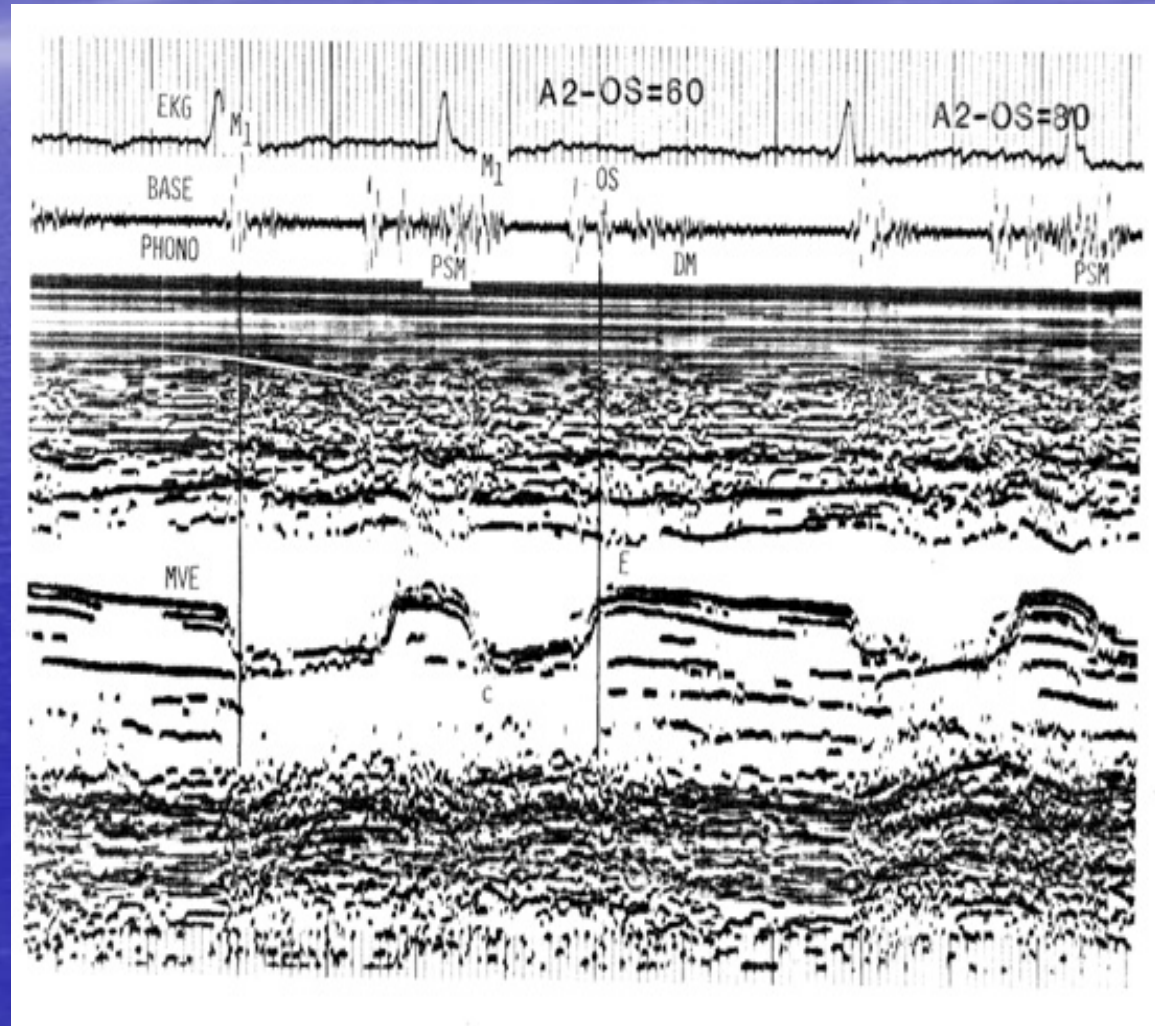


Cardiac Echo Orientation

張士泰醫師

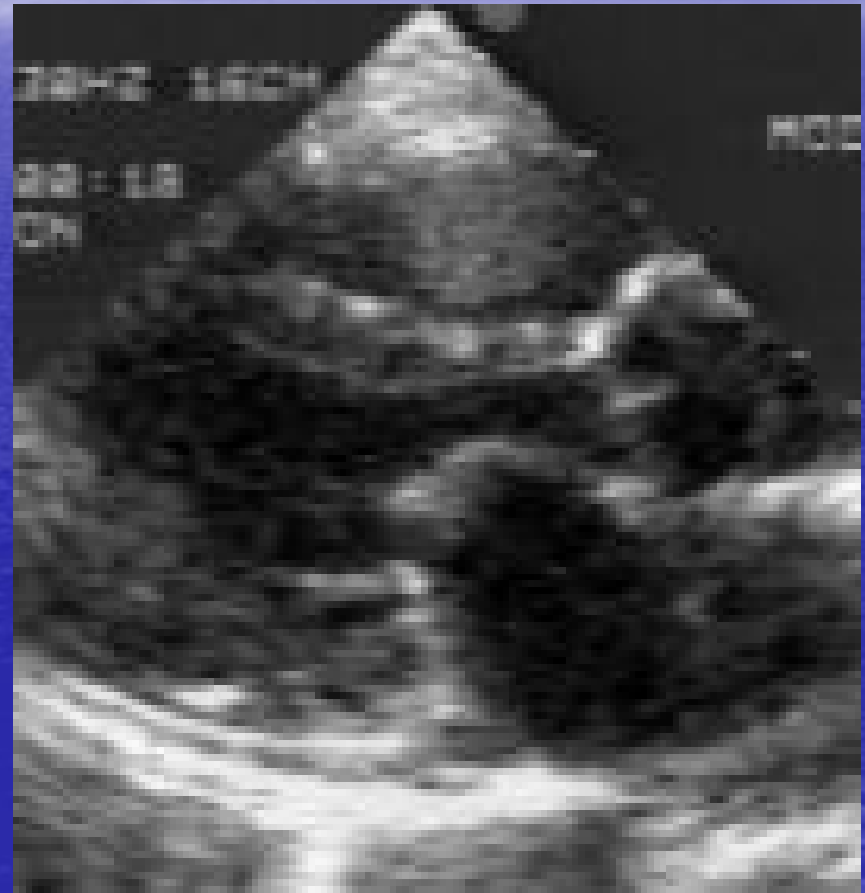
M-mode Echo

- 1970年代
- 最早的超音波



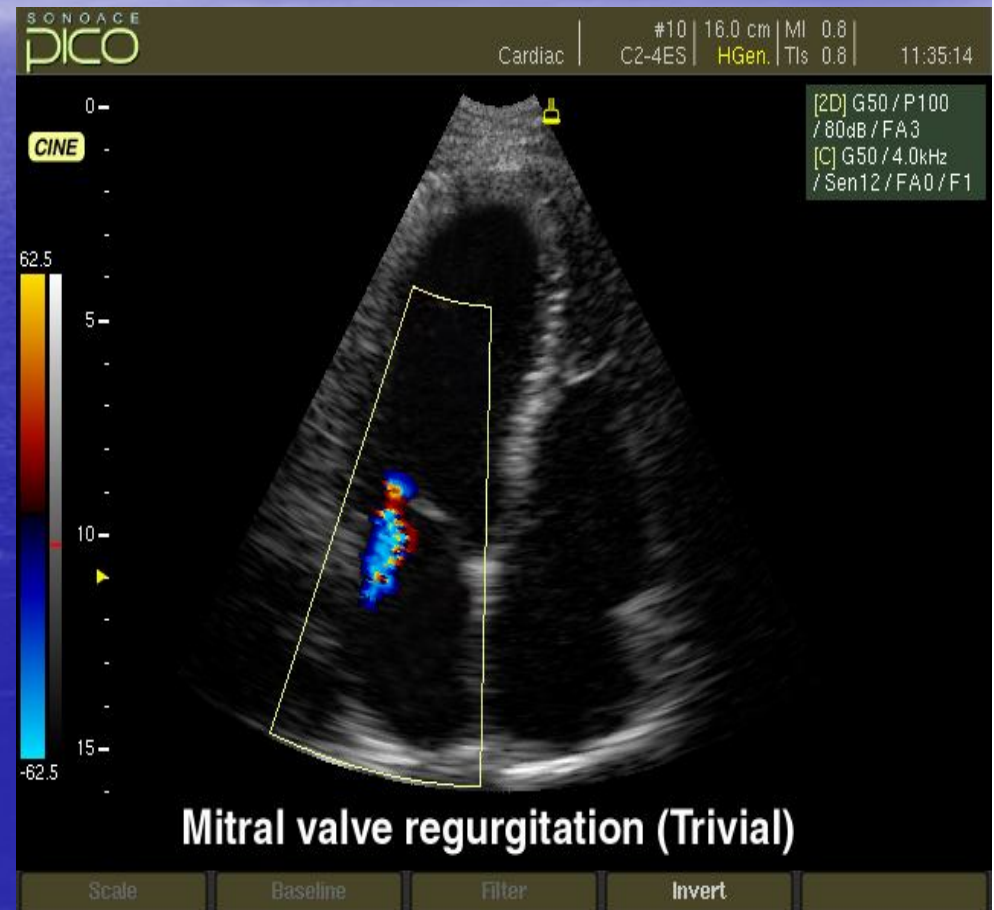
2D Echo

- 1970年代末期
- 超音波開始有了地位



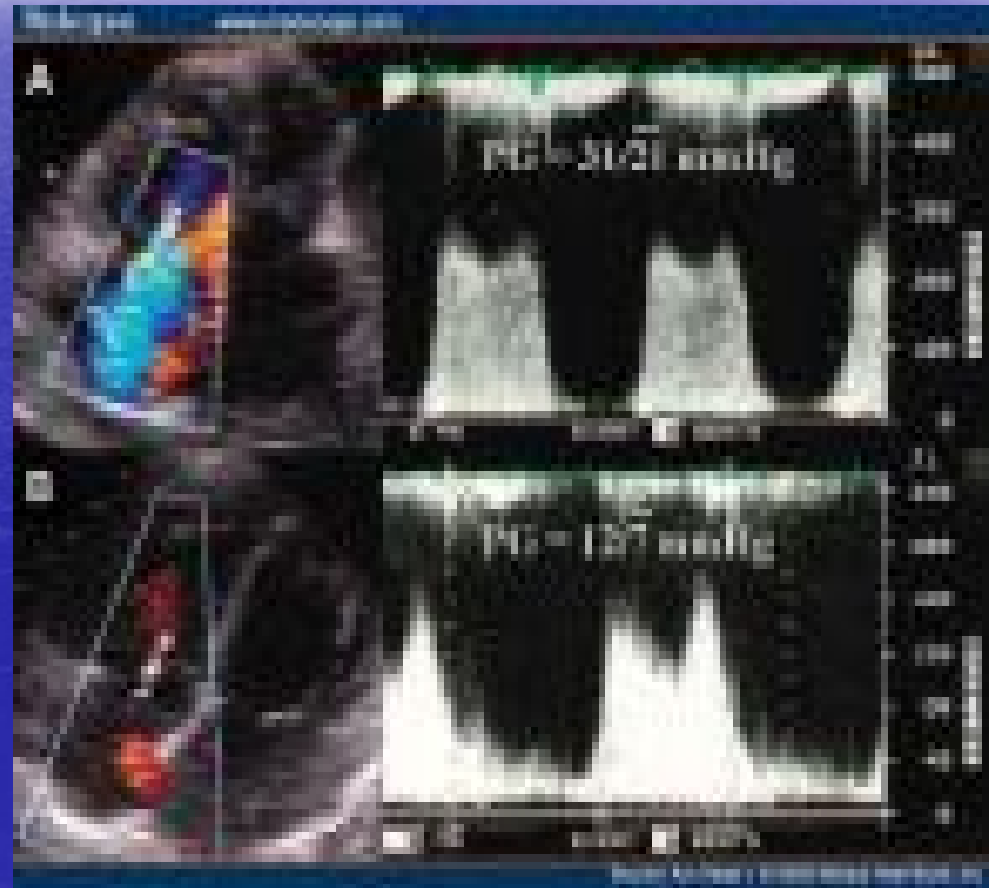
Color-Flow Mapping study

- 對於血流的方向用顏色去標示
- 對於血流的方向及動力學有很大的幫助



Doppler study

- 對於血流動力學了解的更完整
- 壓力以及面積的計算
- 血流的方向



M-mode and 2D Echo

- 沒有聽到明顯的雜音
- 只想知道心臟的功能以及是否有局部性的
心壁運動功能缺損
- 無法評估瓣膜功能
- 無法知道瓣膜面積以及壓力的變化

M-mode + 2D + color + Doppler

- 可以評估 Wall motion 以及 心臟功能
- 可以評估瓣膜功能
- 可以計算壓力以及動力學的變化

代碼

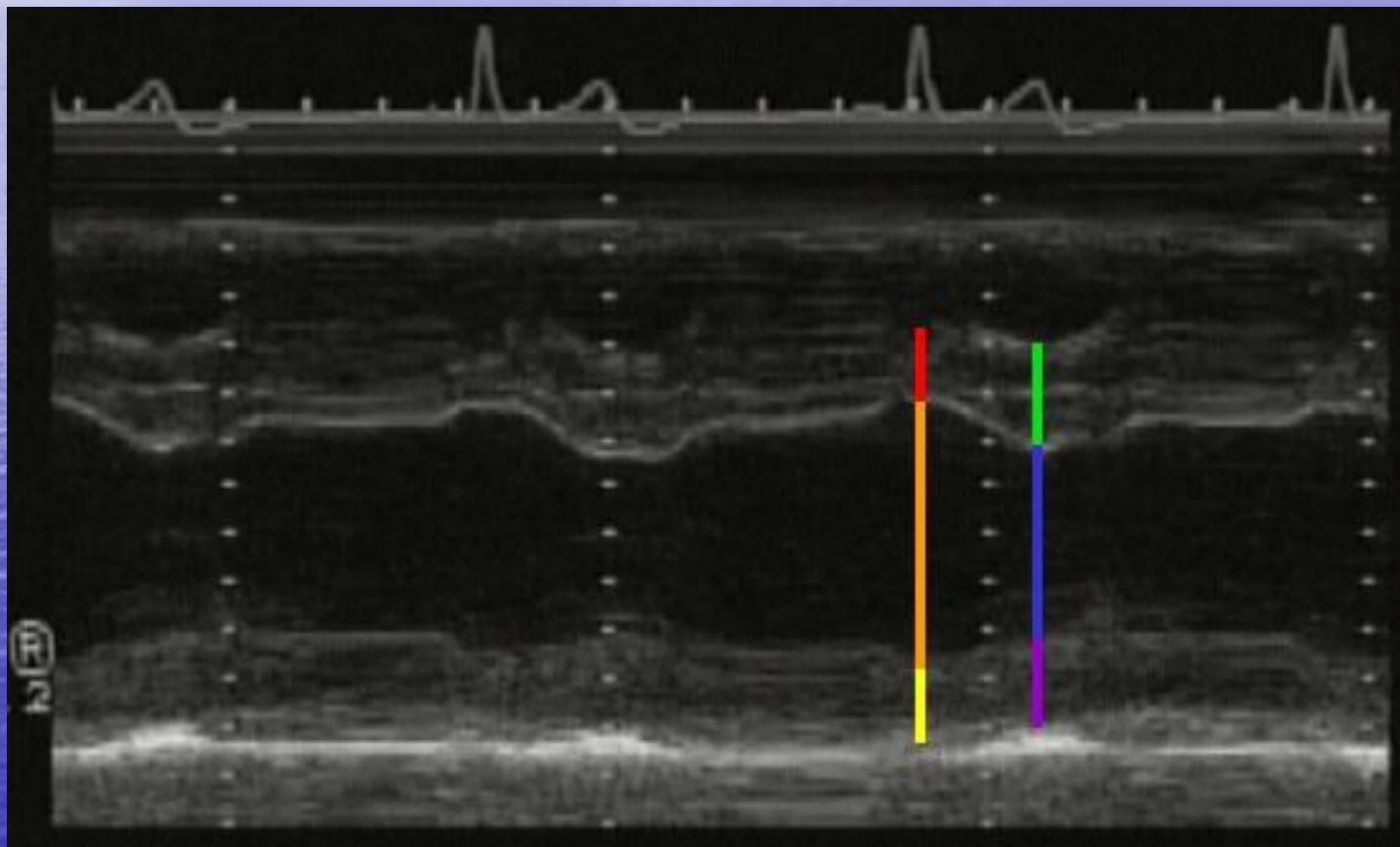
- M22-060 (M mode + 2D + Color + Doppler study)
- M22-051 (M mode + 2D)
- 有問題可以找 C V 優秀的 N S P 幫忙

常見的一些DATA

- IVSd: thickness of septum
- LVEDD: LV end-diastolic dimension
- LVESD: LV end-systolic dimension
- PWd: thickness of post wall

- EF: left ventricular ejection fraction

常見的一些DATA



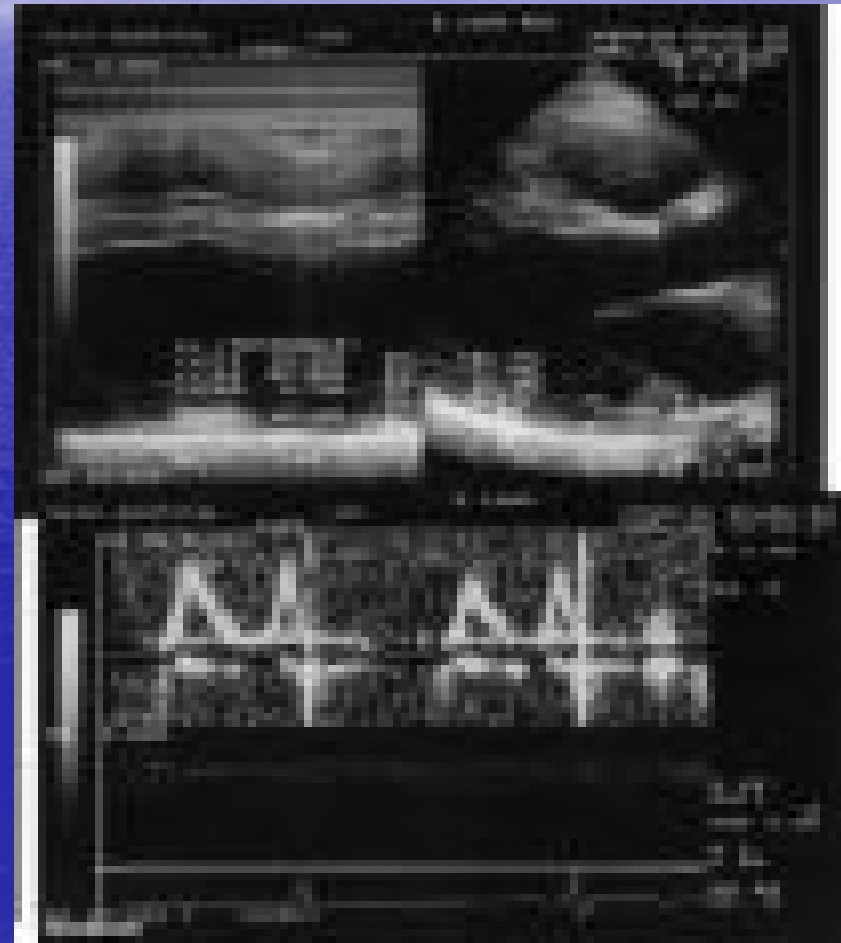
常見的一些DATA

- EF
 - $>70\%$: Good
 - 55-70%: Adequate
 - 45-55%: Borderline
 - 35-45%: Impaired
 - $< 35\%$: Poor

FS (Fraction shortening)

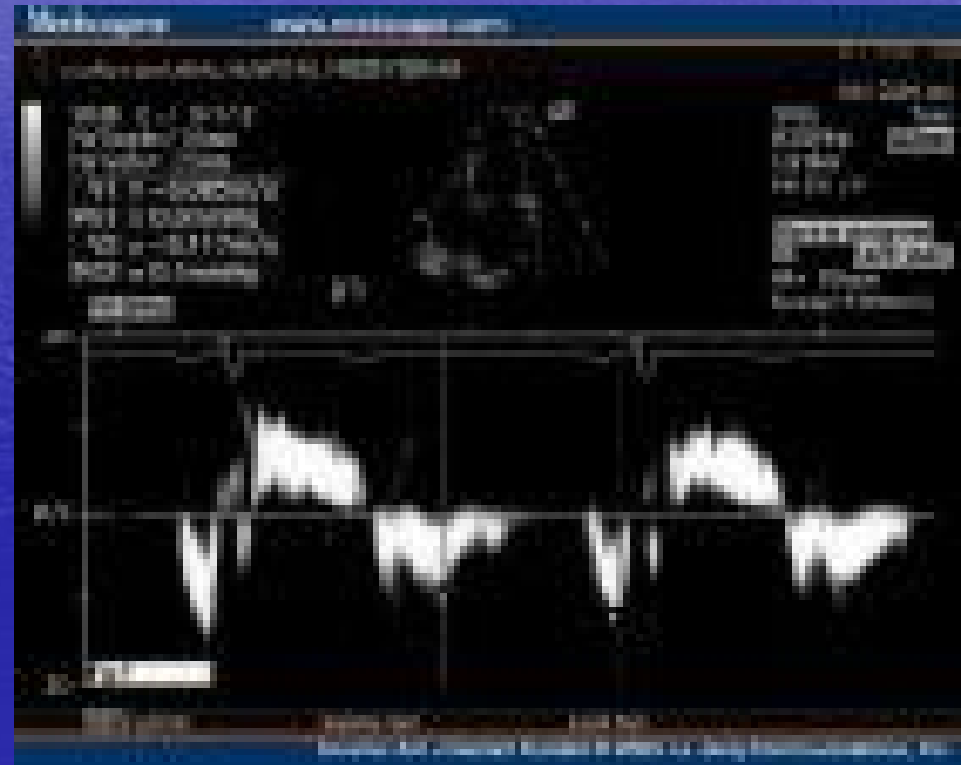
常見的一些DATA

- E/A ratio
 - LV diastolic function

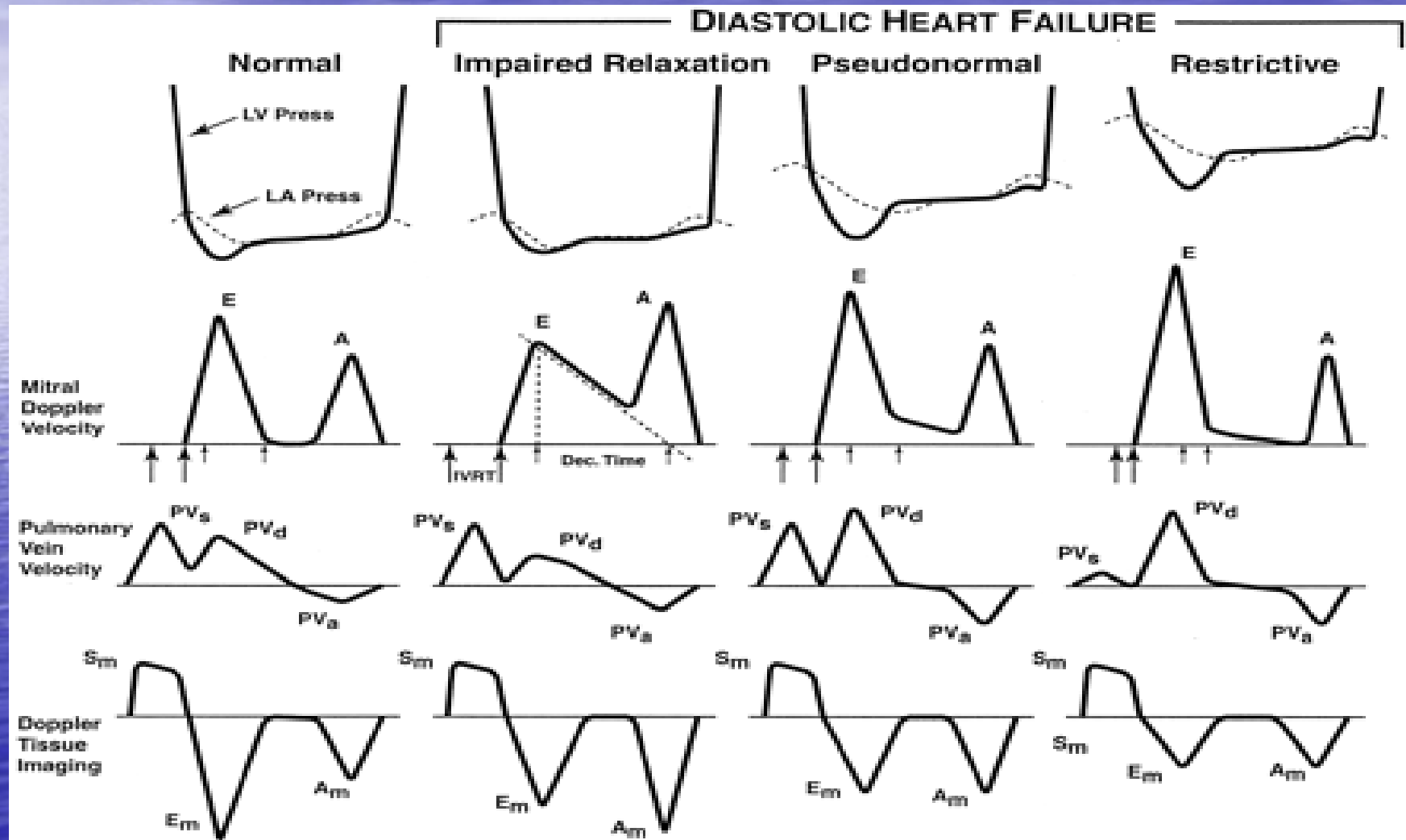


常見的一些DATA

- E'/A'
 - Tissue doppler image evaluation of LV diastolic dysfunction



常見的一些DATA



常見的一些DATA

- MS

- $< 1 \text{ cm}^2$: severe
- 1-1.5 cm^2 : moderate
- $> 1.5 \text{ cm}^2$: mild

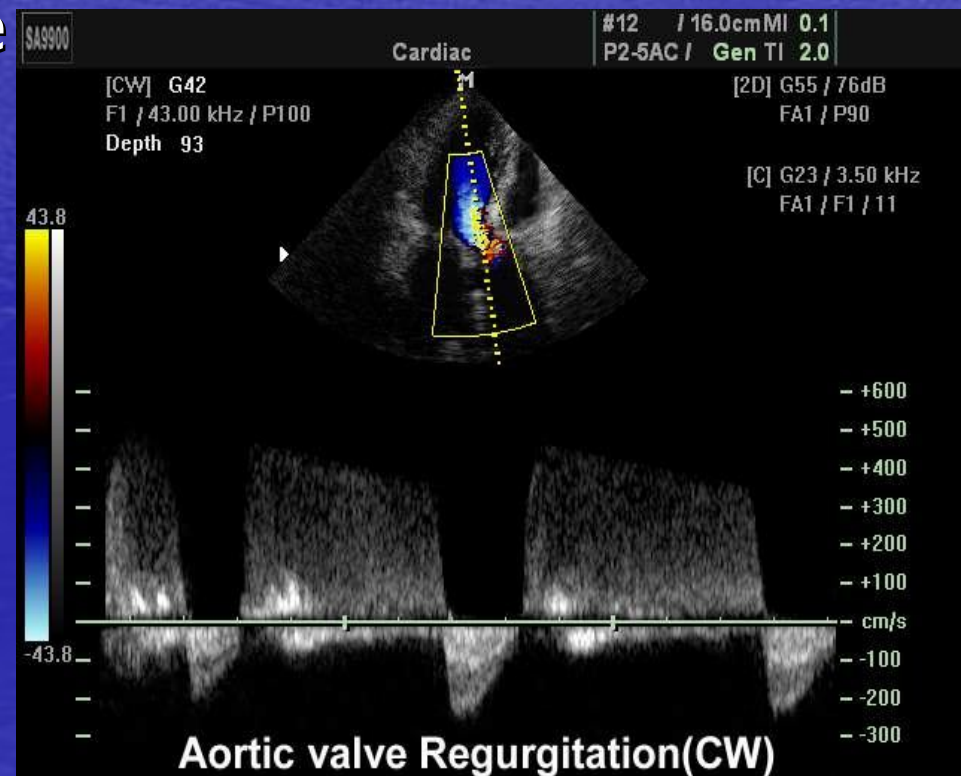
- MR

- $< 20\%$ LA area: mild
- 20-40% LA area: moderate
- $> 40\%$ LA area: severe

常見的一些DATA

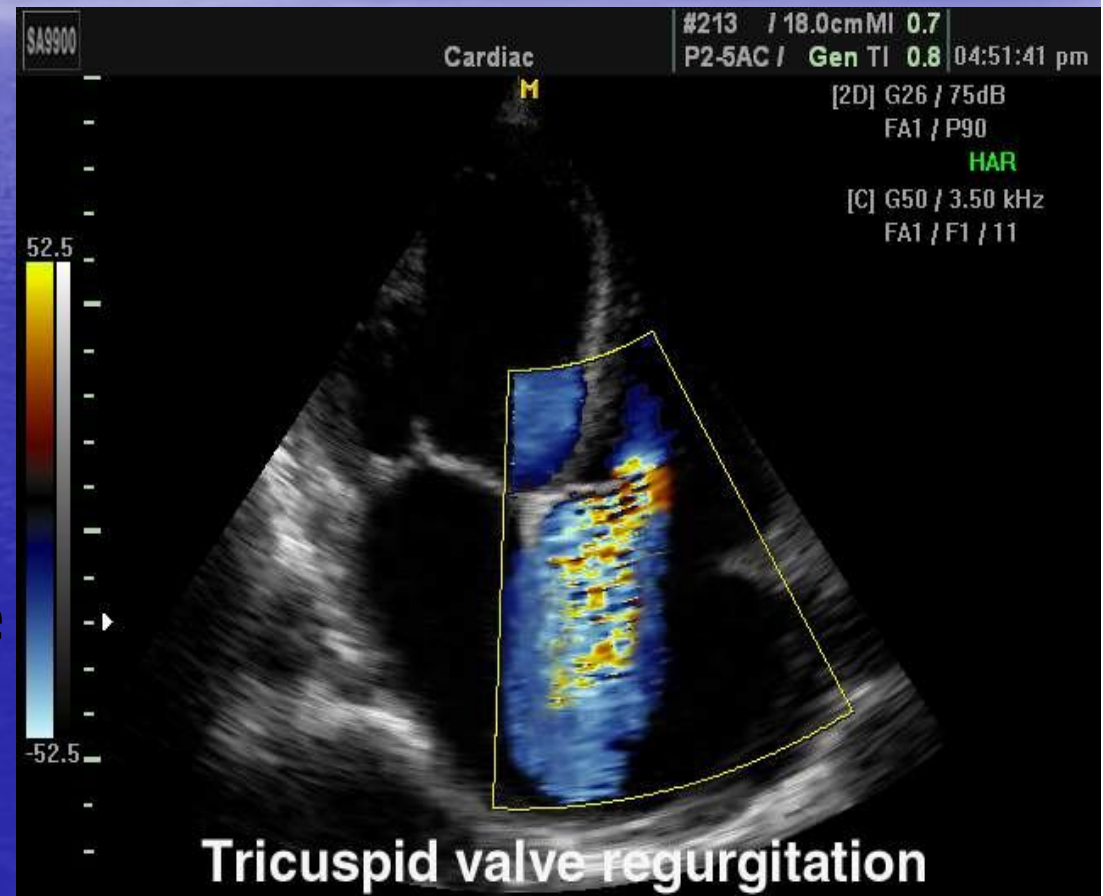
- AS
 - $<0.75 \text{ cm}^2$: severe
 - $0.75\text{-}1 \text{ cm}^2$: moderate
 - $>1 \text{ cm}^2$: mild

- AR
 - $>300 \text{ cm/sec}$: severe



常見的一些DATA

- TR: assessment pulmonary HTN severity
 - <30 mmHg: mild
 - 30-60 mmHg: moderate
 - >60 mmHg: severe



Emergency of cardiac echo

- AMI evaluation and complication survey
 - MR
 - VSD
 - Pseudoaneurysm
 - LV and RV function
 - Coronary territory assessment

Emergency of cardiac echo

- Aortic dissection
 - 角色比不上 C T
 - Useful in patients with type A to R/O AR or pericardial effusion formation

Emergency of cardiac echo

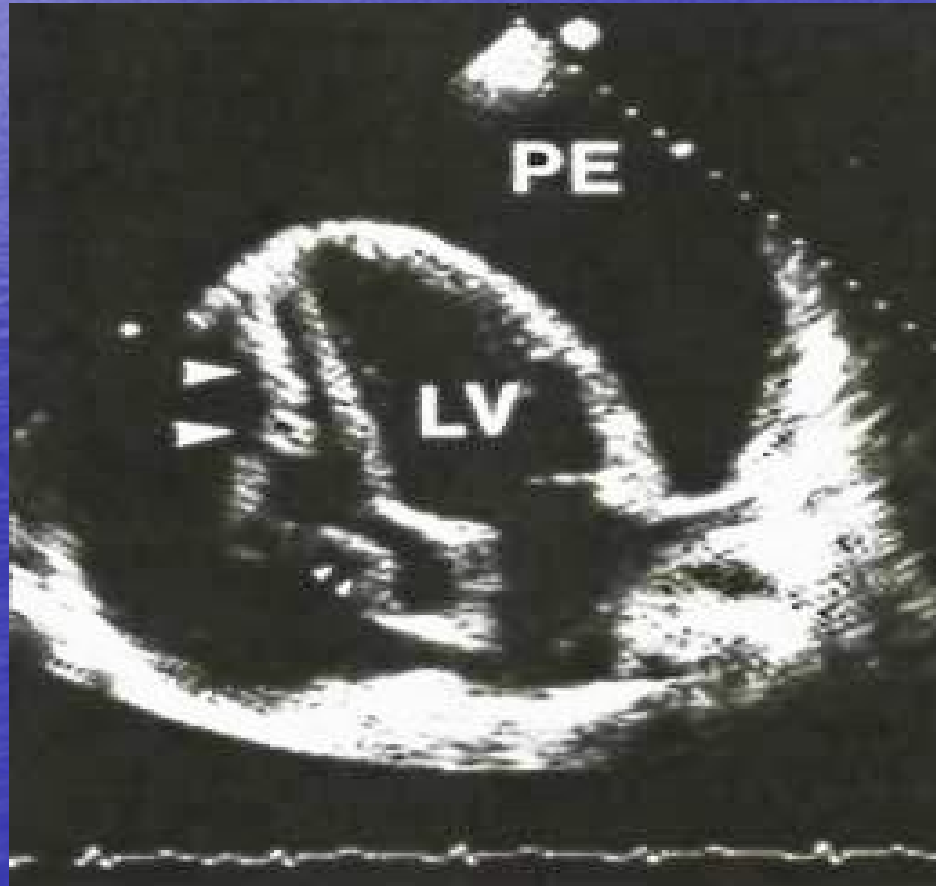
- Chest contusion
 - For wall motion
 - For AR
 - For pericardial effusion

Emergency of cardiac echo

- Pulmonary infarction or embolism
 - RA and RV dilation
 - PA dilatation
 - TR

Emergency of cardiac echo

- Cardiac tamponade



Emergency of cardiac echo

- For critical illness patients
 - Esp. for dyspnea condition survey

Other condition for cardiac echo

- Syncope
- Pre-OP evaluation
 - Valuable?



Thanks