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PRES Masquerading as CVA or Meningitis

Dr. Ritu Gupta[1], Dr. Sandeep Singh[2], Dr. Sushma Choudhary[3], Dr. Vanisha Jhawar[4]

[1]Professor Netaji Subhash Chandra Bose Medical College Jabalpur
Corresponding Author Email: *dr. ritugupta76[at]yahoo.in*
Mob. No.9425861502

[2]Associate Professor Netaji Subhash Chandra Bose Medical College Jabalpur

[3]Assistant Professor Netaji Subhash Chandra Bose Medical College Jabalpur

[4]PG Second Year Netaji Subhash Chandra Bose Medical College Jabalpur

Abstract: ***PRES is a neurological disorder which is characterised by acute emergency presentation, which include visual disturbances, headache, vomiting, seizures and altered consciousness. The exact pathophysiology of PRES has not been completely explained, but hypertension and endothelial injury seem to be almost always present. Vasoconstriction resulting in vasogenic and cytotoxic edema is suspected to be responsible for the clinical symptoms as well as the neuro - radiological presentation. We are presenting cases of PREE syndrome who were having no previous history of Systolic hypertension, or fever but presented with hypertension and altered sensorium. A 58 yr old female presented with complaints of severe headache, vomiting followed by abnormal body movements and altered sensorium for about 1 day. Her routine investigation like CBC shows Pancytopenia and LFT, RFT appears to be normal. She is k/c/o Aplastic anemia and is on Tab Cyclosporine since 1 month. Another patient, a 29 yr old male presented with complaints of vomiting and loss blurring of vision. RFT was deranged and Urine routine examination shows pus cells and RBC. ASO titre came positive which s/o Post infective glomerulonephritis. CE- MRI brain of both patients shows focal areas of hyperintensity scattered in white matter, sign of PRES. These patients respond symptomatically on antihypertensive and MRI changes revert back to normal after treatment***

Keywords: PRES – Posterior reversible encephalopathy syndrome, CBC – Complete blood count, RFT - Renal function test, LFT - Liver function test.

1. Introduction

PRES is a disorder of reversible sub cortical vasogenic brain oedema in patients who have no previous history of Hypertension, fever or CNS disorder and presents with headache, seizure, altered sensorium, visual disturbances and raised BP and characteristic lesion on neuroimaging.

If patient presents with acute rise in BP with no neurological deficit and no secondary cause is there then PRES can be suspected.

Other terms -
Reversible posterior cerebral edge a syndrome Posterior leukoencephalopathy syndrome Hyperperfusion encephalopathy
Brain capillary leak syndrome

2. Case Series

2 patients otherwise normal came with altered sensorium with raised Blood Pressure

Case 1: A 58 yr old female presented with nausea and vomiting since 2 days, abnormal body movements and altered sensorium since 1 day. She is a k/c/o Aplastic Anemia on Chemotherapy Tab Cyclosporine since 1 month. Patient had no previous history of Hypertension.

On admission her Blood Pressure was 200/100 mmHg.

Patient was admitted and management carried out. Routine investigations along with CE - MRI scan brain, fundus examination was done.

Patient's hemogram was showing Pancytopenia picture with Hb – 6.0 g/dl, TLC – 1920/ul, Platelet – 11000/ul. Liver profile, renal profile and lipid profile was normal. HIV, HBsAg and HCV negative. Neck rigidity was present but Kerning and brudzinski sign was negative.

CSF routine analysis was normal. CSF culture report showed no organism and no pus cell. Fundus examination was normal.

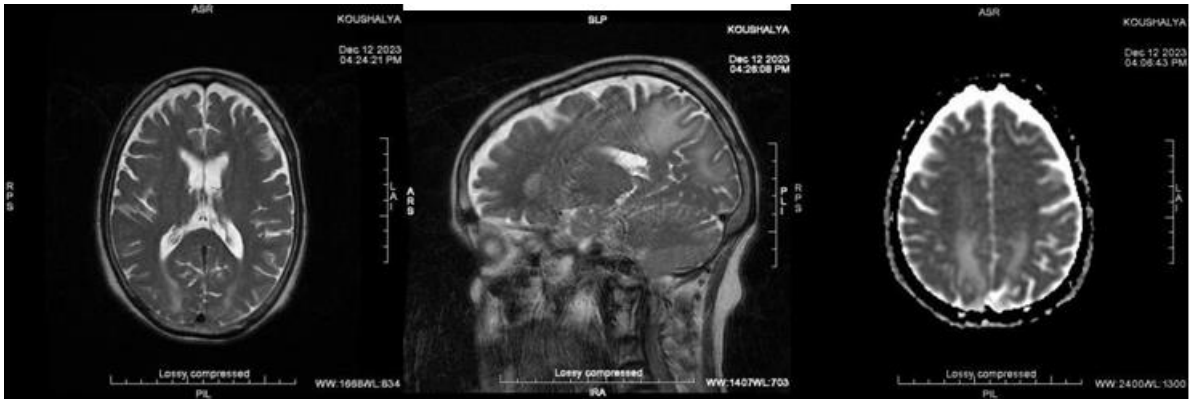
CE - MRI Brain – sign of PRES (posterior reversible encephalopathy syndrome).

CE - Cervical Spine – T1 and T2 hypointense lesion noted in C7, D3 and D6 vertebrae – likely representing areas of hematopoietic cells. Diffuse disc bulge noted at C4 - C5 level causing compression on the thecal sac and indentation of spinal cord.

Past history – k/c/oAplastic anemia (Bone Marrow Aspiration – Aplastic Anemia (09 - 10 - 2023)

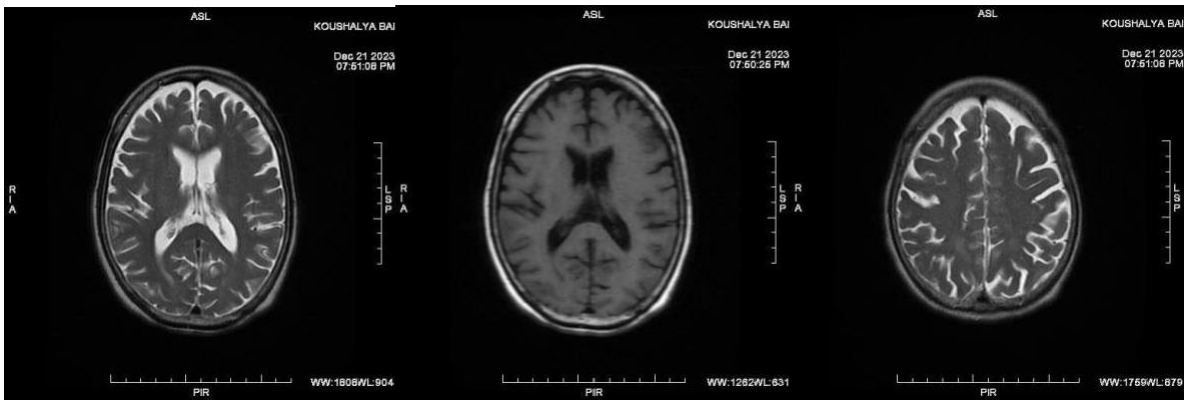
Family history – Not significant

CE - MRI Brain Images
On admission – Non- enhancing T1 hypointense and T2/FLAIR hyper intense areas with no evidence of restriction on DWI noted in the bilateral parietooccipital regions, suggestive of vasogenic oedema 'suggestive of Posterior reversible encephalopathy syndrome (PRES)'.



Outcome
Patient was put on Antibiotics, Phenytoin, Steroids, Antihypertensives. Regular BP monitoring was done. Patient clinical condition improved and seizure episodes were stoppedand BP came to normal. Neurosurgery opinion done in view of MRI cervical spine finding and advised conservative management. Patient was on tab Cyclosporine since 1 month and this patient develop severe Hypertension with Hypertensive emergency as a result of side effect of this drug. patient improved on the above treatment and Cyclosporine was discontinued.

Repeat CE - MRI brain – Old ischemic changes in B/l cerebral white matter. No acute haemorrhage or SOL.



Case 2: A 29 year old male admitted with complaints of giddiness since morning (26/09/2023) followed by multiple episode of vomiting followed by loss of consciousness for 15 min. Patient regained consciousness but complains of loss of vision. Patient was initially admitted at pvt hospital with BP 180/90 mmHg then referred to our NSCB MCH Jabalpur and presented to us with complaint of loss of vision.

Patient was admitted and management was carried out. Routine investigations along with CE - MRI scan brain, fundus examination was done.

Neck rigidity, Kerning and brudzinski sign was negative. Power – 5/5 in all 4 limbs. Fundus examination was normal.

Patient's hemogram - Hb – 10.4 g/dl, TLC – 15500/ul, Platelet – 350000/ul. Liver profile and lipid profile was normal. HIV, HBsAg and HCV negative.

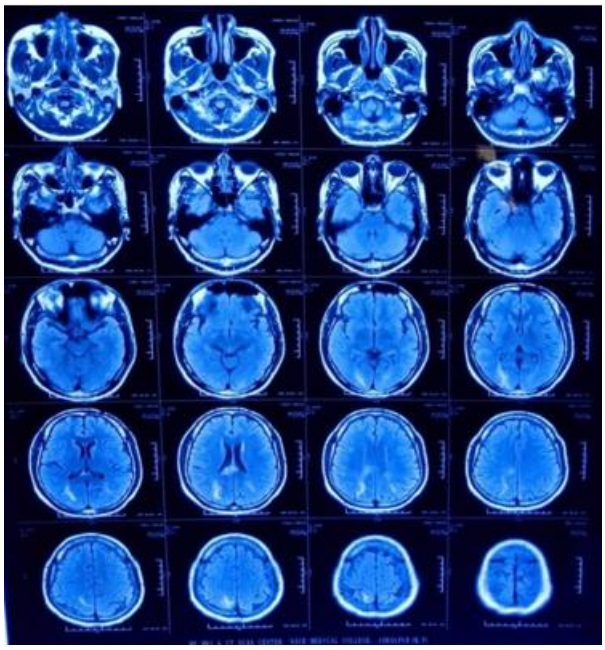
On admission: Serum Creatinine – 1.41 mg/dl, Blood urea – 36.4 mg/dl, S. Na+ 142 meq/l, S. K+ 4.2 meq/l

Date	26/09/2023	06/10/2023	07/10/2023
S. Creatinine (mg/dl)	1.41	1.95	0.98

Urine Routine examination –
Pus cells: 15 - 20/HPF; RBCs: 180 - 200; Protein: ++; Sugar: nil; pH: 6.0; S. G: 1.025; Casts, crystals and bacteria absent
ASO titre: positive
USG Abdomen and pelvis – Normal study at scan. Normal Renal artery colour Doppler at scan.

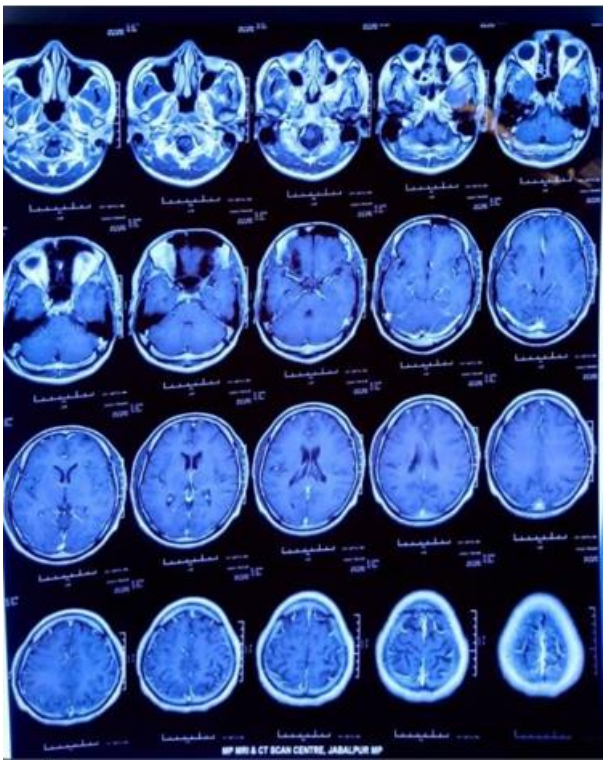
CE - MRI Brain–suggestive of PRES (posterior reversible encephalopathy syndrome). Old lacunar infarct is noted in the caudate nucleus and right frontal white matter.

CE - MRI Brain Images
On admission – features suggestive of Posterior reversible encephalopathy syndrome (PRES)'.



Progress:
Patient came in Hypertensive emergency with loss of vision. RFT was deranged and Urine routine examination shows pus cells and RBC. ASO titre came positive which s/o Post infective glomerulonephritis. Patient was put on antibiotics and symptomatic treatment, anti hypertensive and Nephrology call was done and treatment started as per advice. But patient did not gain complete consciousness so MRI was planned which was suggestive of PRES. Patient improved significantly with treatment and was discharged.

Repeat CEMRI brain – No evidence of acute infarct, intracranial haemorrhage, demyelinating lesion, space occupying lesion or midline shift. No evidence of any abnormal meningeal enhancement.



3. Discussion

Posterior reversible encephalopathy syndrome (PRES), also known as reversible posterior leukoencephalopathy syndrome (RPLS), is a rare condition in which parts of the brain are affected by swelling, usually as a result of an underlying cause. Someone with PRES may experience headaches, change in vision, and seizures with some developing other neurological symptoms such as confusion or weakness of one or more limbs. The name of the condition includes the word "posterior" because it predominantly though not exclusively affects the back of the brain (the parietal and occipital lobes). Common underlying causes are severely elevated Blood Pressure, kidney failure, severe infections, certain medications, some autoimmune diseases and pre - eclampsia. The diagnosis is usually made by a brain scan (MRI) on which areas can be identified.

The treatment for PRES is supportive: removal of the cause or causes and controlling the Blood Pressure and treatment of any of the complications, such as anticonvulsant for seizures. PRES may be complicated by intracranial hemorrhage, but this is relatively rare. The majority of people recover fully, although some may experience some residual symptoms. PRES was first described in 1996.

4. Important Guidelines

When any patient presents with headache, vomiting, blurring of vision or altered sensorium with raised Blood Pressure with suspicion of PRES occurs, clinician must be very watchful for early diagnosis (by relevant investigations) and treatment; as the condition is reversible when diagnosed early and treated properly.

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