

# EP 074 Eclampsia In A Normotensive Patient: A Rare Case Of Post-partum Eclampsia Secondary To Delta Hypertension Of Pregnancy

Upadhyay D\*, Lewis P.F.\*, Golandaz R.\*

\*Department of Obstetrics and Gynaecology, Grant Government Medical College



## Introduction

Postpartum eclampsia is a severe complication of pregnancy characterized by the onset of seizures in a woman after delivery, typically occurring within 48 hours of delivery. The pathophysiology is believed to be related associated with systemic endothelial dysfunction, leading to cerebral vasospasm, resulting in decreased cerebral perfusion and potential seizure activity and significant edema in the brain. Preeclampsia is traditionally defined as as a hypertensive disorder occurring after the 20th week of gestation, characterized by new-onset hypertension (blood pressure  $\geq$  140/90 mm Hg) and proteinuria ( $\geq$  300 mg of protein in a 24-hour urine sample) or the presence of signs of end-organ dysfunction. Delta hypertension refers to a significant increase in mean arterial pressure (MAP) that occurs later in pregnancy. This sudden rise can indeed be a sign of preeclampsia, even if the blood pressure remains below the traditional threshold of 140/90 mm Hg. In such context other indicators of end-organ dysfunction may also be considered. Here we document a rare case of post partum eclampsia at a traditionally normotensive BP range of 130/80 mmhg, which was significantly higher than her mid-pregnancy BP of 90/60mmhg

## Objective

To describe a rare case of post-partum eclampsia in a normotensive patient secondary to delta hypertension of pregnancy

## Case summary

23 years old primigravidae referred for thrombocytopenia, with no significant past history and uneventful ANC visits noting that the blood pressure readings between 16-28WGA consistently recorded as 90/60mmhg-100/60mmhg. On admission, patient had BP of 130/80mmhg, was in active labour. 8 units Random donor platelets were transfused to patient and her labour progressed normally, and she delivered a female child of weight: 2.1kg on date: 21/08/2024 at time:4.48 am . Episiotomy was given at time of crowning of fetal head, and sutured in layers using catgut. Post delivery suffered from episiotomy site hematoma for which vaginal exploration was done under anaesthesia and hematoma drained and episiotomy site re-sutured. 4 units of fresh frozen plasma , 1 unit of packed cell volume was transfused intraoperatively. Post operative monitoring continued bp ranging from 130/80-130/84mmhg and 3 hours after the procedure, patient suffered from one episode of generalized tonic clonic seizure Emergency stabilization done, intravenous levetiracetam given.. After stabilization CT and MRI brain revealed no anomalies. Fundoscopy, Echocardiography and USG of Abdomen and Pelvis were all within normal limits. By day-5 PNC patient BP was seen to range from 100/70mmhg-90/60 mmhg. Patient maintained on oral levetiracetam and suffered from no further seizure episodes, made an uneventful recovery.

## Discussion

Significant rise in BP near term as compared to mid-pregnancy values may reflect a cardio-vascular maladaptation to systemic endothelial dysfunction; which is pathognomonic of pre-eclampsia. This abrupt rise in arterial pressure is known as “delta hypertension” which may signify preeclampsia even if blood pressure is < 140/90 mm Hg. In our case, features of hypertensive end organ damage were apparent- low birth weight baby (<2.8kg), thrombocytopenia and seizure, despite the blood pressure of the patient lying within the traditionally normotensive limits. Macdonald-Wallis, C. et al. (2012) Aimed to investigate the relationship between maternal blood pressure measurements in the third trimester of pregnancy and the risk of adverse pregnancy outcomes, including preeclampsia, fetal growth restriction, and preterm birth, and found that higher blood pressure measurements were significantly associated with an increased risk of adverse fetο-maternal outcomes. <sup>[1]</sup>

Thus delta hypertension maybe a potential predictor of the adverse outcomes associated with hypertensive disorders in pregnancy, and it emphasizes the need for closely monitoring changes in blood pressure amongst pregnant women with advancing gestational age. This introduces the paradigm that at-risk pregnancies maybe identified by customized cut-off values based on the BP readings of early weeks of gestation rather than relying on a erstwhile conventional definitions of pre-eclampsia. It is noteworthy that the BP readings of the patient started to recede towards her early pregnancy BP values in her post-partum period, indicating a gradual recovery from endothelial dysfunction. Thus delta hypertension maybe be a reliable indicator of impending hypertensive disorders, and adverse fetο-maternal outcome, even if blood pressure readings remain below the standard diagnostic thresholds of 140/90 mmhg .<sup>[2]</sup>

Parameter	On Admission	Day-1 PNC	Day-2 PNC	Day-3 PNC
Hemoglobin (g/dL)	12.3	10	11.1	10.8
Total Leucocyte Count (thousand/mm3)	8.6	11.1	9.5	8.7
Total Platelet Count (lacs/mm3)	0.35	0.75	0.83	1.08
Serum Bilirubin (mg/dL)	0.7	0.6	0.8	0.7
Serum ALT level (U/L)	41	38	35	28
Serum AST level (U/L)	36	32	40	32
Serum Calcium (mg/dL)	8.9	8.8	9	8.9
Serum Magnesium (mg/dL)	2.18	2.2	2.3	2.29
Serum Potassium (meq/L)	3.9	3.7	3.9	3.8
Serum Sodium (meq/L)	136	135	142	140
Serum Creatinine (mg/dL)	0.9	1.1	0.9	0.91
Prothrombin Time ( seconds)	15.1	16	17	15
Bleeding Time (Minutes)	2:15	2:30	2:00	2:45
Clotting Time (Minutes)	3:30	3:45	3:15	4:00
INR	1.1	0.9	0.88	1.00

Table-1 Trend of hematological and biochemistry investigations values reveal an improvement in thrombocytopenia by day 3 PNC with no other significant metabolic derangement

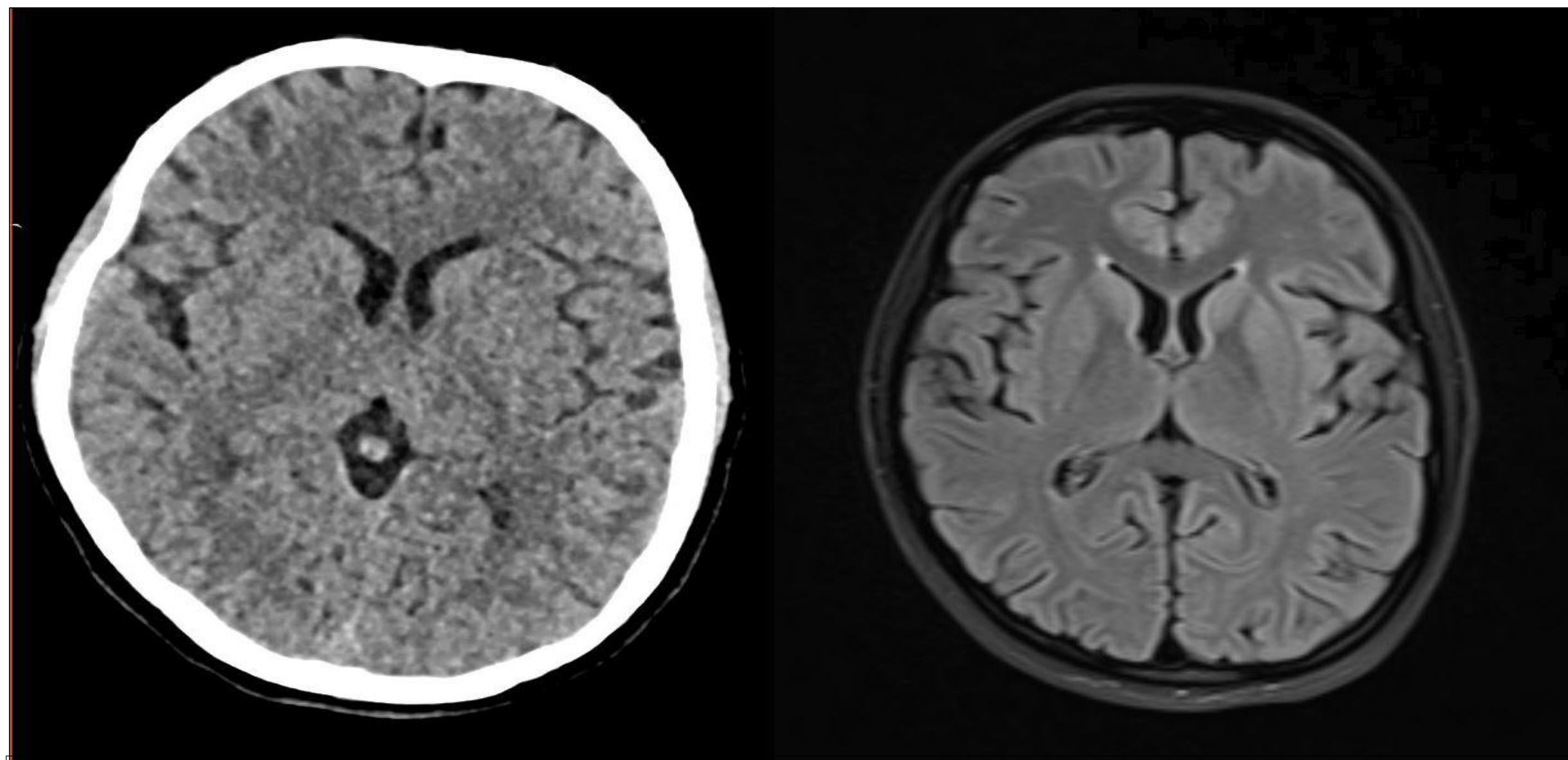


Figure-1 Axial section of CT-Brain and FLAIR MRI Brain revealed no structural brain defect, or anomaly to which seizure activity could be attributed.

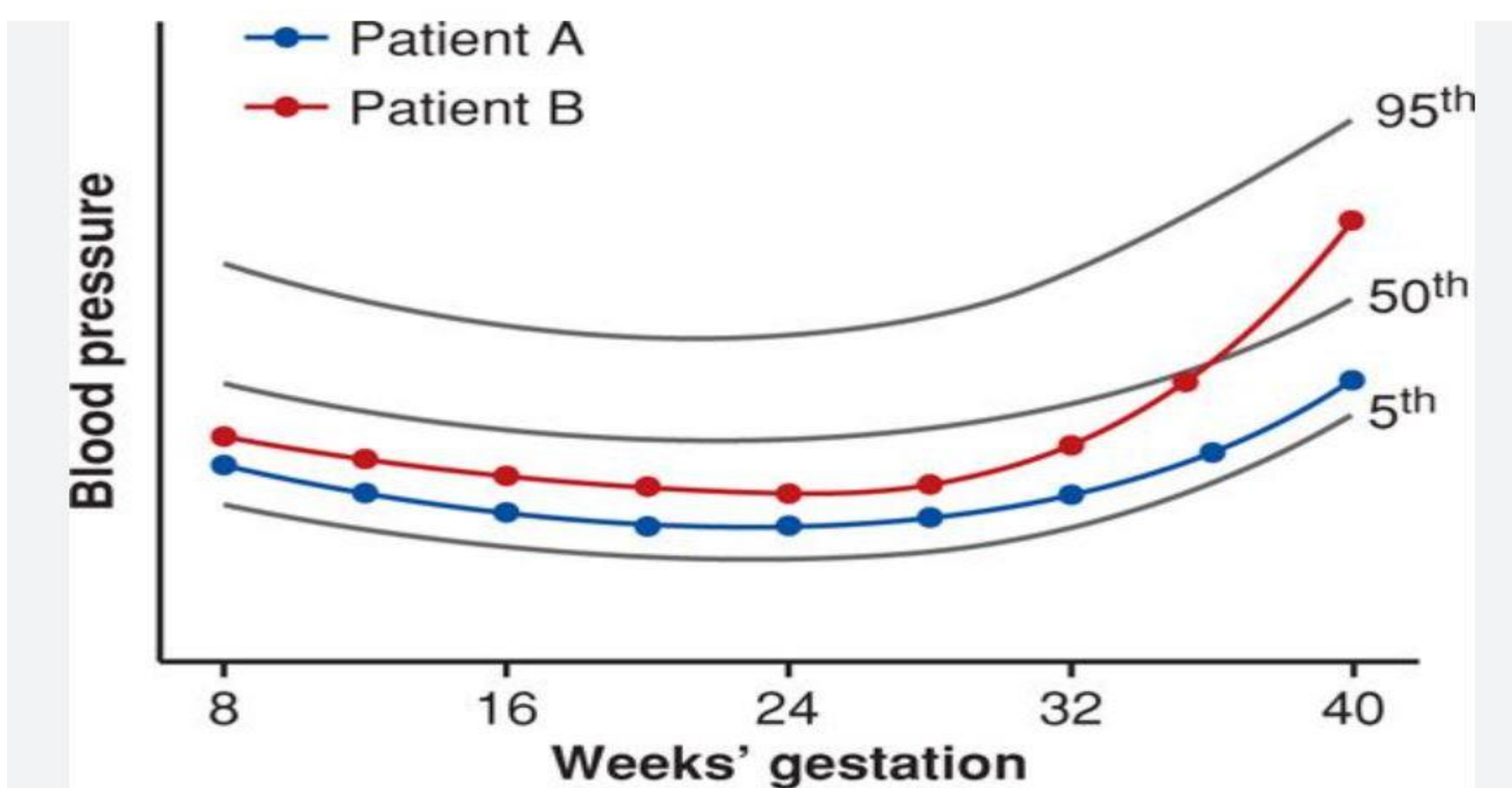


Figure-2 Acute rise in blood pressure at term may reflect cardio-vascular maladaptation to endothelial dysfunction due to aberrant vascularisation of the placenta, and cause features of hypertensive end-organ damage. (Vollaard et al. 2007) Women exhibiting higher changes in blood pressure were more likely to develop this condition, even if their readings were within the normal range at baseline<sup>[3]</sup>

## Conclusion

Delta hypertension emphasizes the importance of longitudinal monitoring of blood pressure throughout pregnancy. It provides a more nuanced understanding of subclinical hypertension of pregnancy and anticipate adverse fetο-maternal outcomes, allowing clinicians to identify at-risk patients in advance. With proper longitudinal cohort studies, there is future scope of defining customized cut-offs for the diagnosis of pregnancy induced hypertension for each patient, based on their blood pressure tracings in early pregnancy.

Conflict of Interest: None

## References

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