



Post-traumatic encephalomalacia in a young male with focal seizures and cognitive decline: A clinical image

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Clinical Image Description

A 24-year-old male presents as a known case of cerebrovascular accident devoid of co-morbidities with chief complaints of focal seizures, migraines, and progressive cognitive decline spanning six months. Upon clinical examination, mild lower extremity weakness and significant cognitive impairment were noted. Computed Tomography (CT) imaging revealed extensive encephalomalacia with gliosis in the bilateral parafalcine, basifrontal, and frontal regions of the cerebral hemisphere (Figure

1). Further confirmation of post-traumatic encephalomalacia was provided by neuropsychological and Electroencephalogram (EEG) examinations. Surgical intervention was deemed unnecessary by a neurosurgical team on account of the chronic character of the condition. Instead, cognitive rehabilitation treatment was recommended in conjunction with a customized antiepileptic drug prescription to control seizures, which the patient is urged to continue until their next planned consultation.



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Figure 1: Axial CT (Computed tomography) image of the brain demonstrating encephalomalacia with adjacent gliosis in the parafalcine, basifrontal, and frontal regions bilaterally (arrows).

Encephalomalacia refers to the permanent destruction of brain tissue as a result of brain injury or inflammation of the brain parenchyma. It is rarely reported in adults, with the majority of cases outlined in pediatric populations, and cannot be cured due to the absence of neural tissue regeneration [1-3]. Various etiological factors, like infections, traumatic brain injury, or stroke, lead to astrocyte-based scar formation, contracting and causing encephalomalacia, manifesting as motor and sensory deficits, as observed in this case with lower extremity weakness and cognitive decline [3].

Currently, no existing treatment to reverse encephalomalacia is available because the tissue loss is irreversible. Thus, the treatment of encephalomalacia is mainly guided by the prevention of further neurological damage and symptom relief. Common interventions involve anticonvulsant drugs to reduce seizures, physical and occupational therapies to enhance motor skills, cognitive therapies to treat neurocognitive impairments, and psychiatric therapies to treat mood or behavioral disorders. In some extreme cases, operative treatment is necessary to manage any complications or resect necrotic tissue [1,4,5].

The long-term treatment of encephalomalacia involves prolonged cognitive rehabilitation and pharmacological intervention, as well as regular follow-ups, whether surgery was carried out or not, to monitor progress and optimize the patient's status. Although there is a paucity of attention and study on adult patients with encephalomalacia, associated conditions, and their associated burden, this warrants further exploration and population-based studies [1].

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