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Background

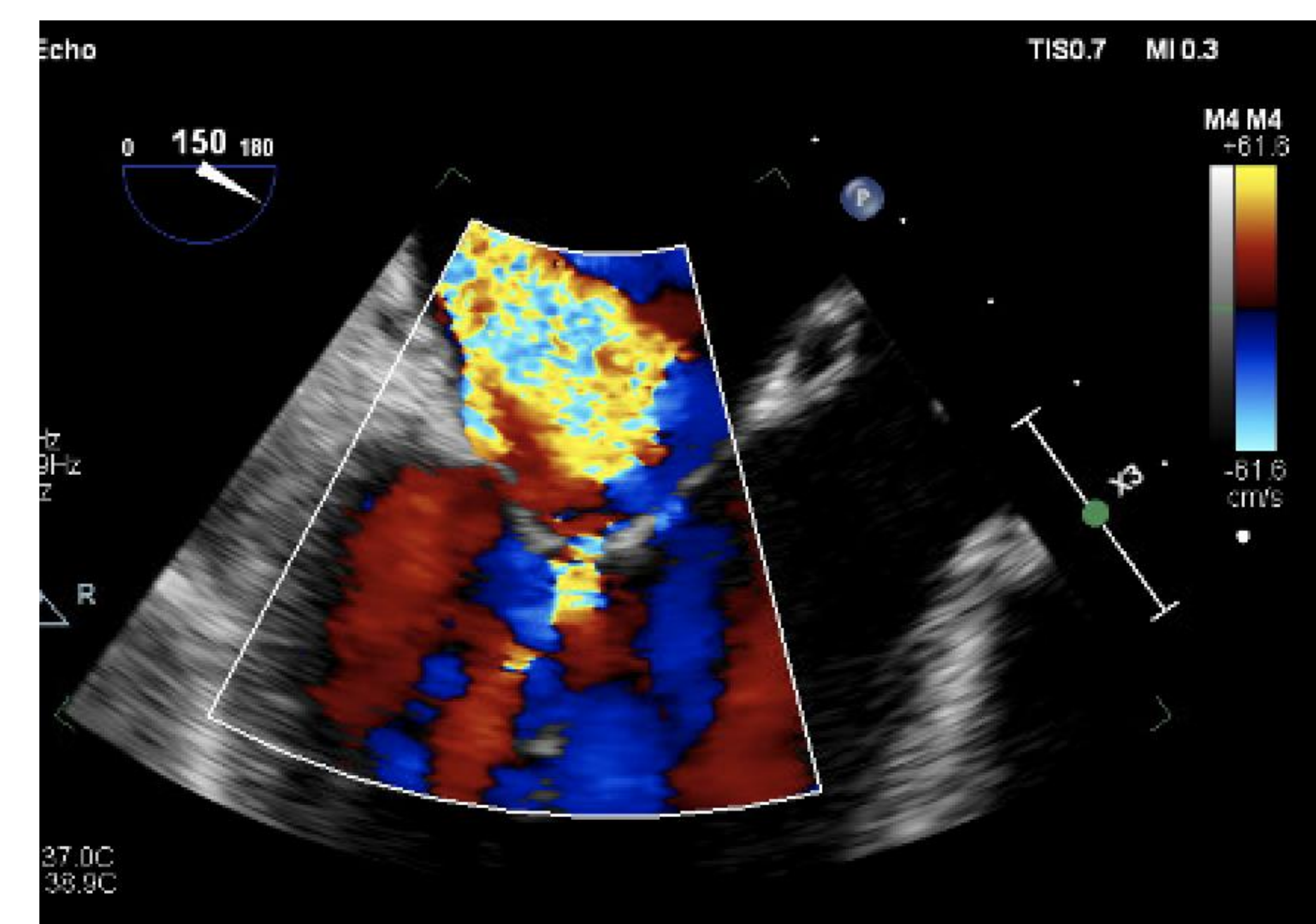
- In Australia, from 2018-2020, cardiovascular disease was the leading cause of maternal death
- Myocardial infarction accounting for 25% of cardiovascular related deaths.
- Pregnancy-associated spontaneous coronary artery dissection (P-SCAD) is a rare.
- Prompt diagnosis is crucial as pregnant women more commonly present with severe clinical manifestations including multi-vessel disease, heart failure, shock, life-threatening arrhythmias and sudden cardiac death.
- Angiography is the diagnostic test; however, it is limited as it does not show the structure of the arterial wall.
- Intravascular ultrasound are more sensitive in diagnosing SCAD, but there has additional risks.

Case

- 34-year-old nulliparous woman 19 weeks pregnant
- Presented to ED with typical chest pain and shortness of breath at rest after exercising
- She had no significant past medical or family history
- Haemodynamically stable, afebrile
- ECG showed inferior ST elevation (STEMI) with reciprocal changes.
- Troponin: 1325. All other blood tests were normal.
- TTE: inferior and basal anteroseptal hypokinesis, and posterior mitral valve leaflet restriction with severe mitral regurgitation. She had normal left and right ventricular size and normal systolic function.
- She was commenced on 12.5 mg metoprolol BD and was fluid restricted as she had NYHA Class 3 heart failure
- She was transferred hospitals for angiography and sub speciality management
- A coronary angiogram was done 1 week post her initial admission, which showed no significant coronary artery stenosis or dissection.
- Intravascular ultrasound was considered, however the risks outweighed the benefits
- The consensus of the multi-disciplinary team (MDT) was that the normal function of the left and right ventricles supported this being an acute aetiology, most likely a SCAD, rather than rheumatic heart disease.
- The goal was to optimize medical management to reach a viable gestation
- She developed cardiogenic shock at 23+1 secondary to an Enterobacter Cloacae bacteraemia, requiring ICU admission for inotropic support and CPAP.
- The patient requested full fetal resuscitation.
- Bedside growth scan at 23+2: EFW 650g (73rd percentile), AFI 6.7cm and normal Dopplers

Outcome

- At 23+6 she developed persistent tachycardia and had a rising lactatemia which required constant CPAP.
- The MDT between ICU, cardiology, MFM, anaesthetics, neonatology came to a consensus that urgent delivery was required for maternal stabilization
- She was given MgSO4 for neuroprotection prior to delivery. She was steroid loaded at 23+2 and 23+3
- She had an uncomplicated lower segment caesarean section under general anaesthetic
- Pre-operative and post operative ECHO showed no significant changes.
- She remained intubated for 1 day post-delivery to allow stabilisation of her cardiac condition.
- The TTE on day 6 post-partum improved, showing moderate-severe mitral regurgitation
- Despite medical management for 1 month, she did not significantly improve so the decision was made to do a mitral valve replacement
- She recovered well and discharged on heart failure therapy
- The baby was discharged from the NICU after 18 weeks



Conclusion

- Angiography was normal in this patient, however multiple features of her presentation support a presumed SCAD diagnosis, specifically the acute STEMI presentation with regional wall abnormalities.
- This is a rare case of presumed SCAD in the second trimester. The majority of P-SCAD has been reported in the third trimester or postpartum, with 70% occurring in the post-partum period.
- There are additional considerations in pregnancy that increase the complexity of the management in P-SCAD, which include inability to use teratogenic heart failure medications (for example, angiotensin converting enzyme inhibitors/angiotensin receptor blockers), radiation risk to the fetus, increased physiological stress from advancing gestation, and the decision about timing of delivery.