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Case Report OMICS International

Posterior Reversible Encephalopathy Syndrome with Bad Imaging of Cerebral Venous Sinus: A Case Report

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Abstract

Posterior Reversible Encephalopathy Syndrome (PRES) refers to a disorder of reversible subcortical vasogenic oedema in patients with acute neurological symptoms. Its clinical manifestations include seizures, visual disturbances, headache, confusion, impaired consciousness, ataxia, and other focal neurological signs. It is a complex and multidisciplinary disease with the pathophysiological changes still controversial. Therefore, clinical and neuro-imaging judgment seems so crucial. Here, we reported a case of PRES with bad imaging of cerebral venous sinus, which reminds us that the atypical imaging of RPES should be recognized to make early diagnosis and start immediate treatment.

Keywords: Cerebral venous sinus; Ataxia; Epileptic seizure; Oedema

Introduction

Posterior Reversible Encephalopathy Syndrome (PRES) refers to a disorder of reversible subcortical vasogenic oedema in patients with acute neurological symptoms [1,2]. It was characterized by seizures, visual disturbances, headache, confusion, impaired consciousness, ataxia, and other focal neurological signs [3]. The main causes of PRES involve hypertensive encephala-opathy, autoimmune disorders, use of cytotoxic drugs, and eclampsia [1]. Usually, the white matters in the bilateral parieto-occipital regions are the main affected areas, which generally appear high-intensity on T2-weighted and FLAIR images. PRES is a complex and multidisciplinary disease, which can be encountered by neurologists, internists, oncologists, obstetricians, transplantation surgeons [2,4,5]. The symptoms and signs are nonspecific with no guidelines to direct this assessment. Therefore, clinical and neuro-imaging judgment seems so crucial, and it should be considered in patients that present with any neurological deficits. As to differential diagnosis, cerebral venous sinus thrombosis (CVST) should be taken into special consideration, because these two diseases have similar clinical presentations and corresponding neuro-imaging changes. Thus, it is difficult to distinguish one from the other, and the two diseases can even coexist sometimes [6]. Here, we reported a case of PRES with bad imaging of cerebral venous sinus.

Case Report

A 26-year old pregnant woman with 33(+4) weeks from the last menstrual period was admitted to the emergency. She suffered irregular upper abdominal pain accompanied by vomiting after eating wild mushrooms at 18 pm. All vital signs, physical, and laboratory examinations (digestive color ultrasound, fetal heart monitor blood routine) were generally normal, so she was given miscarriage (magnesium sulfate) and symptomatic treatment. However, she experienced epileptic seizure at 5:25 am in the next day, and blood pressure suddenly reached 190/130 mmHg. Thus, antispasmodic, sedative, analgesia, and anti-hypertensive therapy (magnesium sulfate, promethazine, phenobarbital, pethidine, and labetalol) were applied immediately. Regrettably, second epileptic seizure began soon at 6:45 am despite the active treatment and her condition deteriorated sharply. The patient fell into coma quickly at 7:00 am with rapid and shallow breath, which has to endotracheal intubated for respiratory support. After the situation became somewhat stable, brain Magnetic Resonance Imaging (MRI) was performed, which showed extensive hyper intense lesions in T2-weighted images, especially the cerebral cortex and basal ganglia (Figure 1).

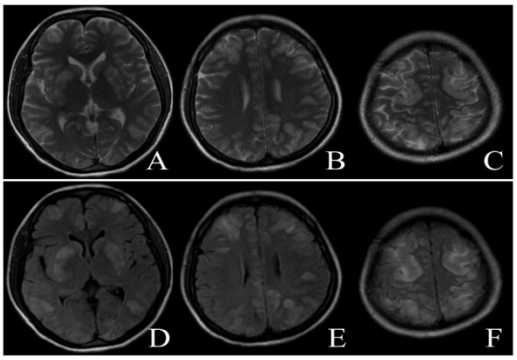

Figure 1: The MR images of the patient before treatment. It showed extensive hyper intense lesions in the basal ganglia and cerebral cortex of parieto-occipital lobes in T2-weighted images, including Flair images.

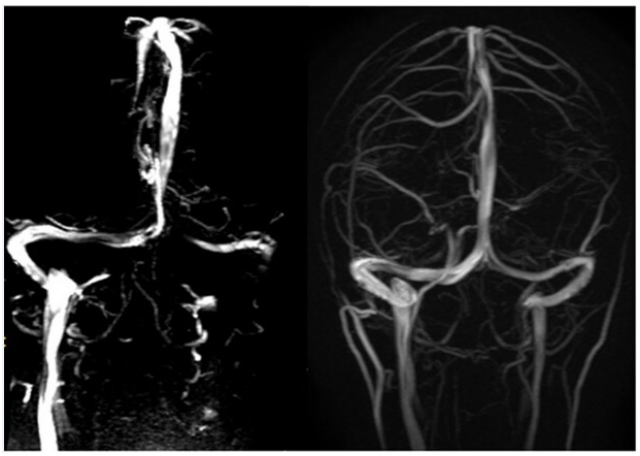

Figure 2: The MRV images of the patient before and after treatment. The left picture indicated probable thrombosis in the left sigmoid sinus before treatment, and right picture indicated the lesions disappeared completely after treatment (without anticoagulation therapy).

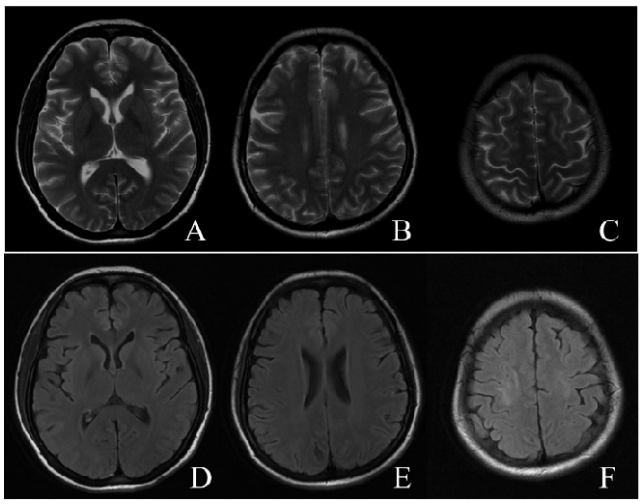

Figure 3: The MR images of the patient after treatment showed the lesions on brain MRI disappeared completely after treatment.

Magnetic Resonance Venography (MRV) was also conducted to exclude cerebral venous sinus thrombosis, which indicated probable thrombosis in the left sigmoid sinus (Figure 2). Soon, she was treated with emergency caesarean section, together with antispasmodic, sedative, analgesia, antihypertensive and other symptomatic treatment, but without anticoagulation therapy. Surprisingly, the woman just became conscious the next day. After a several-day treatment, the woman totally recovered with no complications. The lesions on brain MRI and MRV also disappeared completely (Figure 2 and 3). In this case, it is possible to exclude intracranial venous sinus thrombosis without using anticoagulant drugs.

Discussion

As described above, PRES is a complex and multidisciplinary disease, and should be considered in patients that present with any neurological deficits. Currently, the pathophysiological changes of PRES are still controversial. A leading theory suggests that the sharp rise of hypertension exceeds the cerebral blood flow auto regulation upper limit, and leads to hyper perfusion. Subsequently, the hyper perfusion leads to the blood-brain barrier breakdown and brain oedema [7,8]. The patient we reported here also suffered from hyper perfusion due to severe hypertension, which further confirmed the above theory. Generally, the visualized brain oedema could be recognized on brain MRI or CT, with bilateral and symmetrical posterior white matter lesions mainly involving parieto-occipital lobes [9,10]. Involvement of the cerebral cortex and basal ganglia are less common, which is observed in the case we reported here.

Moreover, this case indicates that we should consider the diagnosis of PRES even at the bad imaging of cerebral venous sinus, which is so rare [6]. Probably, slow blood flow in the left sigmoid sinus is the explanation in the MRV images before treatment. Finally, the woman fully recovered within two days, which reminds us that PRES has a favourable prognosis when correct treatment is immediate. However, it also can be irreversible and even life-threatening if the therapy is not timely [1]. Therefore, the neurologists should recognize this atypical imaging of RPES to make early diagnosis and start appropriate treatment.

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