

Sudden onset confusion and cortical blindness in pregnancy: Posterior Reversible Encephalopathy Syndrome

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Introduction

Posterior reversible encephalopathy syndrome (PRES) is a clinical syndrome characterised by bilateral vasogenic oedema of the subcortical white matter commonly affecting the parieto-occipital regions. It can present with headache, altered mental state, seizures and visual loss. It is seen in patients with uncontrolled hypertension, autoimmune conditions, renal failure and eclampsia. Early detection is key to enable timely resolution of symptoms. CT and MRI are key investigations to support a diagnosis.

Objective

To highlight a rare initial presentation of severe pre-eclampsia with the first clinical signs attributable to PRES (Posterior Reversible Encephalopathy Syndrome).

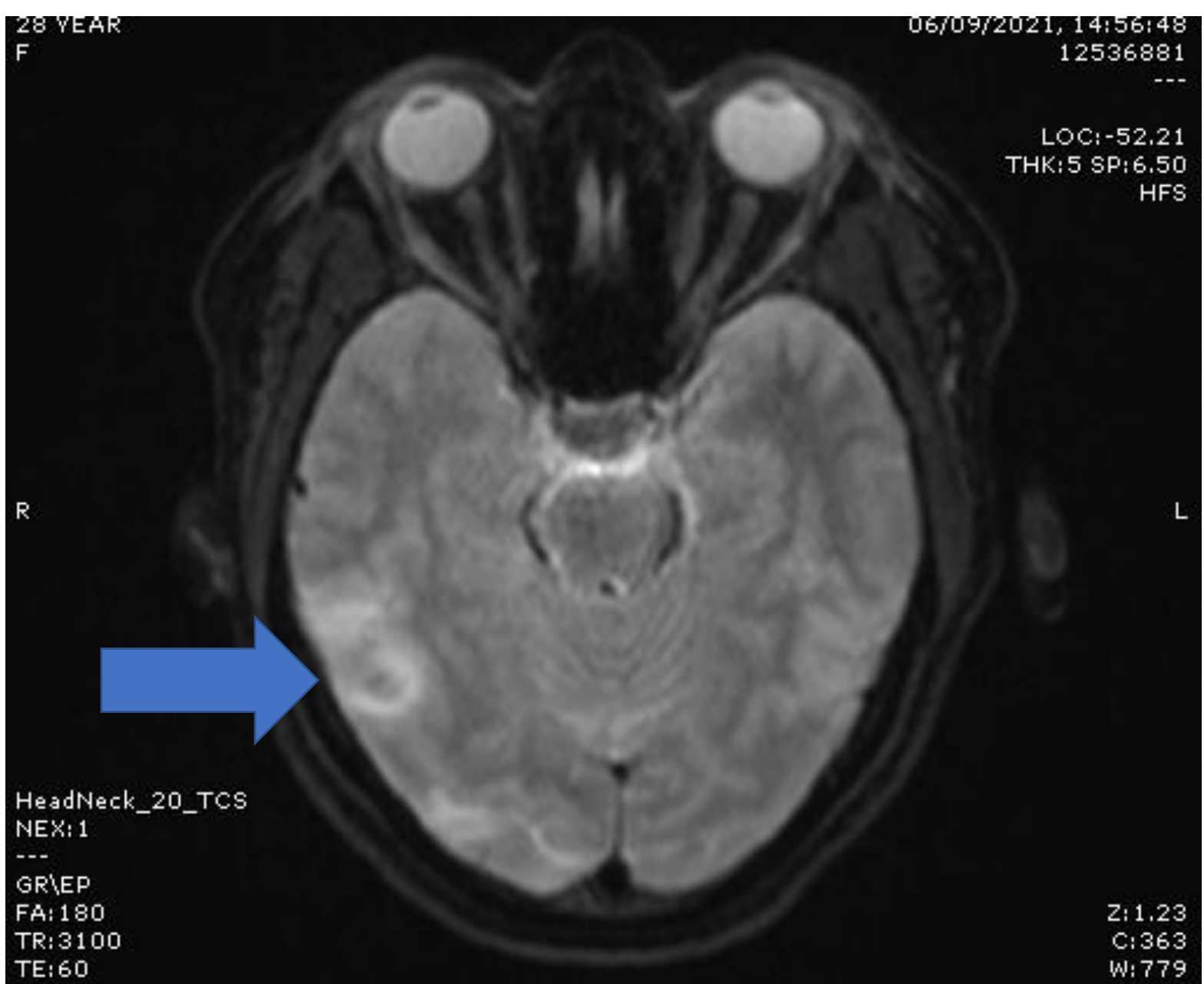
CT Head (Day 0)

Bilateral occipital lobe and left basal ganglia hypodensities representing vasogenic oedema. No mass, haemorrhage, hydrocephalus or collection. Findings in keeping with posterior reversible encephalopathy syndrome.

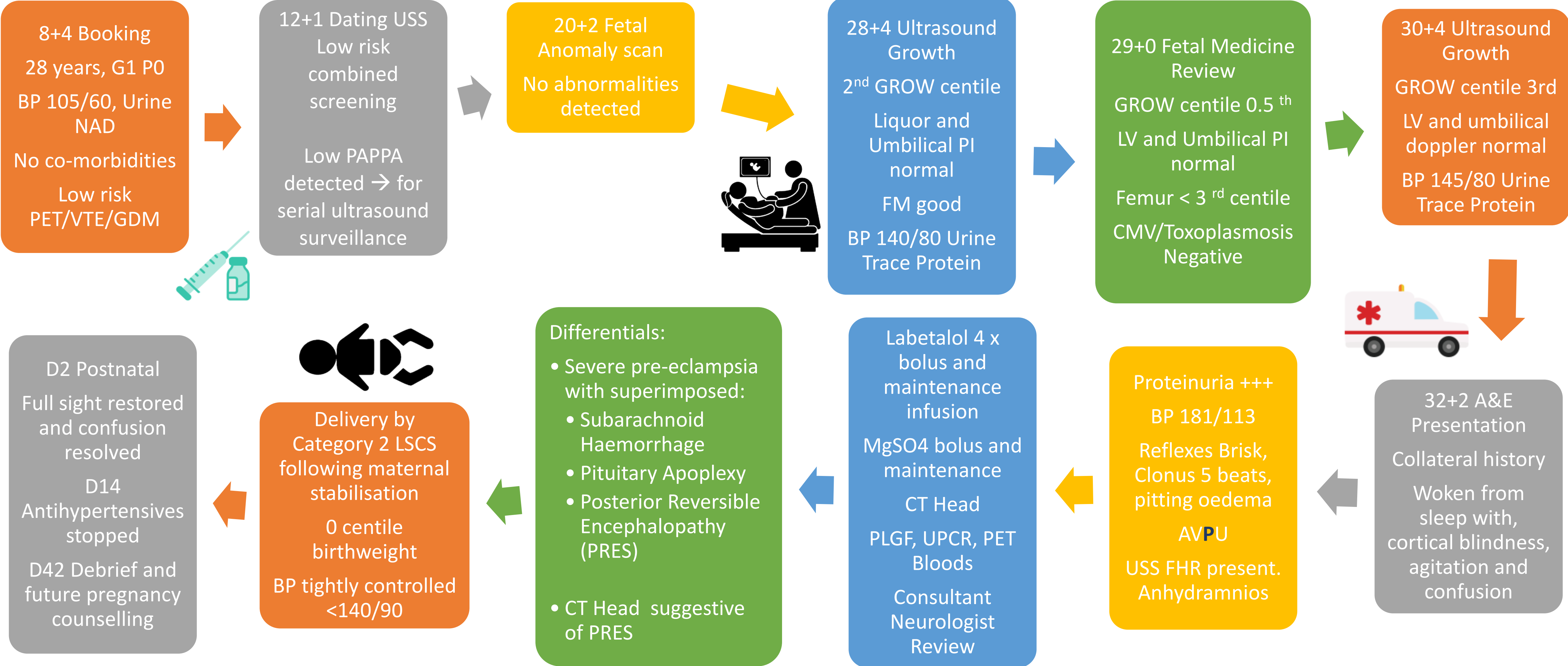


MRI Brain (Day 1)

Subcortical vasogenic oedema in the right temporal and bilateral occipital lobes and within external capsules, caudates and posterior limb of left internal capsule. No acute infarction, mass or haemorrhage. Findings in keeping with PRES.



Case Report



Discussion

PRES is attributed to disordered autoregulation and endothelial dysfunction causing hyper-perfusion of the posterior circulation, vasoconstriction and oedema, hence treatment is focused on the underlying cause. Studies have shown 97.9% of patients with eclampsia have radiological changes in keeping with PRES suggesting that the disease entities are the same, with eclampsia the historic diagnosis, prior to imaging being available.

Acute confusion, delay in collateral history due to COVID restrictions or a known diagnosis of pre-eclampsia had the potential to delay diagnosis in this case. A thorough ABCDE assessment ensured that positive findings were identified systematically and managed accordingly. Following the initial presentation of headache, confusion, severe hypertension, brisk reflexes and significant maternal oedema the diagnosis of PRES was made a primary differential, with pre-eclampsia complicated by subarachnoid haemorrhage or pituitary apoplexy also considered. Significant proteinuria and a CT Head performed within the emergency department showing evidence of vasogenic oedema cemented the diagnosis.

Symptoms typically present over hours to days, with this case being particularly rapid in onset, evolving within the period of a 30 minute sleep. Pregnancy should not affect an acutely unwell pregnant patient from adequate investigation and hence as in the described case, where out of hours MRI is not available, CT Head should be performed to assess for acute pathology in the presence of new onset neurological symptoms.

The initial aggressive management of hypertension resulted in hyperkalaemia (6.3 mmol/L), attributable to labetalol use. Hyperkalaemia is a known side effect of non-selective alpha-and beta-blocking drugs such as intravenous labetalol, particularly in patients with renal failure, hence the altered renal function as part of pre-eclampsia may have contributed to this.

Resolution of symptoms usually occurs over a period of days following management of the triggering factor, in this case management of the hypertension and treatment of pre-eclampsia by delivery. The title of this condition is deceptive due to its potential for complications such as transforaminal cerebellar herniation and permanent focal neurological deficits, often attributable to delay in management, hence awareness within the obstetric workforce is paramount.

Biochemical workup

	D0 14:00	D0 23:00	D1
WCC 10 ⁹ /L	19.9	17.9	21.0
Hb g/L	151	152	120
Plts 10 ⁹ /L	141	131	156
ALT U/L	40	60	12
Urea mmol/L	3.5	4.7	3.6
Creat umol/L	85	95	80
K mmol/L	4.9	6.3	4.2
UPCR mg/mmol	1095	-	-
PLGF pg/mL	<12	-	-
Lactate mmol/L	2.3	-	-

Conclusion

Uncontrolled hypertension, which is a feature of pre-eclampsia is a major risk factor for PRES, presenting with non-specific neurological symptoms. As a result PRES must remain an important differential at the forefront of the Obstetrician's mind when confronted with a patient with atypical symptoms in the context of hypertension and proteinuria.

Control of hypertension, rapid diagnosis and fetal delivery comprise the necessary management to aid the resolution of symptoms, with delay only risking permanent neurological deficit to the mother.

References

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