RAPIDLY PROGRESSIVE PREECLAMPSIA WITH PULMONARY OEDEMA IN THE ABSENCE OF DERANGED SERUM MARKERS

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INTRODUCTION

- Pulmonary oedema affects approximately 2.9% of preeclamptic women, however it is the fourth most common cause of maternal morbidity.
- It is an under-appreciated consequence of preeclampsia and can develop rapidly, leading to frequent maternal ICU admissions.
- This is a case of rapidly progressive preeclampsia with pulmonary oedema in the absence of deranged serum markers. It highlights the importance of recognising this risk, particularly in asymptomatic patients and timely management to optimise fetal and maternal wellbeing.

BACKGROUND

35 year old G2P1 female

Antenatal History:
- G2P1
- High risk of preeclampsia (1:17) on combined first trimester screening (cFTS). Otherwise normal cFTS and normal antenatal serology.
- USS at 28+4/40 showing late onset intra-uterine growth restriction (estimated fetal weight 10th centile; abdominal circumference 2nd centile; intermittently raised uterine artery pulsatility index; normal amniotic fluid index)

Past medical history:
- NIL

Surgical history:
- 1 previous caesarean section

Medications:
- Aspirin 150mg oral daily for high risk of preeclampsia

Presentation

30+4/40

Patient presented to the hospital outpatient department for a routine antenatal appointment, and was incidentally found to be hypertensive.

On exam:
- BP 160/98mmHg
- Peripheral pitting oedema to knees bilaterally
- Normal reflexes; no clonus
- Reassuring CTG

Laboratory Investigations
- Platelets 193 x 10^9/L (ref range 150-400 x 10^9/L)
- Cr 57micromol/L (ref range 35-80 micromol/L)
- AST 28U/L (ref range 10-35U/L)
- ALT 14U/L (ref range 10-35U/L)
- Urine protein/creatinine 900mg/mmol

Impression
Preeclampsia (hypertension, raised urine PCR), known IUGR

Management
- Hospital admission
- Stat dose IV hydralazine 5mg given on presentation
- Clonidine 75mg oral TDS + Nifedipine modified release 30mg oral daily for hypertension
- Multidisciplinary team input from obstetric and renal team

30+5/40

Progress
- Ongoing blood pressure spikes up to 174/98mmHg, requiring IV antihypertensives.
- Worsening peripheral oedema
- Normal reflexes; no clonus

Laboratory investigations:
Serum biomarkers remain normal
Urine protein/creatinine increased to 1238mg/mmol

CTG reassuring

Impression:
Preeclampsia with poor blood pressure control and normal biochemistry. No evidence of fetal compromise at present. Risk of pre-term delivery.

Management:
Antenatal steroid coverage for fetal lung maturation.
2x doses of IM betamethasone 11.4mg 24 hours apart.

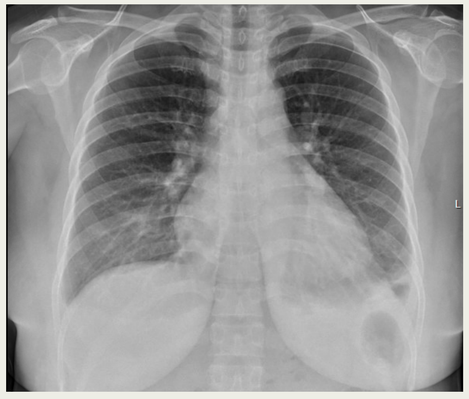
31+0/40

Progress
Development of orthopnoea and widespread crepitations on chest auscultation.

Chest XRAY:
Bilateral pleural effusions and pulmonary oedema.

Impression:
Severe, rapidly progressing preeclampsia with evidence of pulmonary oedema.

Management:
Decision for urgent delivery via caesarean section.



DELIVERY COURSE

- Caesarean section delayed by 6 hours as patient had accidentally eaten.
- Given the patient was haemodynamically stable with normal blood results and reassuring CTG, it was deemed reasonable to allow for fasting time prior to surgery.

2 Hours Later
- Hypertensive crisis to 180/100mmHg.
- Significant periorbital oedema, hyperreflexia and bilateral clonus.
- CTG remained reassuring.

Impression:
Severe preeclampsia with retractable hypertension, worsening fluid overload and evidence of neuro-irritability.

Management:
- 2x doses IV hydralazine 5mg
- Stat dose IV frusemide 40mg
- MgSO4 infusion for maternal seizure prophylaxis

Patient underwent emergency caesarean section once BP stabilised.

OUTCOMES/FOLLOW-UP

MATERNAL

- The patient recovered well postoperatively.
- MgSO4 continued for 24 hours total.
- Blood pressure remained stable on clonidine 150µg oral TDS and enalapril 10mg oral BD.
- The patient will follow-up in a specialised outpatient clinic for hypertensive disorders of pregnancy and all future pregnancies will be managed through this clinic to ensure safe and comprehensive antenatal care.

FETAL

- Live female infant delivered at 31+1/40 in good condition with Apgar scores of 9 and 9.
- Arterial cord pH 7.26 and lactate 3.3.
- Baby transferred to the neonatal ICU for prematurity and respiratory support.
- She was diagnosed with respiratory distress syndrome, which was managed with CPAP from birth until one week of age.
- The baby recovered well and was cleared for discharge on day 50 of life (corrected gestational age of 38+2/40).

DISCUSSION

- Pulmonary oedema is a rare but life-threatening complication of severe preeclampsia, affecting 2.9% of severely pre-eclamptic women[1]. It is the fourth largest form of maternal morbidity and frequent cause of maternal ICU admissions[2], hence it is important to identify patients at risk.
- Sciscione et all found the major risk factors for pulmonary oedema in pre-eclamptic patients included underlying cardiovascular disease, use of tocolytic agents and intravenous fluid therapy[3]. This case was unique in that none of these risk factors were met.
- This case is unusual due to the rapid progression of preeclampsia in the absence of commonly raised serum markers such as creatinine and liver transaminases. A 2019 retrospective cohort study found increased serum creatinine level to be a good predictor of pre-eclamptic patients at risk of requiring immediate medical attention. Similarly, Martin Jr et all established cut off values to discriminate those at high risk for significant maternal mortality including AST > 150IU/L, AST > 100IU/L and serum creatinine >1.0mg/dL. The absence of such markers may have delayed delivery and contributed to maternal and fetal morbidity.
- The risk of rapid deterioration in severely pre-eclamptic patients despite normal serum markers can be underappreciated, especially when asymptomatic. It is imperative to recognise patients at risk and manage them in conjunction with a skilled multidisciplinary team. Follow-up in specialised preeclampsia clinics post-partum and in future pregnancies can help to identify those at high risk

KEY POINTS

- Clinicians should be wary of the risk of pulmonary oedema in asymptomatic pre-eclamptic patients without derangement of biochemistry.
- Uncontrolled hypertension should be swiftly managed with appropriate antihypertensive therapy to avoid further complications of preeclampsia such as pulmonary oedema, placental abruption and eclampsia.
- Multidisciplinary teams including the renal medicine team should be involved in the care of complex pre-eclamptic patient with difficult to control hypertension.
- Opportunistic urine dipsticks at antenatal visits can identify early signs of preeclampsia.

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