ECHO @NEPEAN

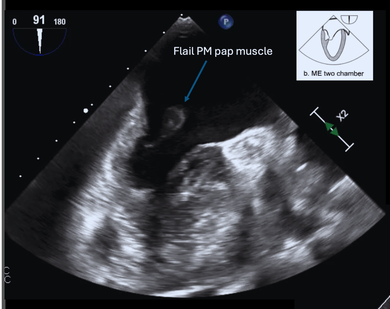
ECHO ASSESSMENT OF POST MI COMPLICATIONS
• SUMMARY SHEET

DATE
15-MAR-2024

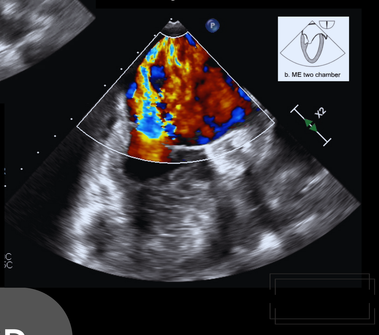
- Echo has a key diagnostic role in post MI complications
- As always, echo is an adjunct to clinical judgement. A high index of suspicion, plus fastidious scanning is needed, as many of these pathologies are rare, time critical and catastrophic
- **Complications with rupture:** papillary muscle rupture, ischaemic VSD, free wall rupture.
  Complications without rupture: LV aneurysm, LV pseudoaneurysm (n.b.contained rupture), dLVOTO/SAM (>large anterior MI), LV thrombus.

Papillary muscle rupture

- **Rare, complicates ~0.05% of MIs**
- **Days 2-7 most common, fatal without surgery**
- **Suspect if shock and APO with a hyperdynamic LV function**
- **Most commonly posteromedial (PM) papillary muscle (single RCA supply)**

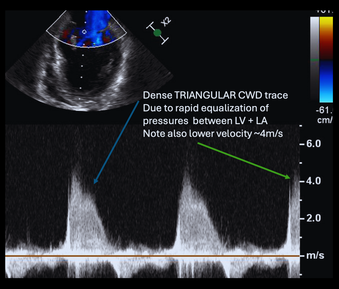


Large PISA and broad eccentric jet



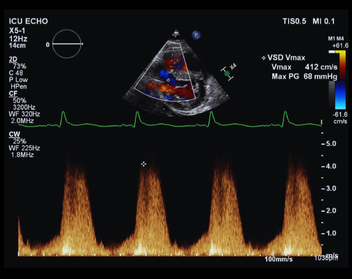
Severe/wide open ACUTE MR

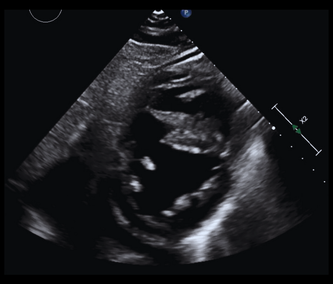
Dont miss ACUTE SEVERE MR with rapid pressure equalisation, Doppler may be misleading

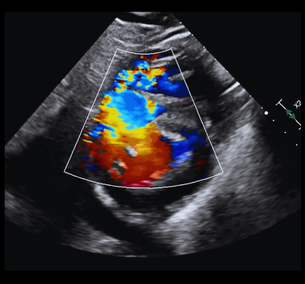


Ischaemic VSD

- **Rare, ~0.3% of MIs**
- **High mortality (~42% with surgery, fatal without)**
- **Off axis imaging and use of colour Doppler across septum is key - can be easily missed!**
- **RV dysfunction and cardiogenic shock are important predictors of outcome**
- **Surgery often delayed (⇧ mortality if <7d)**







CWD showing high velocity flow (4.1m/s) through restrictive, serpiginous ischaemic VSD

RVSP= SBP- 4(VSD)Vmax2

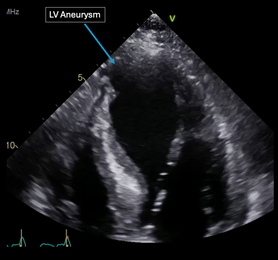
Off axis subcostal imaging showing VSD. Colour Doppler confirming high velocity flow across defect

LV thrombus

- **LV thrombi tend to develop in first 2 weeks post MI (Virchow's triad)**
- **Akinetic apex = high index of suspicion**
- **TTE has high specificity but will miss more than cMRI owing to its lower sensitivity**

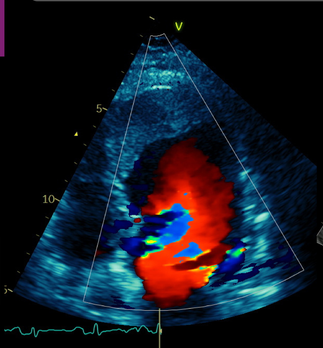
LV aneurysm vs. Pseudoaneurysm

LV aneurysm	LV pseudoaneurysm
8-15% incidence following MI	<0.1% incidence following MI
Wide neck	Narrow neck
Thinned akinetic myocardium	Ruptured myocardium contained by pericardium
Low risk of free rupture	High risk of free rupture
More common in anterior wall and apex	More common in posterior and lateral walls

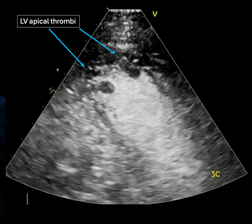


Free wall rupture is often catastrophic + associated with haemopericardium

Laminated apical thrombus with no colour bleed (aka 'poor mans contrast')



Contrast LV study



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