WILL SHE CLOT OR WILL SHE BLEED?

RECURRENT VENOUS THROMBOEMBOLISM IN PREGNANCY : A CASE REPORT

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Background

Venous thromboembolism (VTE), which comprises of pulmonary embolism (PE) and deep venous thromboembolism (DVT), remains as one of the leading causes of maternal mortality in Australia. We report a case of recurrent VTE in pregnancy in setting of new diagnosis of autoimmune disease and recurrent Influenza infection.

Obstetric / Medical History

G9P4 - 4 previous vaginal deliveries

- P3 NVD with 700mls PPH
- P4 shoulder dystocia with 2.5L PPH requiring transfusion

Healthy children without cardiac abnormalities
4 early miscarriages
No personal/family history of VTE

PMHx: Asthma on Seretide

Summary of admissions

17 weeks

- Admitted under Respiratory with PE with concurrent Pneumonia and parainfluenza.
- commenced on Enoxaparin 80mg BD.

20 weeks

- Represented with pleuritic chest pain, SOB and cough. New PE on VQ scan.
- Haematology consulted. Enoxaparin increased to 100mg BD with anti-Xa monitoring.

23 - 24 weeks

- Ongoing chest pain. CTPA showed no PE, but possible vasculitic changes in right upper lobe.
- ICU admission for metabolic acidosis and renal injury. Renal team consulted for ?renal tubular acidosis.

26 - 29 weeks

- Breakthrough PE on VQ scan in setting of parainfluenza infection and asthma exacerbation
- Cardiology consulted for ongoing chest pain secondary to possible pericarditis.
- Immunology & Rheumatology consulted for possible autoimmune disease. Commenced on hydroxychloroquine
- Gestational diabetes. Endocrine consulted

30 - 34 weeks

- Admitted for maternal sepsis, infective asthma exacerbation secondary to Influenza A. Febrile, hypotensive and tachycardic in ED.
- Lower limb Doppler ultrasound scan showed a non-occlusive thrombus within the right external iliac vein and common iliac vein, and within the confluence of the iliac vessels.
- IVC filter insertion at 33 weeks complicated with right arm complex pain syndrome. ICU admission for closer monitoring.

36 weeks

- ongoing chest pain and dyspnoea due to recurrent Influenza A infection, decreased fetal movements
- Decision made for Caesarean Section for maternal wellbeing at 36+2

Postpartum

- Day 2 Post-CS : significant abdominal pain - CT revealing large abdominal haematoma and uterine AVM
- Heparin withheld for 48 hours given acute bleed & to facilitate uterine artery embolisation
- Required 3 units of pRBC and iron infusion due to Hb drop to 72 with slow increments
- Day 6 post-CS - VQ scan showed recurrent PE.
- Patient transitioned to Apixaban 10mg BD.

Case report

A 29-year-old G9P4 with previous postpartum haemorrhage requiring blood transfusion, had multiple episodes of PE and DVT throughout her pregnancy, requiring increasing doses of anticoagulation and inferior vena cava (IVC) filter. She was first diagnosed with PE at 17 weeks pregnant when she presented with pleuritic chest pain and dyspnoea and thus commenced on therapeutic enoxaparin. Since then, she had four readmissions with breakthrough VTE, requiring an increased dose of her therapeutic enoxaparin.

Throughout her pregnancy, the main difficulty was determining the therapeutic dose of her anticoagulation. Despite the patient adhering to her anticoagulation dose and frequency, she had fluctuating anti-Xa levels, raising the question of altered absorption of enoxaparin leading to subtherapeutic anticoagulation. An autoimmune and thrombophilia screen was performed to investigate her recurrent PE, which revealed that she was Factor V Leiden heterozygous and had possible Sjogren's syndrome, thus, she was commenced on hydroxychloroquine. She continues to adhere to her medications with multidisciplinary care involving high-risk obstetricians, haematologists, rheumatologists, cardiologists, endocrinologists and respiratory physicians.

At 30 weeks gestation, she was admitted with maternal sepsis and infective exacerbation of asthma secondary to Influenza A. Although she had no new pulmonary embolism during this one-month admission, her lower limb Doppler ultrasound scan showed a non-occlusive thrombus within the right external iliac vein and common iliac vein, and within the confluence of the iliac vessels despite being on 120mg enoxaparin twice daily. With our Haematology team's input, we learnt that switching to different formulations of enoxaparin may be more appropriate to improve the absorption rate. Our patient was switched to a different formulation of enoxaparin, ClexaneForte (120mg/0.8ml), prepared in a smaller volume compared to Clexane (100mg/1ml + 20mg/0.2ml). She required a brief admission to the intensive care unit for closer monitoring following an inferior vena cava filter insertion at 33 weeks to prevent further VTEs and titration of anticoagulation based on the therapeutic anti-Xa level range designed specifically by the Haematology team for the patient, before discharge home at 35 weeks with ClexaneForte 120mg/0.8ml.

Just one week after her discharge from the hospital, she was readmitted with ongoing chest pain, dyspnoea and decreased fetal movements. A multidisciplinary decision was made for delivery for maternal well-being, and she delivered at 36+2 gestation via a Caesarean Section with an EBL of 500mls following a transition to heparin infusion. She delivered a 2.7 kg baby, who was monitored in the Neonatal ICU due to prematurity.

Her post-surgical course was complicated by significant abdominal pain, prompting abdominal imaging, which revealed a large 8 x 10cm haematoma anterior to the lower segment uterine with arterial blush and uterine AVM malformation. Interestingly, the same imaging showed a possible resolution of her previous lower limb DVT, which was confirmed on a progress lower limb Doppler ultrasound. Given her bleeding risks outweigh her thrombotic risk at that point of time, her heparin was suspended to facilitate the embolisation of the uterine artery and AVM. She required 3 units of packed red blood cell transfusion and iron infusion. Her prophylactic heparin was then resumed, but unfortunately her progress VQ scan at 6 days postpartum revealed new PE. She was transitioned to Apixaban for three months total, with plans for further investigations into the conundrum of her thrombophilia and bleeding risk.

Discussion / Conclusion

VTE remains one of the leading cause of maternal mortality in Australia. Medical management of VTE in pregnancy can be difficult due to altered pharmacokinetics and maternal physiological changes in pregnancy. Therefore, in high risk patients with multiple comorbidities, it is important for such cases to be managed by high risk obstetricians, and involvement of multidisciplinary team. In this case, it was challenging to balance the thrombotic and bleeding risks, in someone with recurrent VTE who also developed large post-surgical abdominal haematoma and significant postpartum haemorrhage.
While most patients on enoxaparin did not require laboratory monitoring, the use of anti-Xa assays can play an important role to guide the need for dose adjustment given the altered pharmacokinetics and weight changes in pregnancy. Interestingly, in this case, despite adhering to her medications, she had fluctuating anti-Xa levels, raising the question of suboptimal enoxaparin absorption.