



# ISCT ABSTRACT AWARD



Margaret Duffy, Blackrock Clinic

# UNUSUAL CASE OF HIGH GRADIENT



# Background

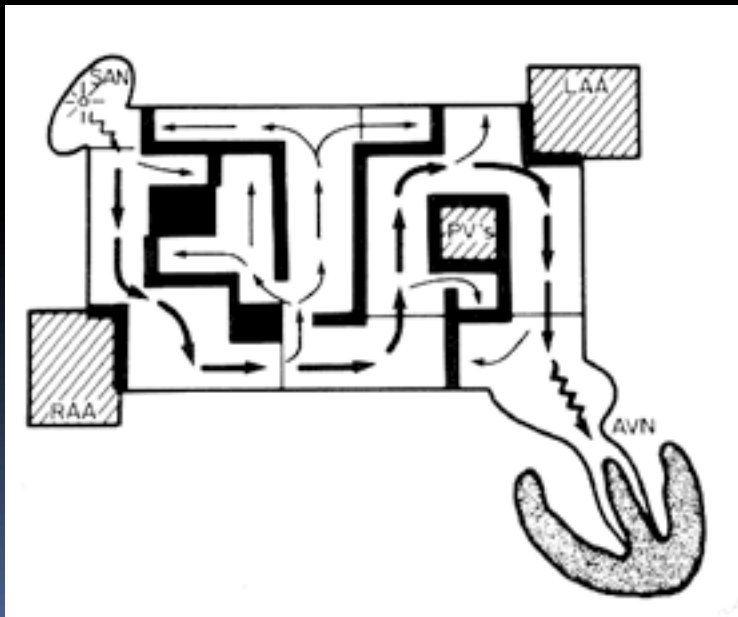
- 78yo female
- 4 year Hx atrial fibrillation
- c/o DOE
- Meds
  - Warfarin
  - Statin
  - PPI
- FHx
  - CVA

# Investigations

- Echo
  - Moderately severe MR, severe TR
  - Severely dilated atria
  - No AS, no significant gradient
- Angio
  - Normal coronary arteries
- Referred for
  - mitral and tricuspid valve repair
  - MAZE procedure, LAA amputation

# Valve repair

- **Commissurotomy**
  - the surgeon opens the valve by cutting along where the leaflets meet.
- **Patching**
  - tissue patches are used to cover holes or tears in the valve.
- **Decalcification**
  - removing build up of calcium from the valve.
- **Repair**
  - **Redundant leaflets excised**, chordae and papillary muscles are shortened to allow the valve to close properly .
- **Valvuloplasty**
  - flexible annuloplasty ring which can be sized and adjusted, is sewn into the annulus.
  - allows the functional changes that occur during the cardiac cycle.
  - ensures that the valve leaflets close properly during systole and will also allow for the changing dynamics required during diastole




# Post surgery

- Pt did not do as well as expected
- TOE
  - No pericardial effusion
  - Valves working well
- TTE (following day)
  - No pericardial effusion
  - No valvular issues
- IABP inserted



# Following day

- Patient continued to deteriorate
  - Hypotensive
  - Noradrenaline and Dobutamine started
  
  - Portable echo performed
- 

# Peak gradient 97mmHg

Se:1  
Im:28 (F1/1)

MD/FC 474327

Blackrock Clinic

S5-1/Adult

HOLLAND, SARAH  
Study Date: 18/09/2009  
Study Time: 10:18:48  
MRN: 474327

FR 18Hz

22cm

÷ AV VTI

Vmax 493 cm/s

Vmean 277 cm/s

Max PG 97 mmHg

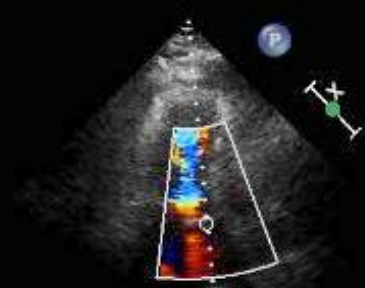
Mean PG 40 mmHg

VTI 66.8 cm

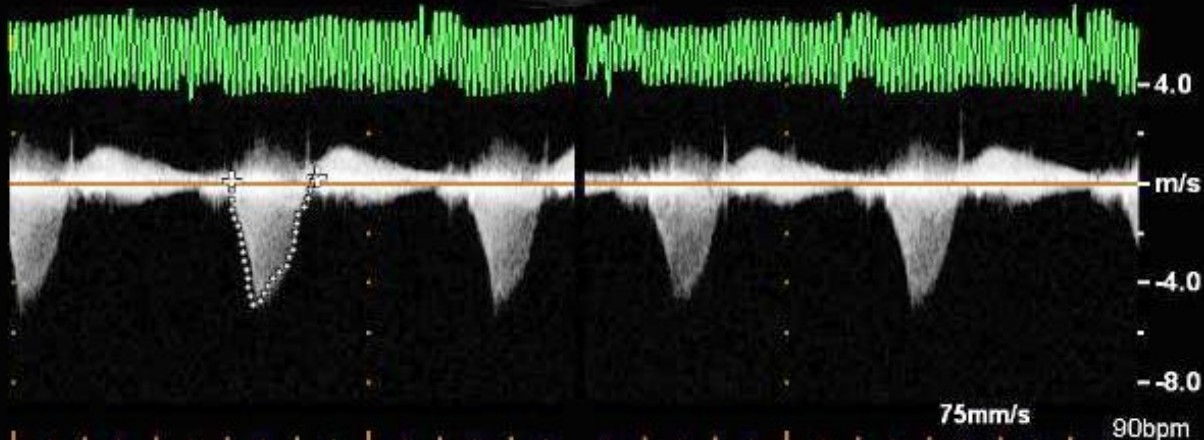
2.5MHz

WF High

Med



CW  
50%  
1.8MHz  
WF 225Hz



C127  
W254

# TOE


- High gradient confirmed
- Systolic anterior motion of the mitral valve
- LVOT obstruction
- Resultant gradient
- Grade 4+ MR
- IABP switched off
  - No SAM
  - No LVOT gradient
  - No significant MR
- Pt improved
  - Discharged after 3/52

# Discussion

- Sliding valvuloplasty not performed
  - Removes tissue from the posterior leaflet before ring inserted
  - Prevents SAM
- IABP
  - Altered loading conditions and afterload
- Dobutamine and noradrenaline
  - Augmented systolic function
- Exacerbated the LVOT gradient



# Further discussion

- Importance of a full echo study
    - “no such thing as a quick echo”
  - Case where IABP did not give the desired effect
- 



Siobhain O'Sullivan, Mater Misericordiae University Hospital

# UNIVENTRICULAR HEART






# Background


- encompasses a wide variety of heart defects that functionally and physiologically constitute a single ventricle chamber
- embryological mechanisms, resulting in the formation of a single functional ventricle
- the varied combinations of associated abnormalities
- right side or left side ventricular morphology
  - majority of cases there is a second immature nonfunctional ventricle

# Blood circulation

- Normal heart
  - Blood circulates in series
- Univentricular heart
  - Blood travels in parallel
  - Pumped to both lungs and systemic circulation
  - Pulmonary resistance vs systemic resistance determines amount of blood travelling to lungs
  - Much more blood will flow to the lungs than the systemic circulation
  - Mixing of systemic and pulmonary venous blood




# Importance of pulmonary outflow obstruction

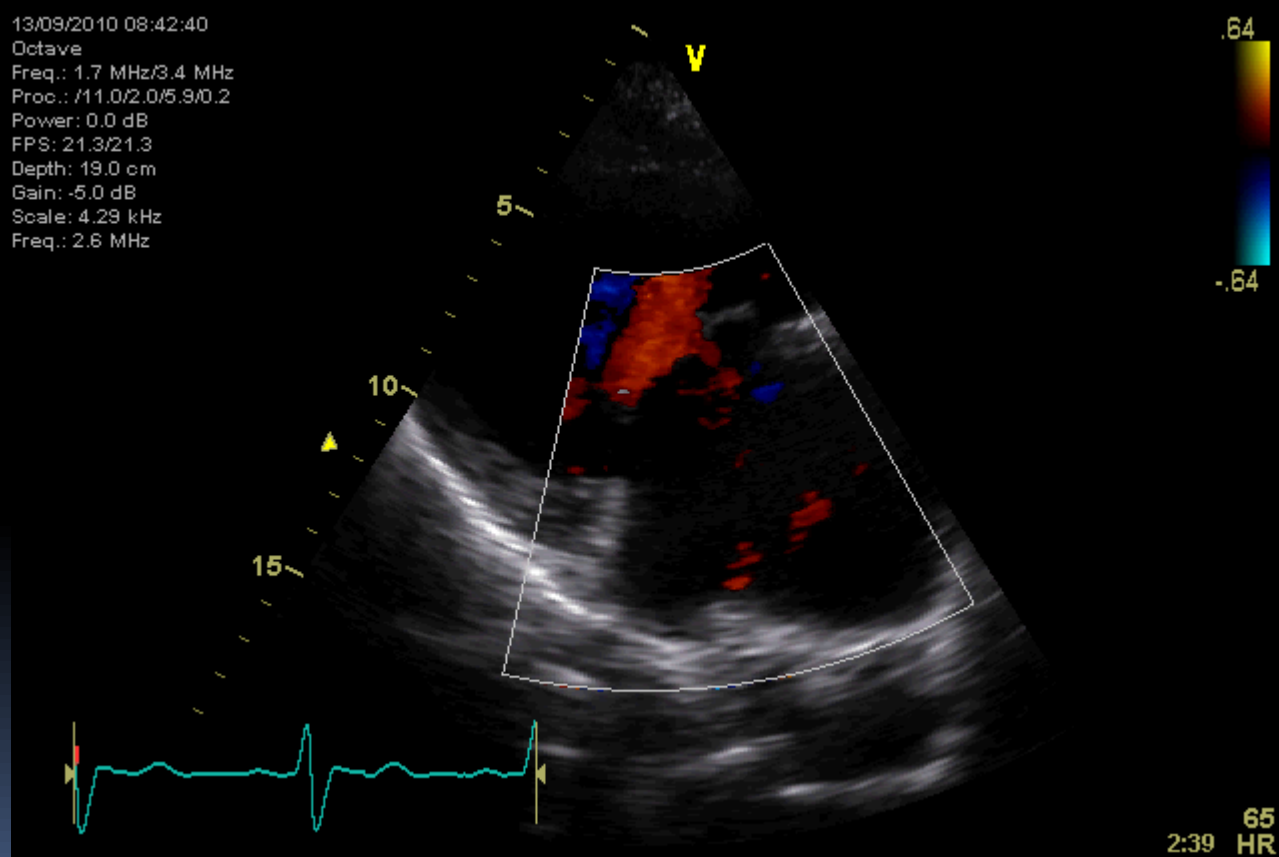
- If there is the correct amount of obstruction to pulmonary flow
  - Lead to a more balanced flow to the systemic and pulmonary circulation
    - Important for prolonged life
- 



# Case

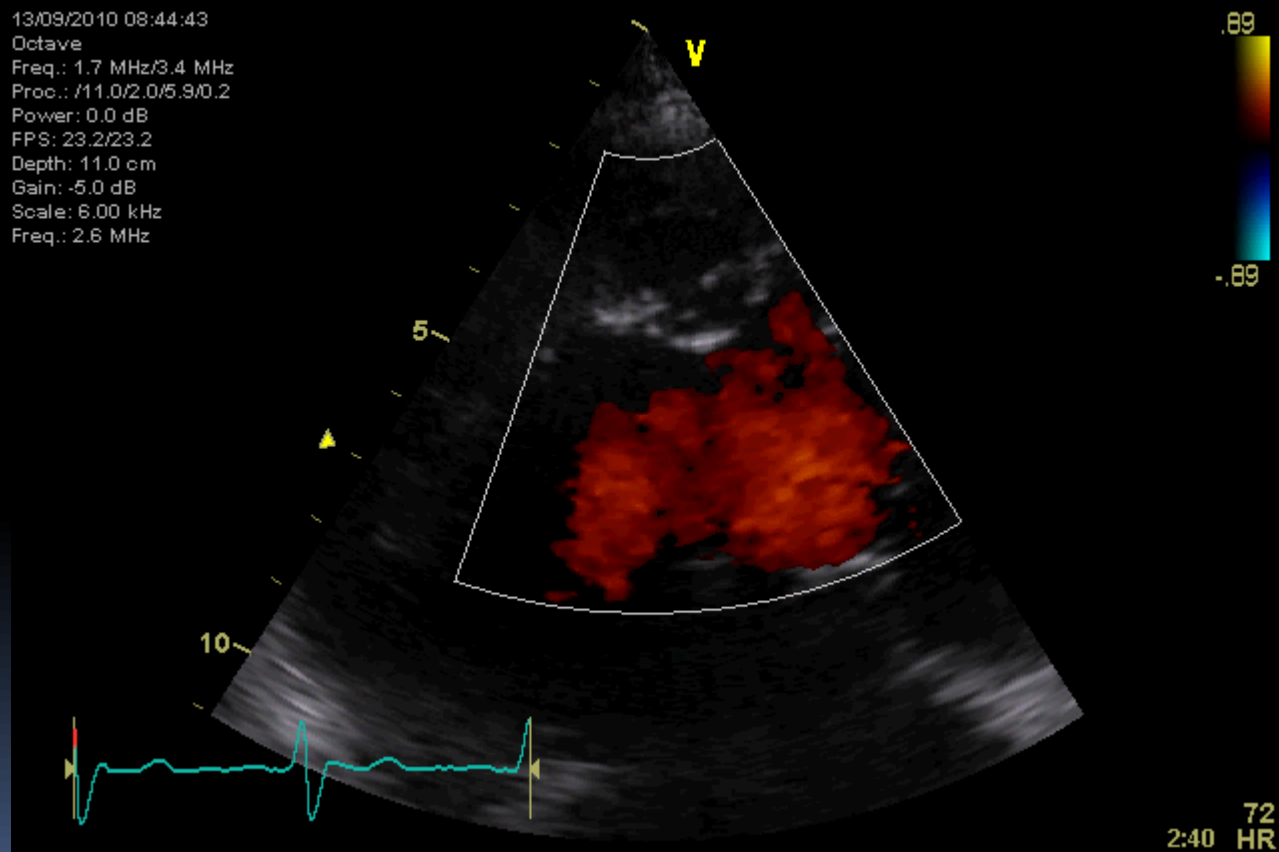
- 37yo female
  - Hx of GUCH disease
  - Thyrotoxicosis
  - On amiodarone
    - Atrial fib/flutter
- 

13/09/2010 08:42:40  
Octave  
Freq.: 1.7 MHz/3.4 MHz  
Proc.: /11.0/2.0/5.9/0.2  
Power: 0.0 dB  
FPS: 21.3/21.3  
Depth: 19.0 cm  
Gain: -5.0 dB  
Scale: 4.29 kHz  
Freq.: 2.6 MHz



2:39 65  
HR


13/09/2010 08:44:43  
Octave  
Freq.: 1.7 MHz/3.4 MHz  
Proc.: /11.0/2.0/5.9/0.2  
Power: 0.0 dB  
FPS: 23.2/23.2  
Depth: 11.0 cm  
Gain: -5.0 dB  
Scale: 6.00 kHz  
Freq.: 2.6 MHz



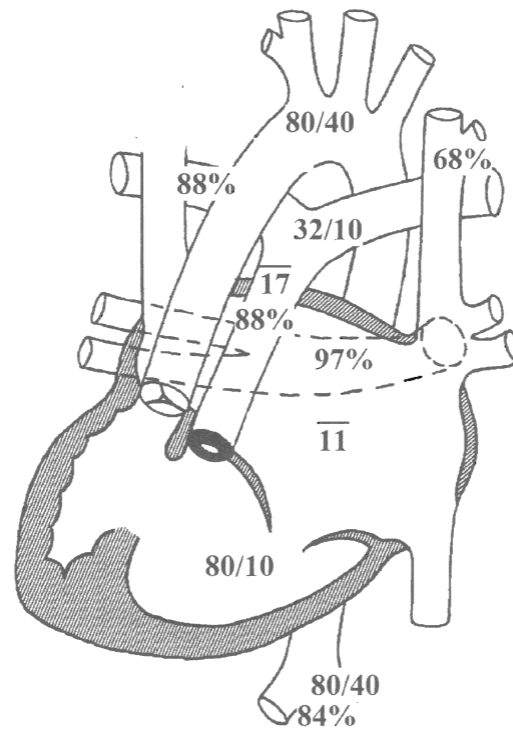
2:40 72 HR



# Echo findings

- Dextrocardia
  - Univentricular heart
  - Tri-leaflet AV valve
    - Regurgitation
  - Some trabeculation
    - ?immature RV
- 

# “Right” Heart Cath




Hb 15.7      Rp = 1.1 u.m<sup>2</sup>      Qp/Qs = 1.8:1

Grown-up congenital heart disease – needs more than one look





# Discussion

- Prevalence
  - Importance of pulm obstruction
    - Therapeutic option
  - Approach to a GUCH disease echo
    - Is it different
- 



Nicholas Synnott

# COMPARISON OF TWO ICD MORPHOLOGY ALGORITHMS

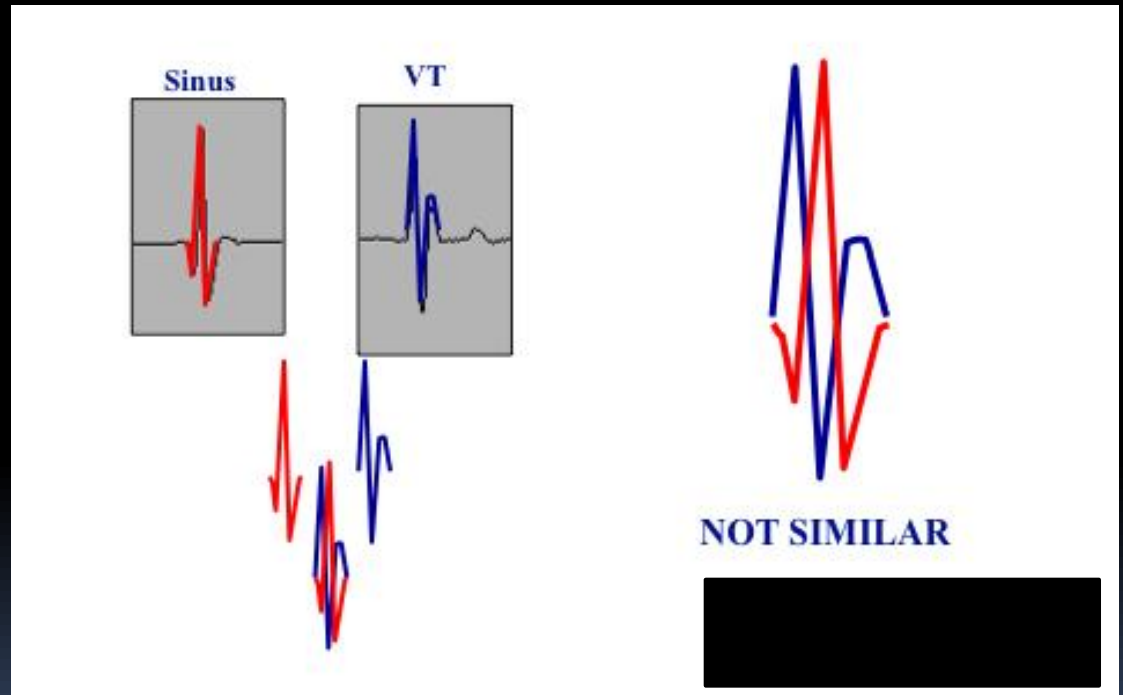


# Background

- SVT discriminators
  - Algorithms which help an ICD decide if an arrhythmia is ventricular or not
- Include
  - Onset
  - Stability
  - Morphology

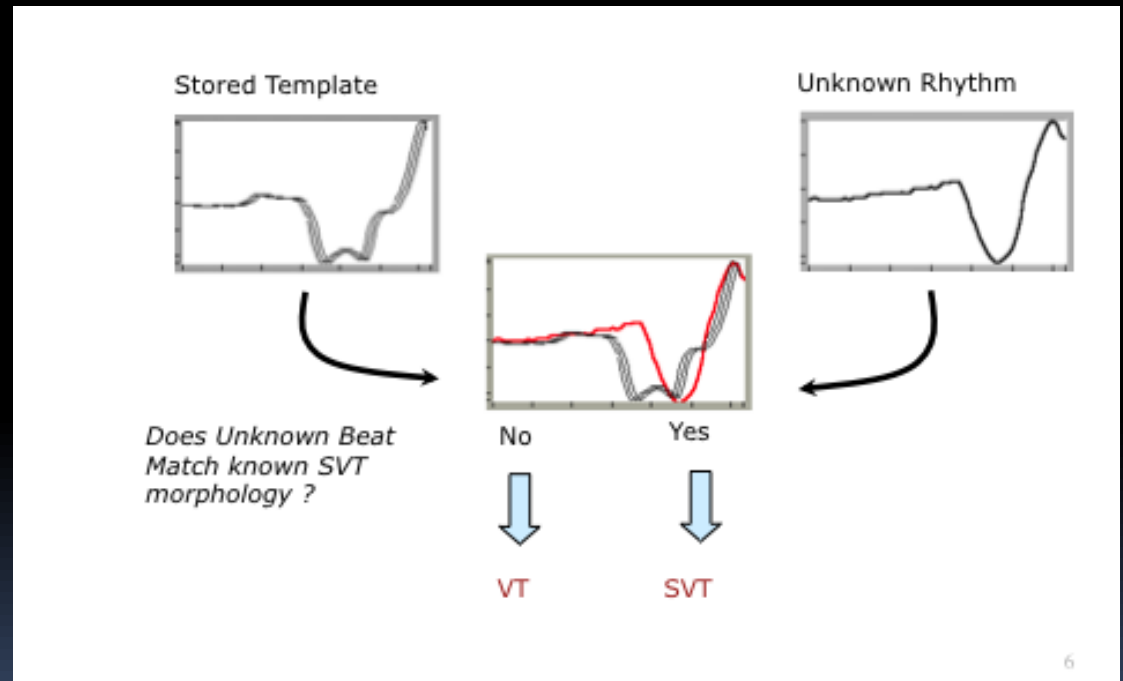
# Morphology Algorithm SJM

- Near field IEGM
- Compares number of peaks and alignment compared to the stored sinus template
- Area of difference under those peaks
- Current scoring shown “live”




# Morphology Medtronic

- Far field IEGM
- Area of difference under the curve
- Morphology scoring is a separate test





# Aim

- To investigate the performance of the morphology scoring algorithm
- 



# Methods

- Twenty-two patients were selected at random from each company.
- Rhythm strips with morphology percentage scores were recorded on all patients with intrinsic ventricular rhythm.
- All recording were made before any threshold or impedance measurements were made. Patient were excluded if patient had a shock in the previous week.



# Methods

- Ten beats were averaged and of the ten beats the number of beats above and below the percentage threshold for that particular company was noted (Threshold for Medtronic=70%, Threshold for SJM=60%).
- The averages of both companies were then t-tested, and statistical significance was determined.

# Results

- SJM:
  - Out of 22 pts 3 had more than 5bts that were below the threshold of 60%
  - The average percentage score of the 22 pts was 88.3%
- Med:
  - Out of 22 pts 3 had more than 5bts that were below the threshold of 70%
  - The average percentage score of the 22 pts was 82.2%
- $P=0.17$




# Conclusion

- Both algorithms while taking different approaches are equally effective
- Suggest that checking morphology score on Medtronic device should be part of routine follow-up
- Limitations
  - Small numbers
  - Did not study PVC's
    - Limited numbers
  - Did not compare tachycardia episodes



# Discussion

- How many do perform morphology scoring on Medtronic device routinely
  - How many would now change their practise
- 



Jonathan Tepoot, Bantry General Hospital, Co. Cork

# UNILEAFLET MITRAL VALVE




# Case

- A 71 year old
- complaining of dizziness
- 12-lead ECG
  - normal sinus rhythm
- Medical history includes
  - vaso-vagal syncope
  - dementia of mixed Alzheimer's and multi-infarct type.
- Several tests were carried out including echocardiogram.



# Echo

- Normal LV size and function
  - Normal LA size
  - Mild MR
- 

F 245277  
24/03/1939

SS ipc

BANTRY HOSP 034/7V  
US - RG B  
Study: 20100825.112450  
Series: 1  
Image: 2  
Frame: 48 / 112  
Zoom: 61%

PHILIPS

25/08/2010 11:28:14AM

TISO.8

M1.1

245

S5-1/JWT

FR 55Hz  
13cm

M3

2D  
61%  
C 50  
P Low  
HPen



JPEG

59 bpm

Fig 1 : Parasternal long-axis view. Absence of posterior mitral leaflet.

F 245277  
24/03/1939

SS ipc

BANTRY HOSP 034WTV  
US - RGB  
Study: 20100825.112450  
Series: 1  
Instance: 11  
Frame: 92/105  
Zoom: 61%

PHILIPS

245

25/08/2010

11:31:04AM

TIS0.8

M1.2

S5-1/JWT

FR 55Hz  
13cm

M3

2D  
61%  
C 50  
P Low  
HPen



JPEG

62 bpm

Fig. 2: Parasternal short-axis (MV level)

[Redacted]  
F 245277  
24.03/1939

50 fps

BANTRY HOSP 03477V  
US - RGB  
Study: 20100825.112450  
Series: 1  
Instance: 16  
Frame: 901 / 98  
Zoom: 61%

PHILIPS [Redacted] 25/08/2010 11:32:41AM TISO.9 M 1.3  
245 [Redacted] S5-1/JWT

FR 50Hz  
15cm  
2D  
65%  
C 50  
P Low  
HPen

M3

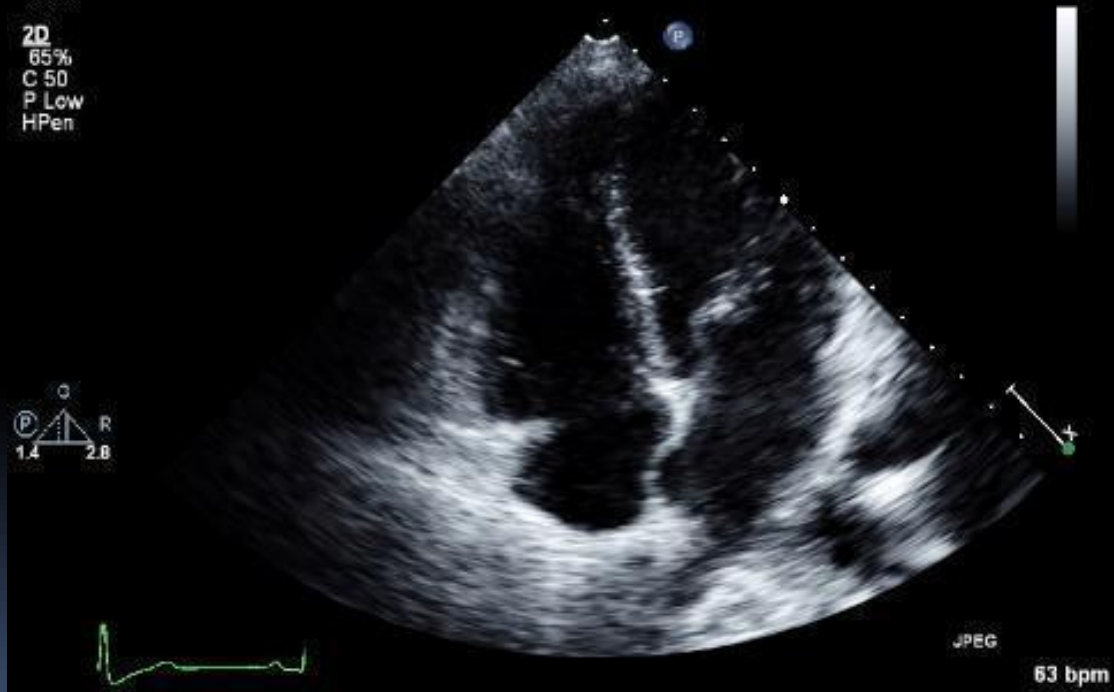


Fig: 4: Apical 4-chamber view  
[Redacted]

F 245277  
24/03/1939

BANTRY HOSP 034V7V  
US - RGB  
Study: 20100825.112450  
Series: 1  
Instance: 6  
Zoom: 48%

PHILIPS [redacted] 25/08/2010 11:29:32AM TISO.8 MI  
JWT 245 [redacted] BANTRY HOSP 034V7V S5-1/JWT  
FR 37Hz - MV EPSS 0.2 cm M3  
13cm

2D / MM  
64% 60%  
C 50  
P Low  
HPen

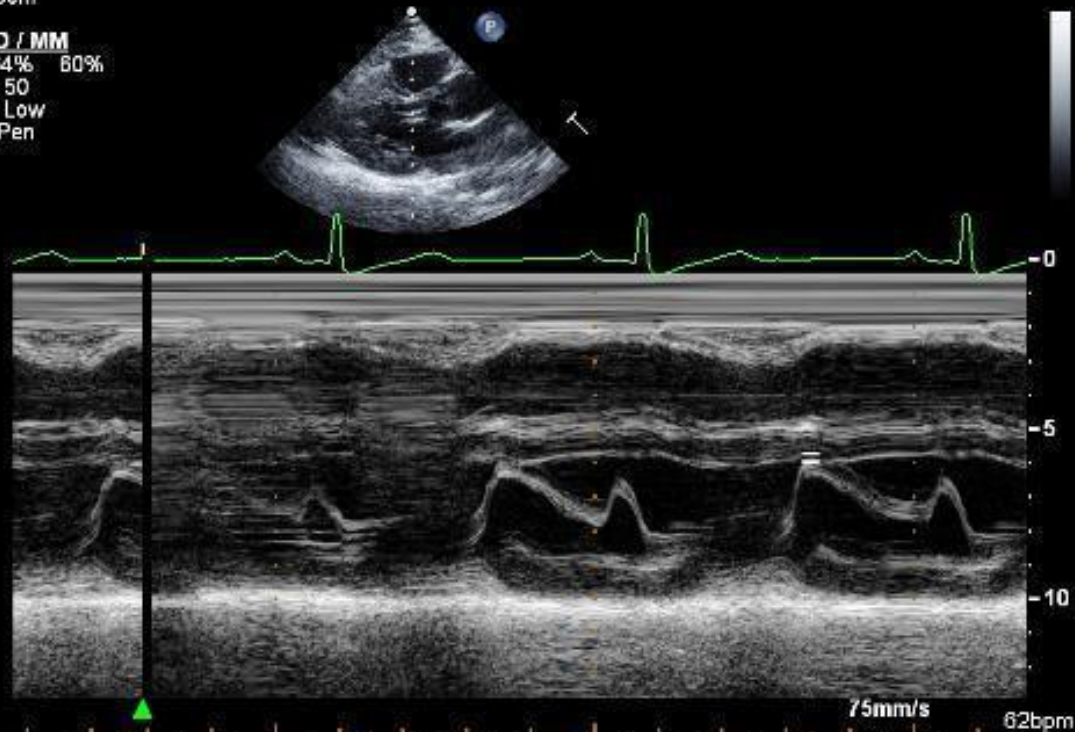


Fig. 3: M-mode

# Unileaflet MV

- Uni-leaflet mitral valve is a very rare case
- ?incompatible with life beyond neonatal stage.
- Defined as a complete absence of posterior mitral leaflet as observed with “long” anterior leaflet which prolapsed into the left atrium during systole

# Is this hereditary


- 35 year old daughter
- seen in the same institution five years ago complaining of palpitations.
- echo was also carried out in 2005
  - anterior mitral valve prolapse
  - “small” posterior mitral leaflet with no significant mitral regurgitation.

# Discussion

- Rare
- not enough data that has been established if this can be a familial disorder/hereditary.
- this congenital anomaly of the mitral valve does not interfere from her daily routines or activities.
- Because we have limited information about this defect, annual follow-up is imperative to check the competency of the valve



# Discussion

- Anyone anything similar?
  - Other unusual things
    - Quadricuspid aortic valve
  - I never knew
    - Importance of sharing information
- 

# Can we have the results of the Sligo jury?



A screenshot of a Eurovision scoreboard. The background is blue and green. On the right, a circular frame shows a female host. The scoreboard lists countries with their flags, names, and points. At the bottom, the United Kingdom is highlighted with its flag and the name 'UNITED KINGDOM'. There are also large numbers '4' and '5' in circles at the bottom right.

 LATVIA	80	 TURKEY	1	33
 SWITZERLAND	78	 RUSSIA		33
 ROMANIA	75	 BOSNIA & HERZEGOVINA		25
 ISRAEL	70	 SPAIN		20
 GREECE	68	 UKRAINE		19
 DENMARK	65	 F.Y.R. MACEDONIA		13
 NORWAY	64	 CYPRUS	3	13
 MOLDOVA	62	 SWEDEN		9
 MALTA	62	UNITED KINGDOM		8
 CROATIA	50	 FRANCE		5
 SERBIA & MONTENEGRO	41	 ALBANIA		3
 HUNGARY	36	 GERMANY		2

# Apologies



sorry.