Posterior reversible encephalopathy syndrome: A case of elevated blood pressure and new seizure onset post nephrectomy

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History

A 59-year-old female with a history of HTN presented to the ED five days post laparoscopic radical left nephrectomy for a renal mass concerning for malignancy. She complained of nausea, diarrhea, headache, and a blood pressure of 193/90. She also reported decreased PO intake for a few days and that she had recently halved her Atenolol dose due to diarrhea. After supportive management, her symptoms improved and she was discharged home with instructions to resume her normal Atenolol dose. Following a witnessed seizure several days later, she presented to the ED via ambulance in a post-ictal state with bilateral tongue trauma, a blood pressure of 193/93 and an AKI. Pathology from her recent nephrectomy was pending. She had no history of seizures, cancer, or recent illness. However, her husband stated that she had complained of ongoing headaches and high blood pressure since returning home after her surgery. During her hospitalization, her blood pressure fluctuated, and she reported visual hallucinations as her mentation waxed and waned.

Physical Exam

On initial EMS examination, the patient had a blood pressure of 140/100, heart rate of 50, and glucose of 124; she was unresponsive for several minutes. On arrival to the ER, she remained hypertensive and in a post-ictal/encephalopathic state; trauma was present to bilateral sides of her tongue. She was altered and disoriented; she was able to open her eyes and move all her extremities but was unable to converse appropriately.

Differential

- PRES syndrome
- Hypertensive, metabolic or toxic encephalopathy
- Intracranial mass/metastasis
- Venous sinus thrombosis
- Intracranial hemorrhage
- Infective or autoimmune encephalitis or meningitis
- Posterior circulation stroke
- Primary central nervous system vasculitis

Outcome

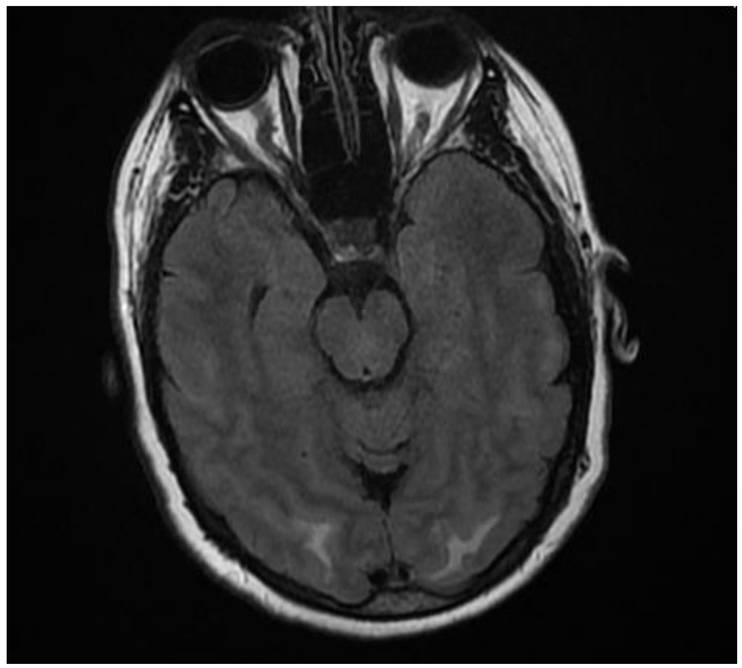
Pathology of the left renal mass revealed clear cell renal cell carcinoma, WHO grade 2. MRI confirmed PRES syndrome. After successful and prompt treatment with IV antihypertensives and antiepileptics, blood pressure readings improved, mental status returned to baseline mentation, hallucinations resolved, and the patient was discharged home on oral Hydralazine, Amlodipine, and Levetiracetam.

Testing and Imaging Results

CT head without contrast showed mildly prominent hypodensity noted within both cerebellar hemispheres with concern for some underlying vasogenic edema. MRI brain was recommended for further characterization to exclude metastatic disease. MRI brain with and without IV contrast showed abnormal FLAIR hyperintense signal involving both cerebellar hemispheres and the subcortical white matter of both occipital lobes, both parietal lobes, and both frontal lobes. Abnormal cortical/subcortical edema with both cerebral hemispheres and both cerebellar hemispheres. Pattern of edema suggested underlying acute hypertensive encephalopathy/cerebrovascular autoregulatory disorder (also known as posterior reversible encephalopathy syndrome). EEG showed nonspecific diffuse slowing which may be seen in the setting of diffuse cerebral dysfunction; such as toxic/metabolic/infectious encephalopathy or heavily sedating medication use. No epileptiform abnormalities were present.

Final Diagnosis

PRES syndrome



Follow Up and Return to Activity

She reported a repeat 60-hour EEG and brain MRI with outpatient Neurology showing complete resolution of any seizure activity and cerebral edema. Her Levetiracetam was discontinued. She remains on Hydralazine for HTN. At 4 months post-discharge, she remained completely asymptomatic and was able to participate in a National Mah Jongg Tournament in September 2022. Her Renal Cell Carcinoma is in complete remission and she had follow up imaging with Oncology scheduled for 12/2022.

Conclusion

Posterior reversible encephalopathy syndrome (PRES) is strongly associated with many known medical conditions and rapid recognition and prompt treatment is key in preventing long-term complications and sometimes even death. Due to its vast array of clinical presentations including varying symptoms and triggers, physician education and awareness is important for apt recognition, treatment, and desired patient outcome. [1,2]

Discussion

PRES is a rare, increasingly recognized but still poorly understood neurological disorder with a wide range of clinical symptoms presenting with rapid onset of headache, altered mental status, seizures, and visual changes[1,2]. Often it is associated with acute hypertension as the trigger but it can be associated with chronic/acute kidney injury, eclampsia, or immunosuppressive treatment[2]. Due to many suspected etiologies and only theories about its physiological effects, the incidence is unknown. [1,2] CT imaging allows for rapid assessment acutely; but CT imaging can be normal in PRES and vasogenic edema seen in the posterior parietal and occipital lobes is more apparent on fluid attenuated inversion recovery MRI sequences[1,2]. Clinical trials have not determined the proper management of PRES but complete recovery is possible with prompt blood pressure control, withdrawal of offending drugs, or delivery in eclampsia[2]. Antiepileptics can be used for seizure prophylaxis. If unrecognized, ischemia, hemorrhage, infarct, or death can occur[2].

References

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