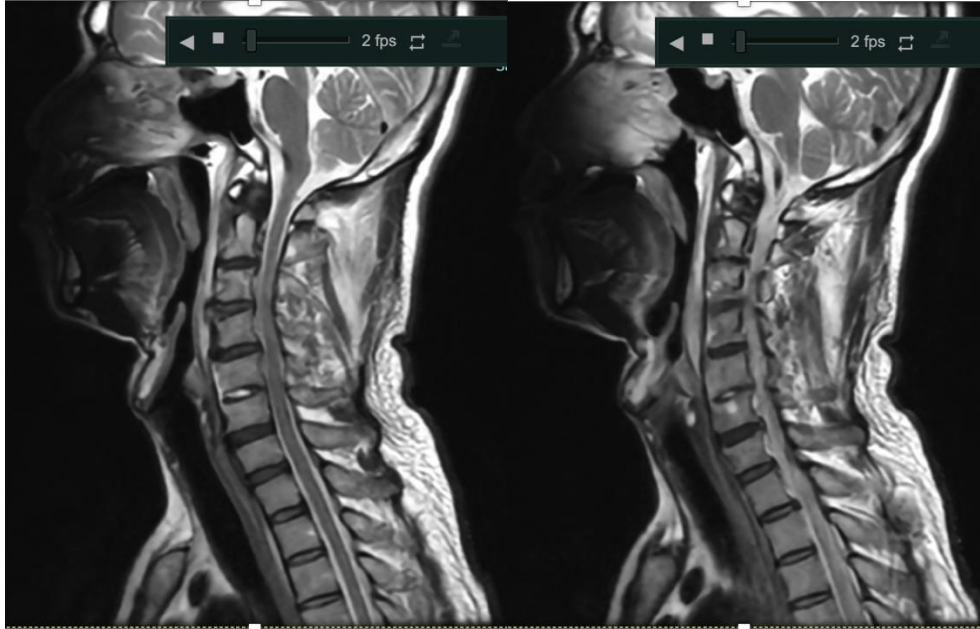


Figure 1. Sagittal T2-weighted MRI of the cervical spine without contrast (August 1, 2025), demonstrating bone marrow edema at C3–C4, spinal cord edema at C2–C3, disc herniation at C3–C4, and degenerative changes with syndesmophytes at C5–C6 accompanied by intradiscal fluid collection. Additional findings include disc herniation at C4–C5 and C7–T1 causing mild central canal stenosis, as well as hypertrophy of the ligamentum flavum and bilateral facet joints at C7–T1 resulting in mild bilateral lateral recess and foraminal stenosis.



Figure 2. Electroencephalography (EEG) examination on August 7, 2025. EEG found sharp waves in the left temporal region, intermittent slow activity (ISA) in the left frontotemporal region (blue arrow), generalized ISA, and background slow activity (BSA)

DISCUSSION

This case illustrates the interplay between uncontrolled epilepsy and traumatic spinal cord injury. The fall was likely precipitated by a seizure, highlighting the increased risk of trauma in patients with poorly controlled epilepsy. The neurological deficits observed, including tetraparesis and sensory impairment below C4, correlated with cervical spinal cord involvement confirmed on MRI.

Spinal cord trauma as a consequence of seizures is a rare but documented complication. Studies by Tiamkao et al. (2009) and Karandikar et al. (2017) reported that seizure-related spinal injuries, either due to falls or extreme muscle contractions during ictal episodes, occur in less than 1% of patients with epilepsy. Although uncommon, such injuries may have profound clinical consequences, particularly when the cervical spine is involved, as this can result in permanent tetraparesis.^{2,3}

In the present case, the trauma was caused by a fall from height during the ictal or post-ictal phase, with impact to the head and neck precipitating cervical spinal cord injury (SCI). This mechanism is consistent with previous literature, which highlights that patients with poorly controlled seizures are at greater risk of secondary trauma, especially when engaging in daily activities without supervision or protective measures. Additionally, pre-existing degenerative changes in the cervical spine likely exacerbated the structural damage and contributed to the severity of neurological deficits.

This case also illustrates an epilepsy patient with poor adherence to antiseizure therapy, which served as a major precipitating factor for recurrent seizures. In this patient, non-adherence was influenced by limited understanding of the disease, reliance on traditional medicine, and lack of medical follow-up despite experiencing high seizure frequency. These findings are in line with the study by Singh et al. (2024), which demonstrated that sociocultural factors—such as belief in traditional healing practices—and low patient knowledge significantly contribute to poor treatment adherence, ultimately increasing the risk of uncontrolled seizures.⁴

Psychiatric disorders in patients with epilepsy may arise from a complex interaction of biological factors (such as structural and functional changes in epileptogenic brain regions), psychosocial factors (including stigma and activity limitations), and the direct effects of seizures.⁵ In this patient, the diagnosis of adjustment disorder with brief depressive reaction was likely precipitated by the acute traumatic event, anxiety regarding physical disability, and fear of recurrent seizures.

The patient's longstanding epilepsy, coupled with poor adherence to antiseizure medication, underscores the importance of continuous treatment to reduce seizure frequency and mitigate secondary injuries. The EEG findings confirmed a left temporal epileptogenic focus, consistent with the patient's seizure semiology. Psychiatric comorbidity, such as adjustment disorder with depressive reaction, further complicates management but responded well to pharmacological therapy.

CONCLUSION

Patients with uncontrolled epilepsy are at high risk of traumatic injuries, including cervical spinal cord injury leading to tetraparesis. Comprehensive management requires a multidisciplinary approach, incorporating surgical stabilization, pharmacological seizure control, and psychiatric support. This case highlights the necessity of improving patient education, adherence to antiseizure medication, and long-term follow-up to prevent recurrent seizures and secondary complications.

REFERENCES

1. Chuang, S., Lin, C., Lin, M., Chou, C. & Lin, J. (2018) 'Spinal fracture after seizure: a case report and literature review', *BMC Neurology*, 18(1), 147.
2. Chuang, S., Lin, C., Lin, M., Chou, C. & Lin, J. (2018) 'Spinal fracture after seizure: a case report and literature review', *BMC Neurology*, 18(1), 147.
3. Karandikar, A., Choudhari, K.A. and Sangondimath, G., 2017. Postictal vertebral compression fracture and paraplegia: A rare complication of seizure. *Neurology India*, 65(3), p.634.
4. Davis, K.L., Candrilli, S.D., Edin, H.M. and Preblich, R., 2020. Prevalence and cost of nonadherence with antiepileptic drugs in an adult managed care population. *Epilepsia*, 51(10), pp.1979–1986.
5. Fehlings, M.G., Tetreault, L.A., Wilson, J.R. and Kwon, B.K., 2017. A clinical practice guideline for the management of patients with acute spinal cord injury: Recommendations on the timing (≤ 24 hours versus >24 hours) of decompressive surgery. *Global Spine Journal*, 7(3_suppl), pp.195S–202S.