An Interesting Case of Posterior Reversible Encephalopathy Syndrome

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ABSTRACT

Posterior Reversible Encephalopathy Syndrome (PRES) is a special type of cerebrovascular disease defined by clinical and imaging findings. The onset of PRES typically includes acute or subacute headaches, visual impairment, seizures, focal neurological defects and nonspecific symptoms such as nausea and vomiting. The purpose of this case report is to present thecharacteristics of these diseases in a pregnant patient with both preeclampsia and PRES, and to contribute to the literature by discussing the differential diagnosis.

Keywords: Posterior Reversible Encephalopathy Syndrome

Posterior reversible encephalopathy syndrome (PRES) is a neurological disorder with an acute onset characterized by several neurological symptoms, such as headache, visual impairment, visual field defects, impaired consciousness, confusion, seizures, and focal neurological defects [1]. PRES is a clinical syndrome that describes a condition that causes reversible subcortical vasogenic brain edema driven by endothelial dysfunction that mainly affects the bilateral parieto-occipital regions [2]. PRES can be triggered by unregulated blood pressure, eclampsia, autoimmune disease, transplantation, kidney failure, or immunosuppressive or cytotoxic medications. Although the exact etiology is undetermined, endothelial dysfunction is probably suspected [3]. There is no specific therapy for PRES; instead, the syndrome is treated by addressing its underlying cause. In situations with pregnancy-related Pre, treatment includes rapid delivery of the fetus. Magnesium sulfate is indicated in pregnant women with PRES and preeclampsia to avoid seizures [4]. The prognosis of PRES depends on the underlying condition, neurologic symptoms are reversible in most individuals, but neurological sequelae may persist if significant complications accompany PRES. Preeclampsia is an obstetric disorder affecting 3 to 8 percent of pregnant women and remains the primary cause of short- and long- term neonatal and maternal mortality [5]. Worldwide, approximately 4 million women are diagnosed with preeclampsia yearly, and an estimated 70,000 women and 500,000 babies die annually [6]. Preeclampsia is a complex multisystemic disorder characterized by abrupt onset hypertension (>20 weeks of gestation) and proteinuria, as well as dysfunction of maternal organs or uteroplacental dysfunction [7]. The etiology of preeclampsia is

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unknown; however, studies suggest that it is caused by uteroplacental pathology. Proteinuria, acute kidney injury, liver dysfunction, hemolysis, thrombocytopenia, seizures, stroke, and mortality can result from preeclampsia-related end-organ damage [8]. B Major risk factors include chronic hypertension, pregestational diabetes mellitus, antiphospholipid syndrome, and a history of obesity. Other risk factors include advanced maternal age, nulliparity, assisted reproductive treatments, chronic kidney disease, and genetic factors [8, 9]. Delivery is the only definitive therapy, and low-dose aspirin is recommended for high-risk pregnant women as a prophylaxis [10].

CASE PRESENTATION

A 26-year-old primigravida 30-week pregnant patient applied to our emergency department complaining of vomiting and hitting her head against the wall due to fainting while standing up. It was found that the pregnancy follow-up was conducted at an external center, there was no issue with the follow-up, and there was no chronic disease.

Her general condition was moderate; her consciousness was confused and disoriented, and her cooperation was limited. Pupils were isochoric, light reflex +/+. Verbal output was normal, there was no motor-sensory loss, and there was no neck stiffness. Other system examinations did not reveal any pathologic findings or trauma-related lesions. The temperature was 36.2 °C, blood pressure was 180/100 mmHg, heart rate was 100 beats per minute, and SpO2 was 98%. Laboratory values were WBC:19830/ml, Hgb:12.6 g/dl, PLT:112000 mcl, BUN 19 mg/dl, creatinine 1.13, ALT 59 U/L, AST 55 U/L, proteinuria 3+ in the urine. In the brain diffusion MRI, which was hyperintense in the ADC and T2 sequences, diffusion was restricted in both basal ganglia and the left occipital lobe (Figure 1).

Betamethasone, nifedipine, and MgSO4 were administered to the patient. Neurology and obstetrics consultation requests were made simultaneously. In the obstetric examination, the fetal heart rate (+) was compatible with the fetus at 30 weeks, and the amniotic fluid was adequate. Posterior Reversible Encephalopathy Syndrome (PRES) was considered in the patient who was evaluated by neurology. The patient underwent an emergency cesarean section due to severe preeclampsia and was hospitalized in the post-operative intensive care unit and discharged on the thirteenth day after recovering.

DISCUSSION

Posterior reversible encephalopathy syndrome (PRES), also called reversible posterior leukoencephalopathy syndrome (RPLS), is a special kind of cerebrovascular syndrome characterized by clinical and imaging features. The onset of PRES typically includes acute or subacute headaches, vision changes, seizures, impaired consciousness, focal neurological changes, and nonspecific symptoms such as nausea and vomiting. The gold standard for diagnosing and assessing PRES is magnetic resonance imaging

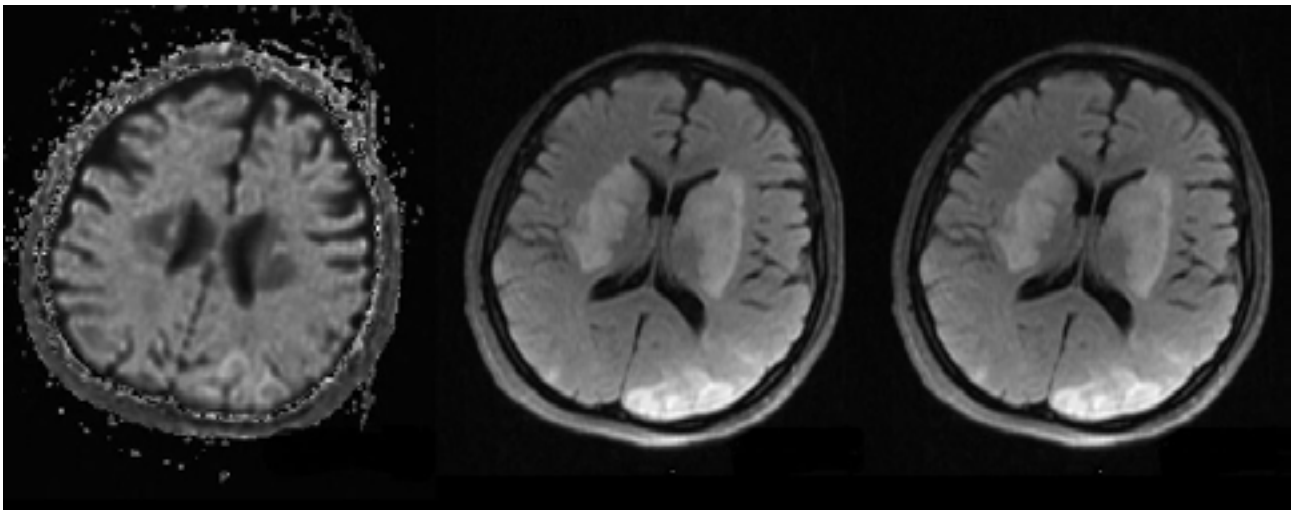

Figure 1. The brain diffusion MRI,hyperintense in the ADC and T2 sequences, diffusion was restricted in both basal ganglia and the left occipital lobe

(MRI). This syndrome's imaging features include vasogenic edema of the subcortical white matter in most patients and possible cytotoxic edema in some patients [11].

Vascular diseases include cerebral venous sinus thrombosis, toxic or metabolic leukoencephalopathy, hereditary leukodystrophy, demyelinating disease of the central nervous system, lymphoma and tumors, and reversible vasoconstriction syndromes should be considered in the differential diagnosis. Many ideas of pathophysiological mechanisms have been presented, even though the actual etiopathogenesis of PRES still needs to be understood entirely. The most prevalent theory is that abruptly elevating blood pressure surpasses the top limit of cerebral blood flow autoregulation, resulting in hyperperfusion, disruption of the blood- brain barrier, and vasogenic edema. Nevertheless, 20% to 50% of PRES patient cases were normotensive or hypotensive [12].

Acute management of PRES is supportive and focused on eradicating the underlying cause. There have been no randomized trials of the various interventions used to treat PRES, and treatment guidelines are generally consensus-based. Patients should be hydrated, and electrolyte imbalances must be addressed. Blood pressure should be steadily lowered by 20- 25% within the first few hours to prevent cerebral, coronary, and renal ischemia in individuals with acute hypertension. Patients with cerebral edema who experience elevated intracranial pressure may require neurosurgical intervention. The prognosis is typically favorable, although more severely afflicted individuals may require critical care support and neurologic sequelae [13].

In our case, the neurological symptoms of a 30-week pregnant patient, along with elevated blood pressure and proteinuria, led to the diagnosis of preeclampsia, and MRI findings of hyperintense lesions in the basal ganglia and occipital lobe supported PRES. The patient's blood pressure and neurological symptoms improved after terminating the pregnancy.

In this case report, we emphasized that PRES should also be considered in the differential diagnosis of patients presenting to the emergency department with neurological complaints, with preeclampsia and emergency department management being the most common causes.

Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Authors' Contribution

Study Conception: FBÇ, MY, AK, MOA, UO, HK; Study Design: FBÇ, AK, MY; Literature Review: FBÇ, MY, UO, HK; Critical Review: FBÇ, MY, AK, HK; Data Collection and/or Processing: FBÇ, MY, MOA, HK,; Analysis and/or Data Interpretation: FBÇ, MY, MOA, HK; Manuscript preparing: FBÇ, MY, AK.

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