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Posterior Reversible Encephalopathy Syndrome in a Young Sudanese Female - Case Report

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Introduction:

Posterior reversible encephalopathy syndrome (PRES) is a rare, reversible radio-neurological condition. It commonly presents with seizures, visual disturbances, headaches, impaired level of consciousness, and other focal neurological findings. PRES is often associated with high blood pressure and can result from various causes, including autoimmune disorders, certain medications, and eclampsia. Pathophysiologically, it is characterized by reversible vasogenic cerebral edema predominantly in the occipital and parietal lobes. We report a case of a young Sudanese female with systemic lupus erythematosus (SLE), presenting with generalized seizures and headache. These symptoms occurred without fever and were associated with high blood pressure. Neuro- radiological imaging findings, typical clinical presentation, and the reversibility of the condition confirmed the diagnosis of PRES. This is, to the best of our knowledge, the first case report of PRES in SLE patients from El Obeid, North Kordofan, Western Sudan.

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Background:

Posterior reversible encephalopathy syndrome (PRES) is a potentially reversible neurovascular disorder first described in 1996. It is characterized by clinical symptoms such as seizures, headaches, altered consciousness, and visual disturbances, accompanied by radiological findings of vasogenic edema, primarily in the parieto-occipital regions.
Although the exact pathogenesis remains unclear, the prevailing theories involve failure of cerebral autoregulation due to hypertension or endothelial dysfunction, leading to breakdown of the blood-brain barrier [1]. The syndrome is associated with several precipitating factors, including uncontrolled hypertension, autoimmune diseases (e.g., systemic lupus erythematosus), renal failure, and exposure to immunosuppressive medications. Early recognition of PRES is critical, as delayed intervention can lead to permanent neurological damage or death. Diagnosis is primarily based on clinical presentation and characteristic neuroimaging findings [2].

Case Presentation:

Clinical Features and History:

A 22-year-old Sudanese female presented to our hospital in El Obeid with complaints of generalized tonic-clonic seizures without prodromal symptoms, and a diffuse headache of moderate severity, unaccompanied by fever. Her physical examination was unrevealing apart from pallor and high blood pressure (160/110 mmHg).

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Investigations:

Laboratory Results:

Complete blood count (CBC) and erythrocyte sedimentation rate (ESR) revealed a hemoglobin level of 7 g/dL with elevated ESR (65 mm/hr).

Negative for malaria and normal blood glucose, renal, and liver function tests.
Anti-nuclear antibody (ANA) was positive, fulfilling the diagnostic criteria for SLE.

Neuroimaging:

Brain MRI demonstrated findings consistent with PRES, including bilateral hyperintensities in the parieto-occipital regions on T2-weighted and FLAIR imaging, without evidence of infarction or hemorrhage. Management and Outcome. The patient was treated with antihypertensive and anticonvulsant medications, in addition to steroids and immunosuppressive drugs. The patient showed a dramatic response, with controlled blood pressure and seizures, and her general condition improved. She showed complete clinical and radiological recovery within two weeks, confirming the reversible nature of PRES.

Discussion:

PRES is an increasingly recognized but still underdiagnosed condition in low-resource settings. Hypertension and autoimmune diseases, particularly SLE, are major risk factors. The pathophysiology involves failure of cerebral autoregulation and endothelial dysfunction, resulting in vasogenic edema [3]. This case highlights the importance of early diagnosis of PRES in SLE patients presenting with neurological symptoms, particularly in regions with limited access to advanced imaging modalities. Neuroimaging, specifically MRI, is crucial for confirming PRES as it reveals typical findings of vasogenic edema in the parieto-occipital regions, as seen in this patient [4]. Management of PRES focuses on treating underlying causes and controlling hypertension. Immunosuppressive therapies and corticosteroids also play a vital role in addressing SLE- related complications. The reversible nature of PRES emphasizes the importance of timely intervention, as evidenced by the complete recovery of this patient within two weeks [5].

Conclusion:

This case highlights the importance of recognizing PRES as a potential complication in SLE patients, particularly those presenting with neurological symptoms and uncontrolled hypertension. Prompt diagnosis, supported by neuroimaging, and appropriate management of underlying causes can lead to full recovery. Raising awareness among clinicians in resource- limited settings is crucial for improving outcomes.

Ethical Considerations:

This case report was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki.
Written informed consent was obtained from the patient for publication of this case report and accompanying clinical details. All patient information was anonymized to maintain confidentiality.

Conflict of Interest:

The authors declare no conflict of interest.

Author Contributions:

Mohamed Ahmed Agab: Lead author, managed the case, and wrote the manuscript.
Khalid M.E. Eltslib: Data collection and literature review.
Mustafa Elnour Hussein Bahar: Provided radiological expertise and interpretation of imaging studies.

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