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Case Report

Posterior reversible encephalopathy syndrome presenting as refractory status epilepticus in a patient taking Mycophenolate mofetil for IgA nephropathy: A case report

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1. Introduction

Status epilepticus is a neurological emergency which is defined as a continuous seizure lasting for more than 5 minutes or two or more seizures without full regain of consciousness between any of them [1]. One-third of people with status epilepticus will eventually develop refractory status epilepticus in which there is persistent seizures despite treatment with benzodiazepines and one antiepileptic drug [2]. Posterior reversible encephalopathy syndrome is a clinico-radiological syndrome which presents with rapid onset of symptoms including headache, seizures, altered consciousness, and visual disturbance. PRES is one among the numerous causes of status epilepticus. Therefore, it is vital to detect it early for better neurological outcome. PRES is strongly associated with conditions like renal disease, hypertension, vascular and autoimmune diseases, exposure to immunosuppressive drugs, and organ transplantation.[3]We hereby report a case of a patient receiving Mycophenolate mofetil for IgA nephropathy who presented with refractory status epilepticus as a manifestation of PRES.

2. Case report

A 28 year old female was referred to our center with history of generalized tonic clonic seizures 5 days prior to the presentation to our hospital. There was no history of fever, neck rigidity, vomiting, and photophobia. There was no history of similar illness in the family and no history of drug allergy. During the stay in the previous hospital, the patient developed two more episodes of generalized tonic clonic seizure and multiple episodes of focal seizure due to which patient was intubated in view of refractory seizure. At arrival in our center, the patient had GCS of E1VETM1 and bilateral pupils were sluggishly reactive to light. Her vital signs and systemic examination were unremarkable. She was diagnosed with IgA nephropathy 5 months earlier and was currently taking Mycophenolate mofetil.

Initial laboratory investigations showed no abnormal results except the finding of erythrocytes in urine examination. Lumbar puncture was done by the team of Intensivists but CSF analysis showed no abnormal findings. An initial CT scan of head showed no acute abnormal changes. Investigations to rule out autoimmune encephalitis were sent which were negative.

After admission in our intensive care unit, the patient was kept on anticonvulsant therapy (Levetiracetam, Oxcarbazepine and Sodium Valproate). Despite these measures, she continued to have seizure activity and was then started on infusion of propofol. EEG was done which showed epileptic spike when propofol infusion was stopped and it subsided when propofol infusion was restarted. On 2nd day of admission, she was also started on benzodiazepines (Clobazam). Ketamine infusion was also started as she continued to have seizure activity. This was able to control her seizures and was continued for one more day. Her propofol infusion was continued until the 4th day of admission.

For IgA Nephropathy, Mycophenolate mofetil was discontinued from the time of admission and steroid was started. An MRI scan of the brain was done which showed Cortical/Subcortical T2 flair hyperintensity

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involving the left posterior parietal region with no diffusion restriction or susceptibility change characteristic of PRES as shown in Fig. 1. During the stay in the hospital, the patient developed Urinary tract infection and Hospital Acquired pneumonia which were treated with appropriate antibiotics. She also underwent tracheostomy due to prolonged mechanical ventilation. The patient was finally discharged with oral antiepiletics (Levetiracetam, Clobazam and Oxcarbazepine) after successful decannulation of tracheostomy tube. At the time of discharge, the patient had residual neurological deficit in terms of motor weakness of bilateral upper and lower limbs, which improved completely with continuous physiotherapy and rehabilitation. At the three month period of follow up in the hospital she was completely asymptomatic.

3. Discussion

Posterior reversible encephalopathy syndrome is a serious neurological condition triggered by various clinical conditions. Typical PRES presentation includes headache, visual disturbances, stupor and seizures. Seizures are usually generalized and they occur in the acute stage of the disease, that commonly resolve within days. Refractory status epilepticus is a rare occurrence in PRES [4,5]. The treatment of PRES is aimed to identify underlying causes of the syndrome, and to control hypertension and seizures. In our case, refractory status epilepticus was aggressively managed with intravenous infusion of propofol and ketamine in addition to other antiepileptic drugs.

The proposed pathogenic mechanism for PRES involved hypertension as an inducer of loss of cerebral autoregulation, brain hyperperfusion and endothelial injury leading to the vasogenic edema [6,7]. Association of PRES with Mycophenolate mofetil has been reported in the literature [8,9]. The precise pathogenesis of PRES with Mycophenolate mofetil is not understood. But, it is found that Mycophenolate mofetil inhibits the expression of VCAM-1 and ICAM-1, disrupting the remodeling of the vessel wall leading to impairment of smooth muscle cell proliferation [10].

Not much is known about the incidence of PRES in kidney diseases like IgA Nephropathy. This may be the first reported case of PRES in IgA Nephropathy. Other neurologic conditions, such as stroke, venous thrombosis, toxic or metabolic encephalopathy, demyelinating disorders, vasculitis, or encephalitis should be considered as differential diagnosis during evaluation of PRES. There is limited history and broad differential diagnosis, and early neuroimaging is crucial for the diagnosis of PRES.[11]Typical radiological findings in PRES includes increased signal on T2 and fluid-attenuated inversion recovery (FLAIR) imaging of subcortical white matter with vasogenic edema predominantly involving the parieto-occipital and posterior temporal lobes of both hemispheres of the brain [12].

4. Conclusion

Several cases of PRES are being reported frequently in association with different clinical scenario. Our case showed the rare association of refractory status epilepticus as presenting feature of PRES in patient taking Mycophenolate mofetil for IgA Nephropathy. Complete recovery is possible even after life threatening prolonged refractory status epilepticus with prompt recognition and treatment.

Sources of funding

This study has not received any funding.

Ethical approval

This case report was conducted in compliance with ethical standards.

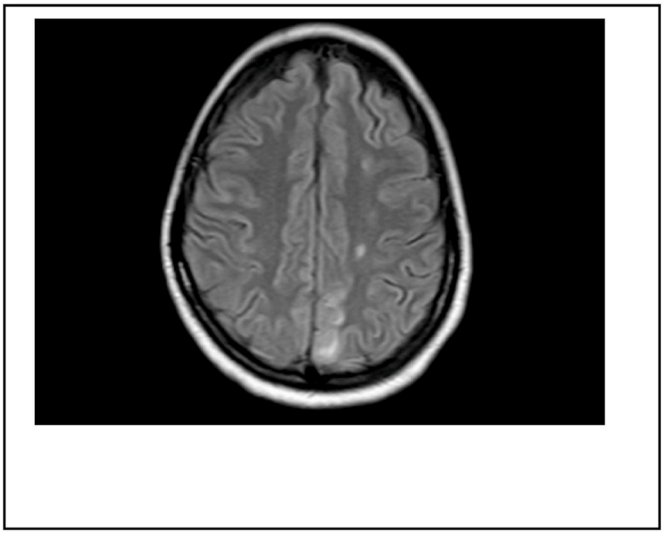

Fig. 1. MRI examination-hyperintense lesions in the left posterior parietal region.

Consent

Informed written consent has been obtained.

Author contribution

I. Kripa KC took relevant history, clinical examination, collected relevant investigations of the patient and wrote the report. And she was directly involved in patient's care.

II. Supriya Lamichhane also wrote the report with relevant history and investigations. And she was directly involved in patient's care.

III. Sarita Kathayat also wrote the report and revised it with relevant information.

IV. Rohit Kumar Chaudhary reviewed and edited the case report. And he was directly involved in patient's care.

V. Sushil Khanal worked for literature review and revision of the case report into its final version.

VI. Subhash Prasad Acharya provided support and mentorship for development, writing and revision of this case report.

Research registration

NA.

Guarantor

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Provenance and peer review

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Declaration of competing interest

There is no any conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.amsu.2021.01.095.

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