Case report

POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME WITH BLOOD TRANSFUSION?

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ABSTRACT

Posterior Reverse Encephalopathy Syndrome (PRES) is a clinico-neuroradiologic entity with various neurological manifestations, including headaches, vision problems, and altered mental status. Oedema has been observed in a generally symmetrical fashion in MRI studies, most often in the subcortical white matter and rarely in the cortex of the occipital and parietal lobes. When properly treated, this condition is usually reversible; however, failure to make a timely diagnosis may result in cerebral infarction and even death. This case report presents a 30-year-old woman with a history of postpartum bleeding and anuria, later diagnosed with PRES syndrome. This rare case is reported here for information of neurology clinicians to keep the features in mind if any such case comes up in future.

Key Words: Acute Kidney Injury, Posterior Reversible Encephalopathy Syndrome (PRES), Blood Transfusion

INTRODUCTION

Posterior reversible encephalopathy syndrome (PRES), also called reversible posterior leukoencephalopathy syndrome (RPLS), was initially described by Hinchey in 1996(1). It is characterized by several symptoms, including headache, vision change, paresis, nausea, and altered mental status(2). The pathogenesis of PRES Syndrome is still not clear. However, hypertension and endothelial injury tend to be present in almost all cases.

Here we are presenting a 30-year-old woman, gravida 3 and Para 4 came to the emergency department with complaints of anuria, loss of appetite and vomiting a day after delivering an Intrauterine death (IUD) baby at home and a history of postpartum bleeding. At the time of arrival in the emergency department, the patient was fully conscious and oriented to time, place and person. She had a pulse of 98 bpm, blood pressure of 170/100 mmHg, respiratory rate of 24breaths/minute and body temperature of 98.6°F. All systemic examinations, including the abdominal, respiratory, cardiovascular, and central nervous systems, were unremarkable. Baseline investigations including Hemoglobin were 4.3 g/dl with Mean Corpuscular Volume was 54/Fl, Total Leukocyte Count was 7.2 x 109 and Platelets count was 150 000. Sodium was 135; Potassium was 4.7mmol/L, Chloride was 103mmol/L, and Bicarbonate was 17mmol/L. Urea was 97 mg/dl, and Creatinine was 6.1 mg/dl. On ultrasound, no retained part of conception was found, and kidney size and echogenicity were within normal limits.

Our impression was Acute Kidney Injury due to postpartum haemorrhage. The treatment was started with Amlodipine 10 per day, Omeprazole 40mg, Metoclopramide, Iron Therapy, and 4 pints of Packed Cell Volumes were transfused.

On day 4th, her Urea and Creatinine were in a declining pattern, and her urine output was also improved, but the patient suddenly developed a loss of vision bilaterally. Her fundoscopic examination was normal at that time, and the other examination was unremarkable.

Her MRI brain shows T2 High Signal Noted B/L symmetrically within the Cortex and Subcortical region of both parietal and occipital lobes, which was associated with gyral swelling. These appeared low on T1W and high on FLAIR and T2W. These findings are suggestive of PRES Syndrome (Figure 1). On day 8th, she recovered her vision gradually, and 2 days later, after clinical improvement, the patient was discharged with medication and followed up in the outpatient department.

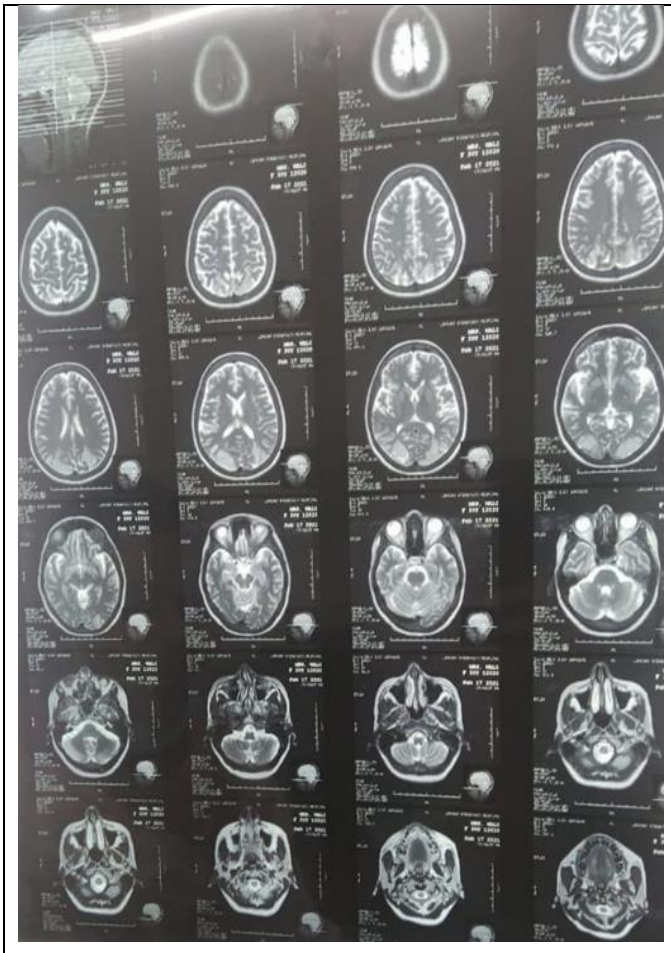

Figure 1a. MRI Scan of the patient diagnosed with PRES Syndrome

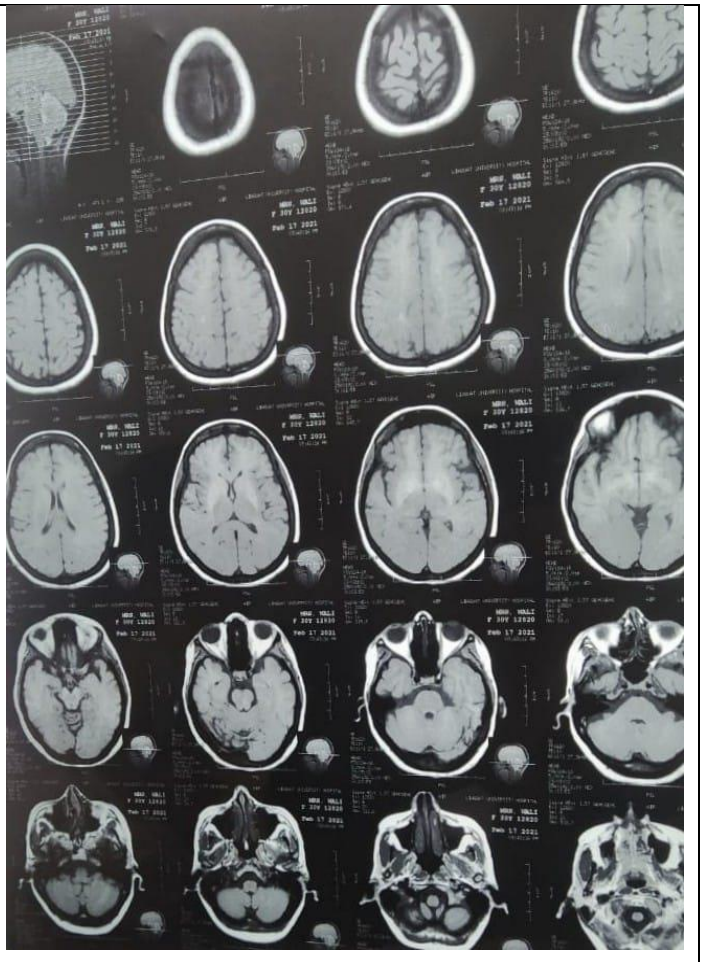

Figure 1b. MRI Scan of the patient diagnosed with PRES Syndrome

DISCUSSION

Hypertension, uncomplicated and complicated pregnancies, immunosuppressive medications such as steroids, cyclosporin and tacrolimus (3), hemolytic uremic syndrome, hepatic syndrome, acute

intermittent porphyria, HIV, and blood transfusion are also contributing factors for PRES syndrome. A clear female preponderance of cases exists.

The failure of autoregulation and the blood-brain barrier in the pathogenesis of brain oedema in PRES. As this posterior circulation has less sympathetic innervation than the internal carotid artery territory, it may be more vulnerable to autoregulation failure(4). The parieto-occipital area was involved in 98.7% of cases, the posterior frontal region was involved in 78.9% of cases, and according to the McKinney study, the temporal region was involved in 68.4% of patients (5).

Blood transfusions can dramatically increase overall blood volume, which can induce brain blood flow pressure. Vasogenic oedema in PRES is thought to be caused by a sudden increase in perfusion that leads to a rise in cerebral capillary perfusion pressure, ultimately exceeding the ability of the autoregulation mechanism(6).

Our patient was severely anaemic, so four pints of packed cell volume were transfused during her hospital stay. She acquired PRES syndrome a couple of days later, implying that she developed PRES syndrome due to blood transfusions. It is suspected that PRES may be a significant issue in massive blood transfusions. A high index of suspicion and timely care will help minimize morbidity and mortality and pave the way for a quick recovery. This should be borne in mind when dealing with patients needing emergency blood transfusions.

CONCLUSION

PRES syndrome was suspected in a woman presenting with postpartum haemorrhage, and four pints of blood were transfused. Therefore, it is essential to keep in mind that such cases can be suspected after transfusion.

REFERENCES

1. J Hinchey 1, C Chaves, B Appignani, J Breen, L Pao, A Wang, M S Pessin, C Lamy, J L Mas, L R Caplan. A reversible posterior leukoencephalopathy syndrome. N Engl J Med 1996; 334 (8):494-500.
2. C Roth , A Ferbert. The posterior reversible encephalopathy syndrome: what's certain, what's new?. Practical Neurology 2011; 11(3):136-44.
3. Susmitha Apuri , Kristin Carlin , Edward Bass , Phuong Thuy Nguyen , John N Greene . Tacrolimus associated posterior reversible encephalopathy syndrome - a case series and review. Mediterranean Journal of Hematology and Infectious Diseases 2014; 6(1)
4. Ayoub Mirza. Posterior reversible encephalopathy syndrome: a variant of hypertensive encephalopathy. Journal of Clinical Neuroscience 2006; 13(5): 590-5.
5. Alexander M. McKinney, James Short, Charles L. Truwit, Zeke J. McKinney. Posterior Reversible Encephalopathy Syndrome: Incidence of Atypical Regions of Involvement and Imaging Findings. American Journal of Roentgenology 2007; 189(4): 904-12.

6. Kei-ichiro Wada, Masayoshi Kano, Yutaka Machida, Nobutaka Hattori, Hideto Miwa. Posterior reversible encephalopathy syndrome induced after blood transfusion for severe anemia. Case Reports in Clinical Medicine 2013; 2(5):.