Pre-eclampsia! Deliver the baby! She did, a week ago!

A case of post-partum pre-eclampsia

Authors: Dr Malcolm Dow, ST4 Acute Medicine, NW Deanery
Kevin Jones, Consultant in Acute Medicine, Royal Bolton Hospital

Abstract
Post-partum pre-eclampsia is an uncommon and poorly understood condition, that if not recognised or treated adequately can progress to eclampsia / multi-organ failure / death.

Here we present a case of severe post-partum pre-eclampsia / eclampsia, presenting with headache one week after the vaginal delivery, in a previously fit and well 32 year old female, who had had no problems during her pregnancy or the immediate aftermath.

The diagnosis of differential post-partum headache ranges from the entirely benign to portending imminent catastrophe. This poster submission will discuss the differential diagnosis of post-partum headache, red flag signs etc and their implications, and the treatment of post-partum pre-eclampsia. It is hoped that it will raise awareness of this potentially fatal condition, and the mistakes that can be made in not considering it, or taking it seriously enough, as the case study will illustrate.

Introduction
Pre-eclampsia is defined as pregnancy-induced hypertension (BP >140/90 at or after 20 weeks gestation), and significant proteinuria (>0.3g/24h) (1). Symptoms of severe pre-eclampsia include severe headache, visual disturbance, abdominal pain, vomiting, or sudden swelling of the face, hands, or feet (box 1). In Britain, pre-eclampsia affects 2-8% of pregnancies, but can often be missed, having no noticeable effect on the pregnancy. Severe pre-eclampsia complicates 0.1% of pregnancies. Eclampsia complicates 0.005% (2). Post-partum pre-eclampsia is a rare condition, although its exact incidence is unknown. It can occur de-novo, following a completely normal pregnancy, in a previously healthy woman. Its occurrence is recognised daily and can be part of the routine post-partum. The important differential diagnosis in this context is of decreasing risk: antiphospholipid antibodies, previous pre-eclampsia / diabetes, multiple pregnancy, first pregnancy, history of pre-eclampsia in mother or sister (3).

The Case
First admission (post-partum days 7-9)
A 32 year old, previously fit and well, British-Asian female was referred by her GP to Royal Bolton Hospital with a 1 day history of blinding, severe headache, visual disturbance, and hypertension. Her GP recorded her blood pressure as 183/95 mmHg.

She was exactly 1 week post-partum. This was her third pregnancy. Baby had been delivered healthy, at term, via normal vaginal-delivery. Anaesthesis was 'spinal' and 'an only', i.e. there was no epidural anaesthesia. The pregnancy and the first two days afterwards were perfectly normal, with no recordings of high blood pressure or proteinuria. She was discharged 2 days post-partum.

On further questioning, the headache was given a 10/10 severity at worst, although its intensity fluctuated. It had come on gradually over hours. There were no other systemic symptoms.

She had no past medical history, specifically no history of migraine / severe headaches / hypertension. She did not smoke or drink alcohol.

On examination she had a pulse of 44bpm. An ECG showed this to be a junctional bradycardia (fig 1). Blood pressure was 180/75. There were no features of metropenia. Fundoscopy revealed blurring of optic disc margins. Deep tendon reflexes were +.

Full blood count (platelets 249, and urea and electrolytes, were normal. CRP was 28. There was some discolouration of the liver enzymes: an ALT of 177 (134), and an ALP of 338 (286). Dipstick urinalysis revealed +++++ of protein.

A CT head was done which was normal.

The initial impression was that of post-partum pre-eclampsia, with signs of raised intracranial pressure. A seriously considered differential was that of cerebral sinus venous thrombosis (CSVT).

Follow up
She was reviewed by cardiology and neurology. She had a normal echo, and a normal ECG by this time. The neurologist felt a diagnosis of epilepsy was unlikely. She received a cardiology and neurology review. She had a normal echo, and a normal ECG by this time. The plan was for her to gradually come off the neuroleptics. She had no plans for any further pregnancies.

The discharge diagnosis was 'post-partum pre-eclampsia'. She was followed up in clinic 5 weeks post-discharge. She remained well, and the plan was for her to gradually come off the neuroleptics. She had no plans for any further pregnancies.

Second admission (post-partum days 10-12)
She was again referred to the hospital, the day after her discharge. She again had a very severe headache, and her CRP had reduced to 20. She was given some simple analgesia, with a plan for urinary catecholamine collection, and a lumbar puncture if the headache did not resolve. Dipstick urinalysis revealed + of protein.

Interestingly, she was noted to have some facial swelling during this admission, which was thought to possibly be due to the codeine she had received. In retrospect, the swelling pre-dated the prescription of codeine.

She received a cardiology and neurology review. She had a normal echo, and a normal ECG by this time. The plan was for her to gradually come off the neuroleptics. She had no plans for any further pregnancies.

Box 1 Feature of severe pre-eclampsia (1)

• Severe hypertension (systolic >160 mmHg and diastolic >100 mmHg)
• Features of severe pre-eclampsia (1)
• Severe headache
• Vision disturbances
• Visual field defects
• Severe right upper quadrant abdominal (liver capsule) pain
• Sudden swelling of the face, hands, or feet
• Severe proteinuria (>0.3g/24h)
• Severe visual disturbance
• Severe visual disturbance
• Seized unexpectedly

Discussion
Post partum pre-eclampsia is a condition rarely encountered, and indeed many non-specialists may be unaware it even exists as a clinical entity. How can it, when the ideal treatment of pre-eclampsia is ‘deliver the baby’?

The cause of pre-partum pre-eclampsia is not fully elucidated, although it is felt to be as a result of disturbed placental function in early pregnancy. It has been described as ‘a disease of failed interaction between two genetically different organisms’ (4). The causes of post-partum pre-eclampsia are not at all clear. Nevertheless, it exists.

The post-partum patient presenting with new hypertension and persistent headache and/or visual disturbance or new proteinuria should be considered to have severe pre-eclampsia (box 1). If there is hypertension with seizure, treat as eclampsia (box 2). A recent article by Sibai (4) suggests that if the patient responds to treatment as expected, i.e. full resolution of signs and symptoms, then neuro-imaging is not required. If the headache is of a thunderclap-nature, however, or there is focal neurology, or there is a less than complete response to treatment of what is thought to be pre-eclampsia / eclampsia, then neuro-imaging should be performed. Here you might be looking for evidence of stroke, SAH, cerebral sinus venous thrombosis, or reversible cerebral vasodilatation (1). In the acute situation you must be aware that this presents between days 2-14 post-partum, usually with thunderclap headache (39%), hypertension (60%), visual disturbance, and possibly multifocal neurological deficits (4). To rule out all of these would obviously require more than one scan.

Another possible cause of headache and hypertension is phaeochromocytoma.

Key learning points

• Pre-eclampsia can present de-novo up to 4 weeks post-partum. By definition it requires the presence of hypertension and proteinuria, not attributable to other causes. Be aware that patients may present to hospital with eclampsia.

• Accurately quantify proteinuria as per NICE. Dipstick urinalysis is not enough.

• Blood pressure can be labile, and requires 48 hours of observations to ensure you have a true picture.

• Bring blood pressure down to < 150/80-100, and, if there are features of severe pre-eclampsia, consider magnesium sulphate infusion. Provide care on a level 2 environment.

• If there is diagnostic doubt initially, or following an incomplete response to treatment, perform neuro-imaging.

References
1) National Institute for Health and Clinical Excellence. Hypertension in pregnancy 2010. CG007
2) Royal College of Obstetricians and Gynaecologists. Pre-eclampsia. 2012
5) Gregoire J, Stergiopoulou A. Accidental dural puncture and post dural puncture headache in obstetric anaesthesia: presentation and management: a 23 year survey in a district general hospital. 2008; Anaesthesia 63: 36-43

Box 2 Treatment of severe hypertension and severe pre-eclampsia / eclampsia (1)

• These patients should be managed on a level 2 environment with continuous BP monitoring.

• Aim for a blood pressure of <150/80-100.

• Use labetalol (PO): IV labetalol IV or nifedipine (PO).

• The prevention and management of eclamptic seizures is based upon giving magnesium sulphate. Women with severe pre-eclampsia should be considered for this prophylactically (3). The recommended regimen for this is loading dose of 4g IV over 5 minutes, followed by an infusion of 1g/hour for 24 hours. A further dose of 2-4g can be given for up to 5 minutes if there is a seizure / recurrent seizure.

NHS Bolton

Ref: 56314 Poster designed and printed by Medical Illustration at Royal Bolton Hospital, 2012