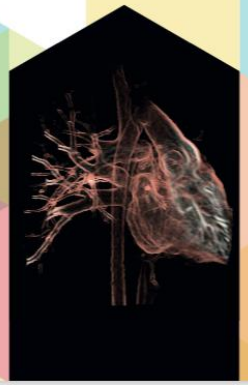
VI CORSO GUCH

Il paziente adulto con cardiopatia congenita

TORINO
03 DICEMBRE 2022
NH TORINO CENTRO



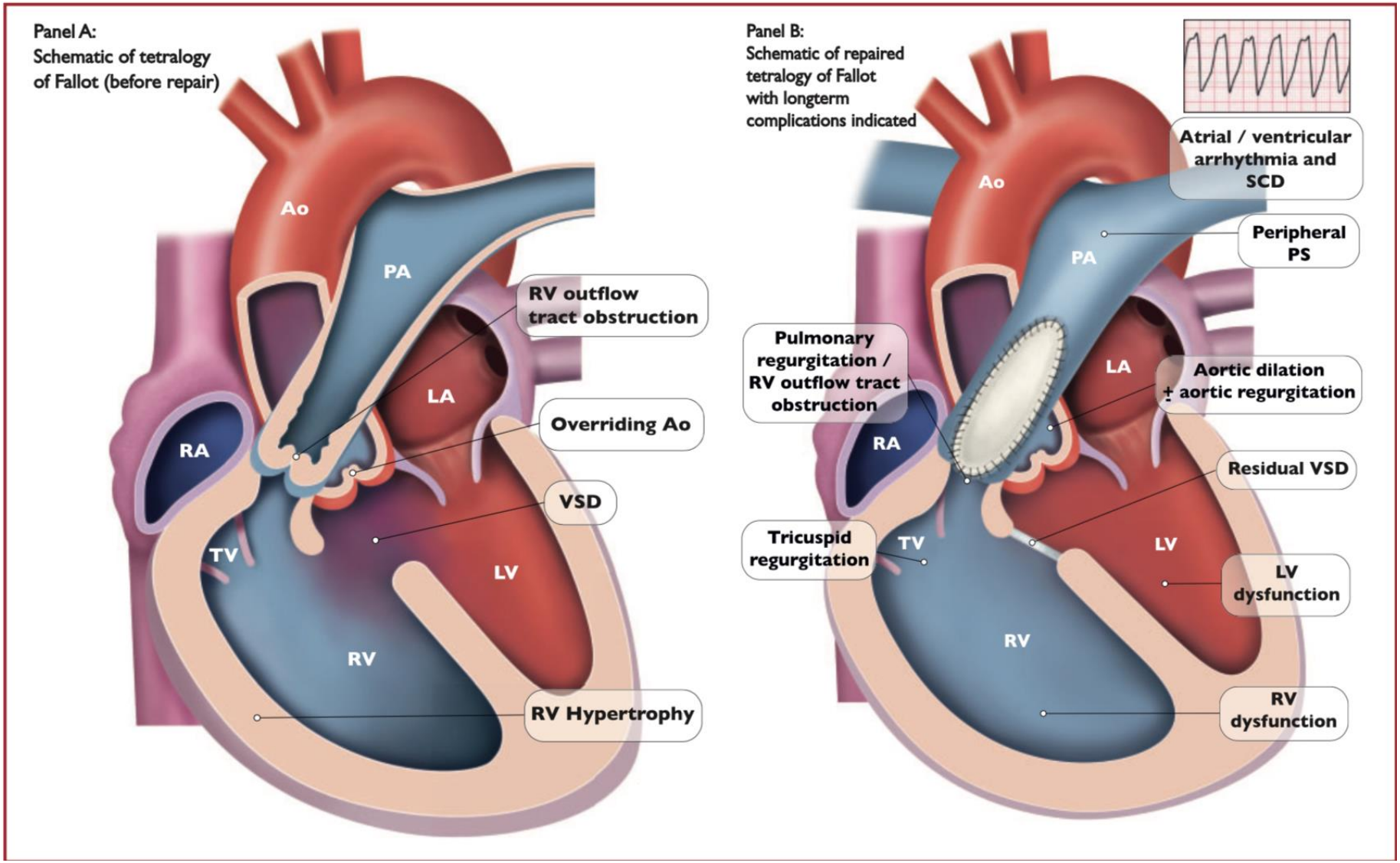
L'imaging: non solo ventricolo destro

Francesca Ferroni

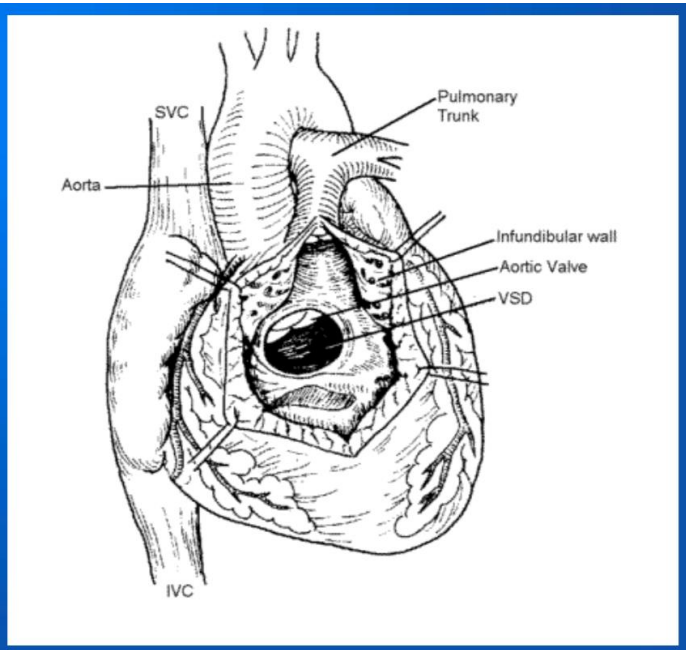
Cardiologia pediatrica

Ospedale Regina Margherita, Torino, Italy

Tutto origina da una deviazione anteriore del setto conale



La prima cardiopatia congenita complessa ad essere stata chirurgicamente palliata e poi corretta

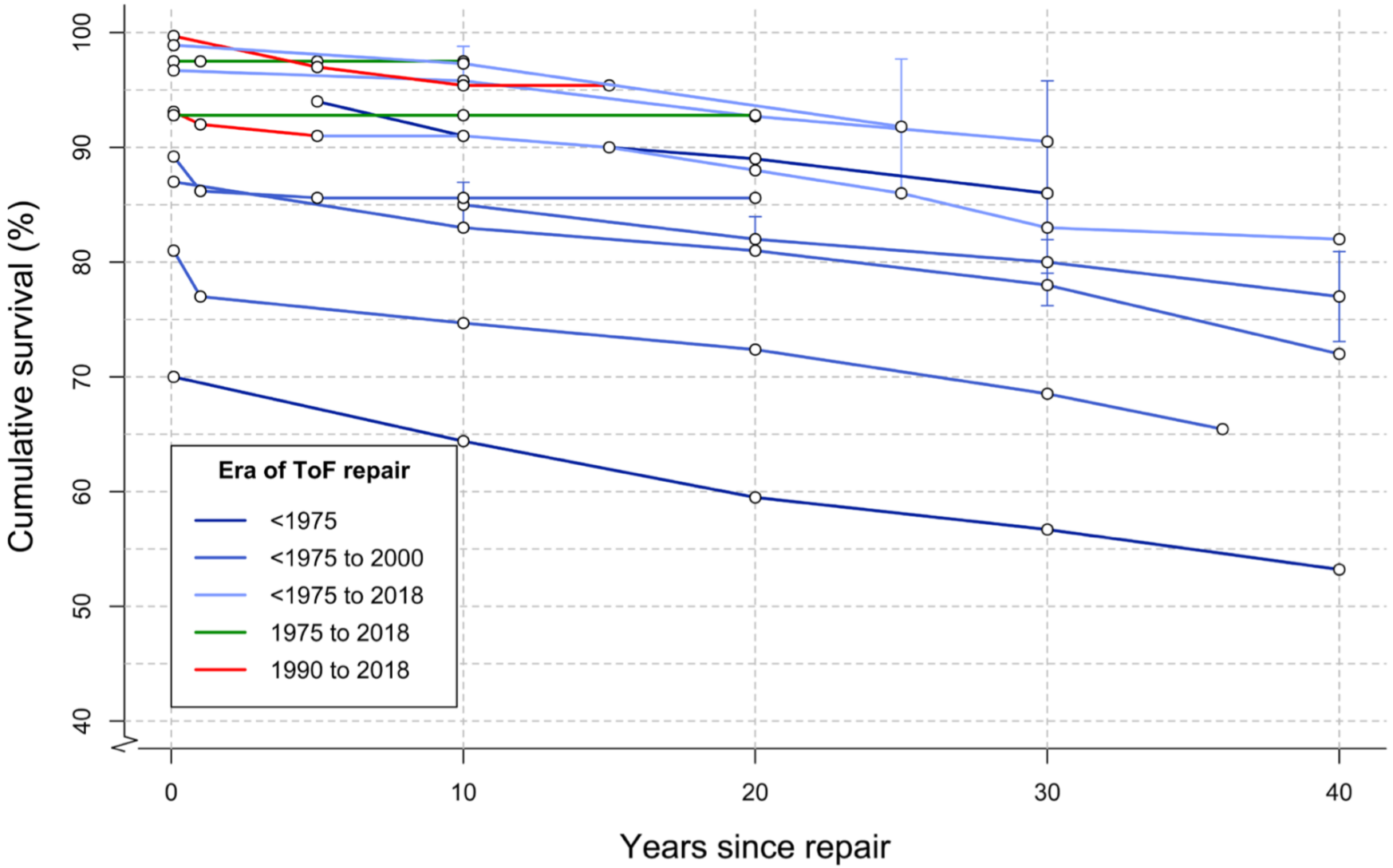


Lillehei: 1954: First total correction

Lillehei CW, Cohen M, Warden HE, et al. Direct vision intracardiac surgical correction of the tetralogy of Fallot, pentalogy of Fallot, and pulmonary atresia defects: report of first ten cases.

Ann Surg. 1955; 142: 418–445.

Come è variata la sopravvivenza negli anni



Adults with Tetralogy of Fallot – - Repaired, Yes; Cured, No

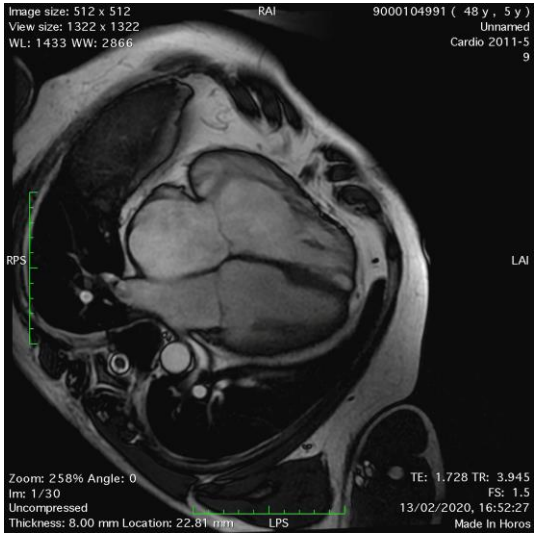
Rosenthal A.: N Engl J Med. 1993 Aug 26;329(9):655-6.

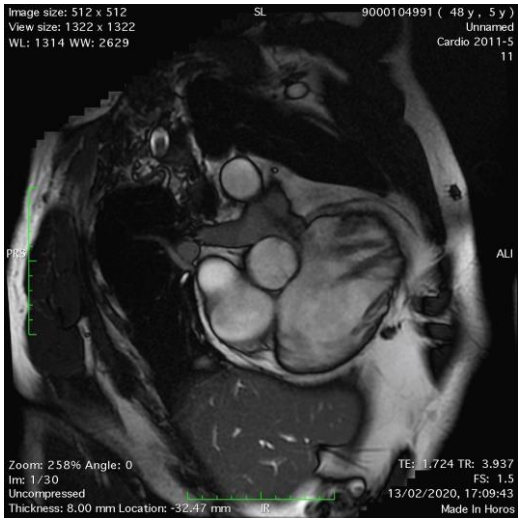
PULMONARY REGURGITATION and RVOT DYSFUNCTION

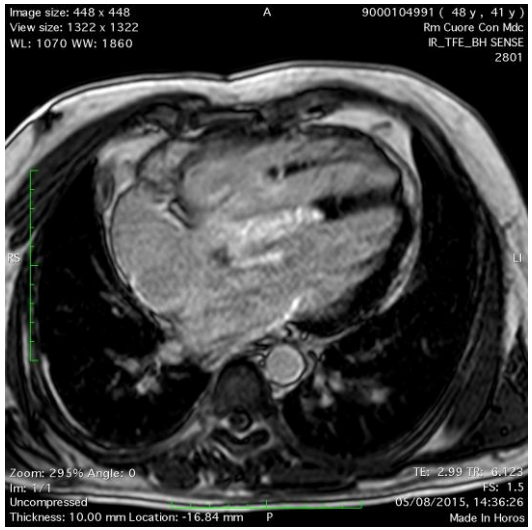
RV DYSFUNCTION and FIBROSIS

ARHYTHMIA and LV DYSFUNCTION

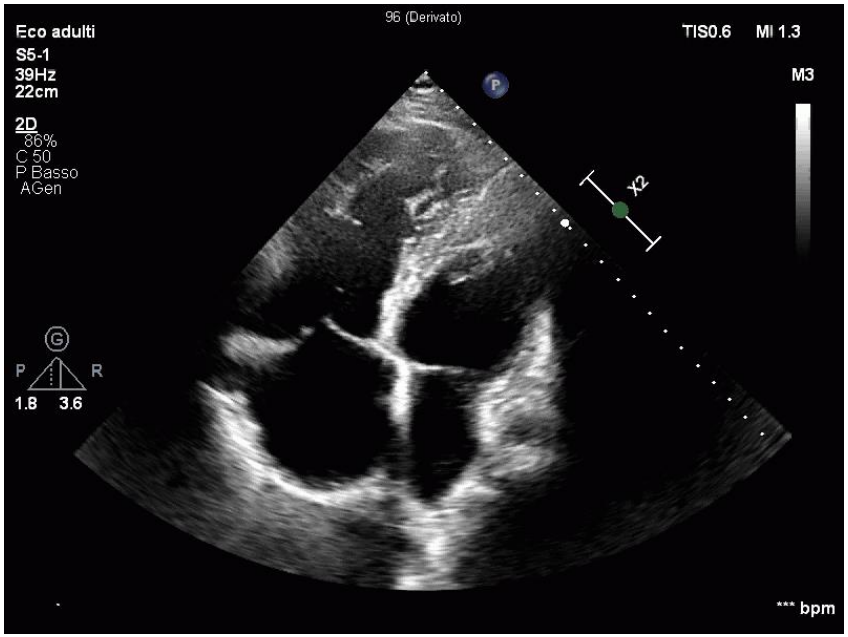
SUDDEN DEATH and CHF





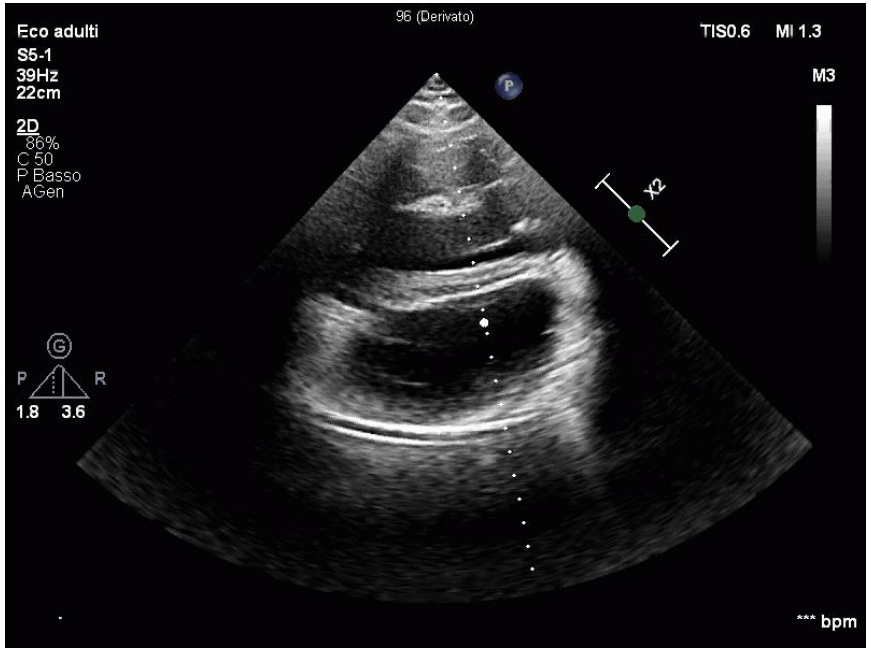


Mattia 24 aa



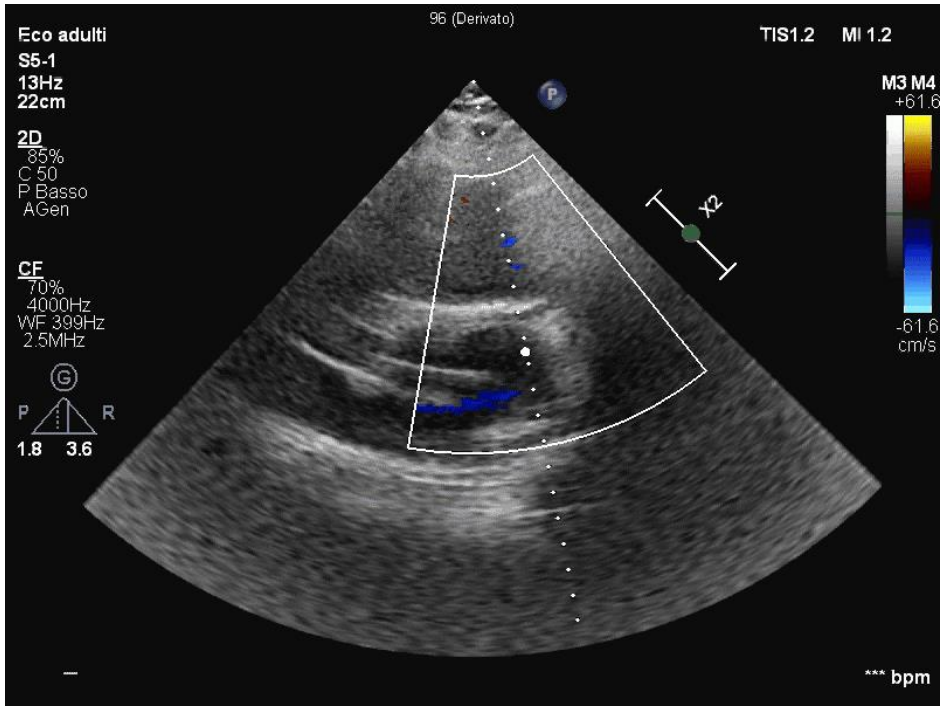
11/3/1999
TOF+MAPCAS s/p a embolizzazione e intervento CCH con monocuspide e chiusura DIV

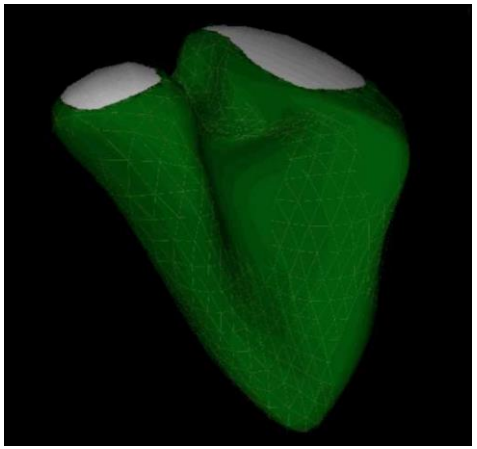
2001
BAV III s/p a impianto di PM poi rimosso per microfrattura

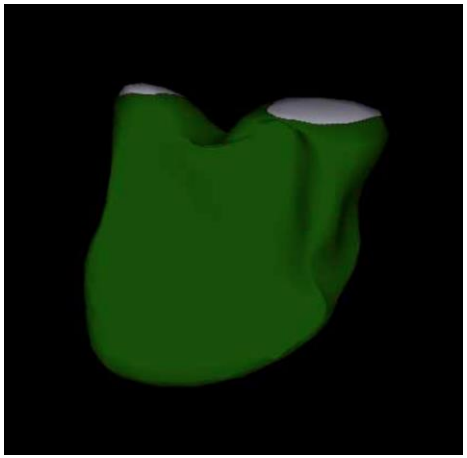


2022
Visita medico sportiva con riscontro di flutter atriale non databile

accesso in PS al San Luigi

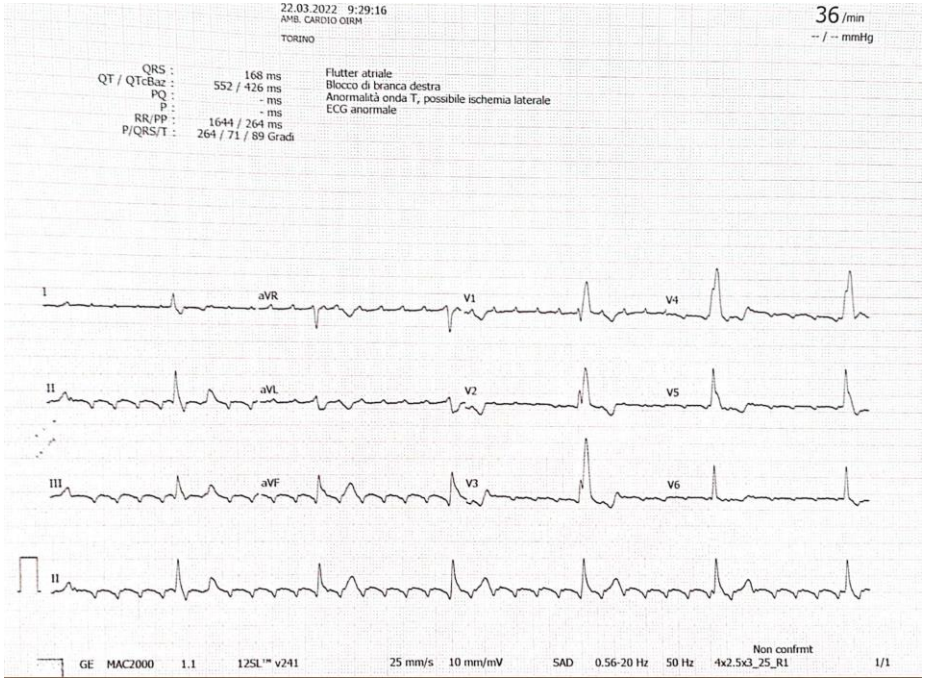






TEST ERGOMETRICO

Flutter atriale 5:1 con FC 44 bpm, graduale incremento fino a 96 bpm, regolare profilo pressorio, discreta tolleranza all'esercizio fisico



VDX

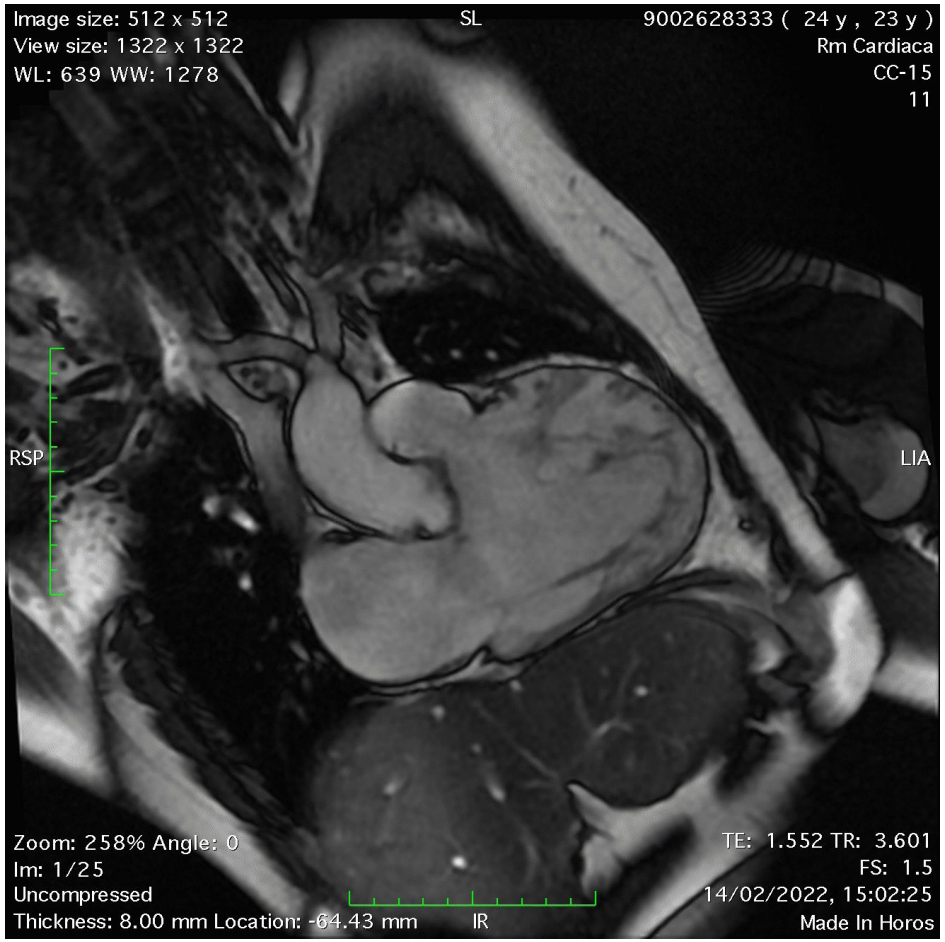
EDVI 229 ml/m2 (v.n. 68-114)

EDSV 121 ml/m2 (v.n. 21-50)

FE 48%

FR polmonare 42%

Atrio dx area 31 cm2

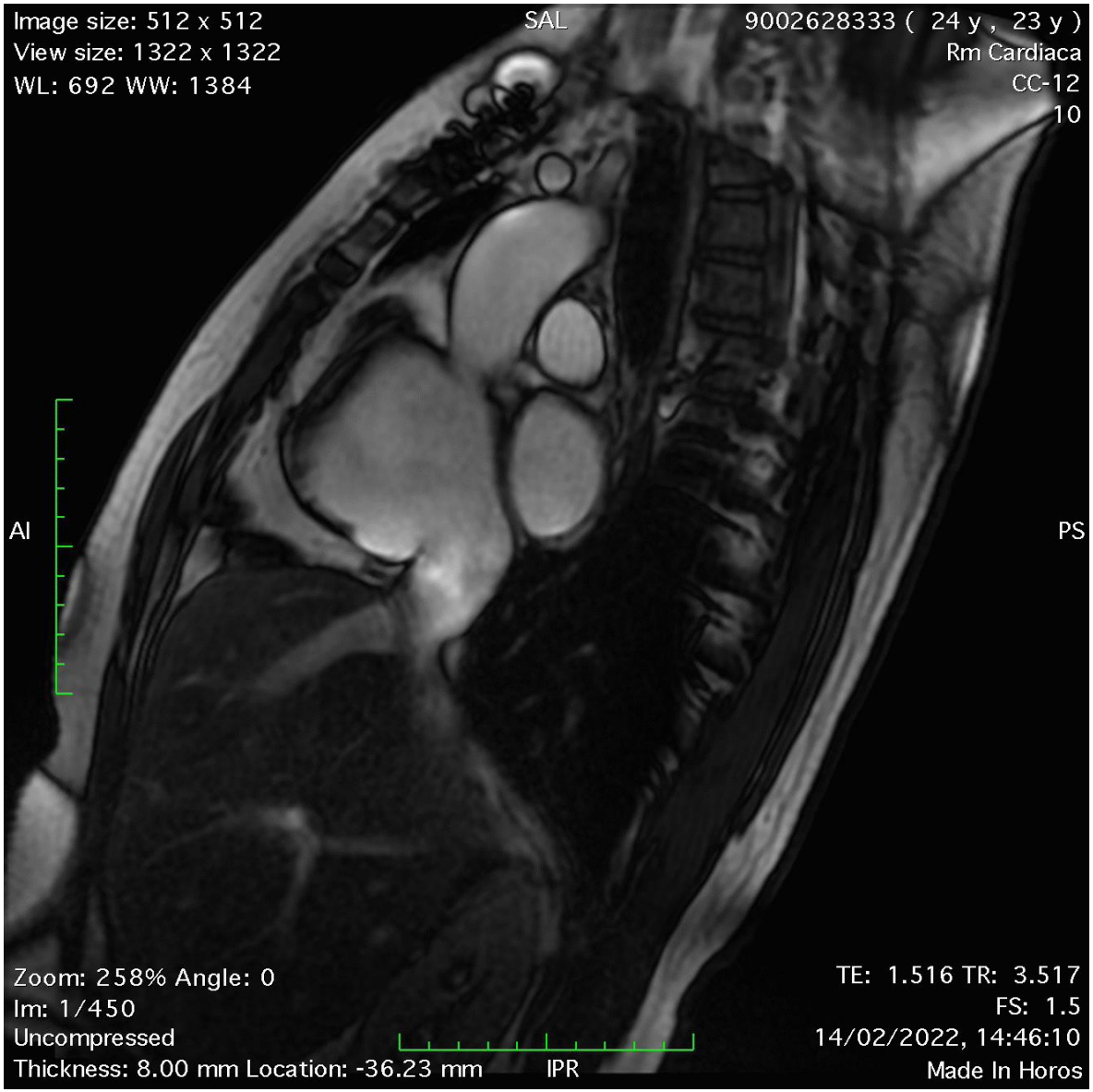


VSX

EDVI 115 ml/m2 (v.n. 68-103)

EDSI 52 ml/m2 (v.n. 19-41)

FE 54%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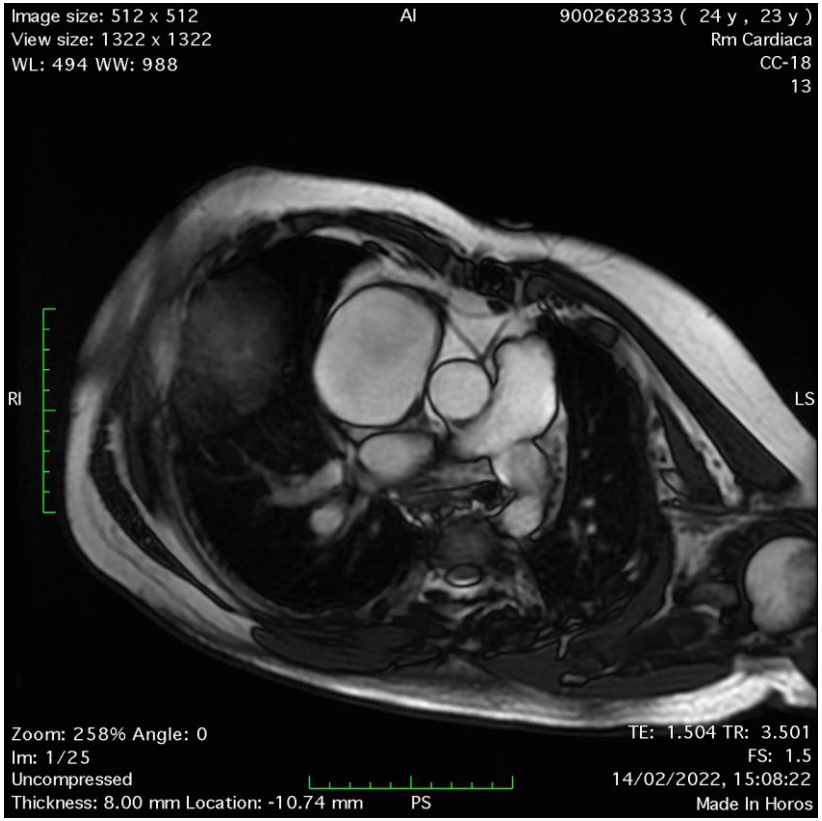
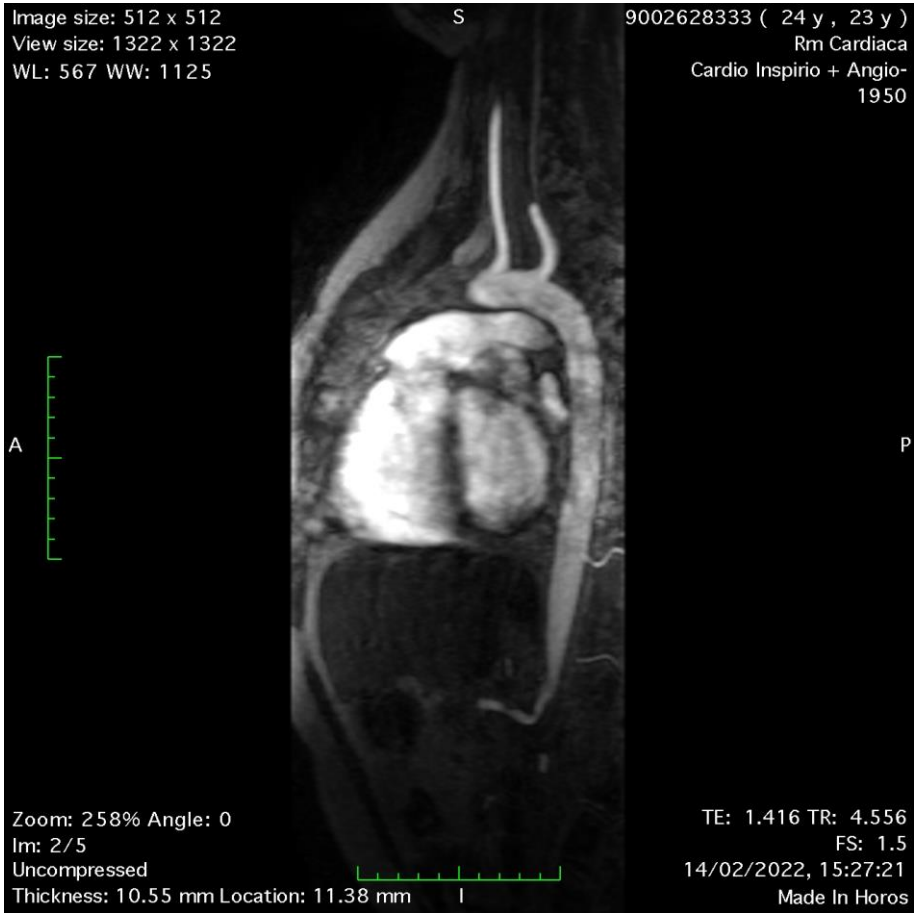
View size: 1322 x 1322
WL: 692 WW: 1384
SAL
9002628333 (24 y , 23 y)
Rm Cardiaca
CC-12
10
AI
PS
Zoom: 258% Angle: 0
Im: 1/450
Uncompressed
Thickness: 8.00 mm Location: -36.23 mm
IPR
TE: 1.516 TR: 3.517
FS: 1.5
14/02/2022, 14:46:10
Made In Horos



Dilatazione del tronco (30X35 mm) e dei rami

No MAPCAS residui



Indications for pulmonary valve replacement in current guidelines

Recommendations	Class[a]	Level[b]
PVRep is recommended in symptomatic patients with severe PR[c] and/or at least moderate RVOTO.[d]	I	C
In patients with no native outflow tract,[e] catheter intervention (TPVI) should be preferred if anatomically feasible.	I	C
PVRep should be considered in asymptomatic patients with severe PR and/or RVOTO when one of the following criteria is present. • Decrease in objective exercise capacity.		
• Progressive RV dilation to RVESVi ≥80 mL/m^2, and/or RVEDVi ≥160 mL/m^2 [f], and/or progression of TR to at least moderate.	IIa	C
• Progressive RV systolic dysfunction. • RVOTO with RVSP >80 mmHg.		

DECREASING RV VOLUMES

REDUCING TR

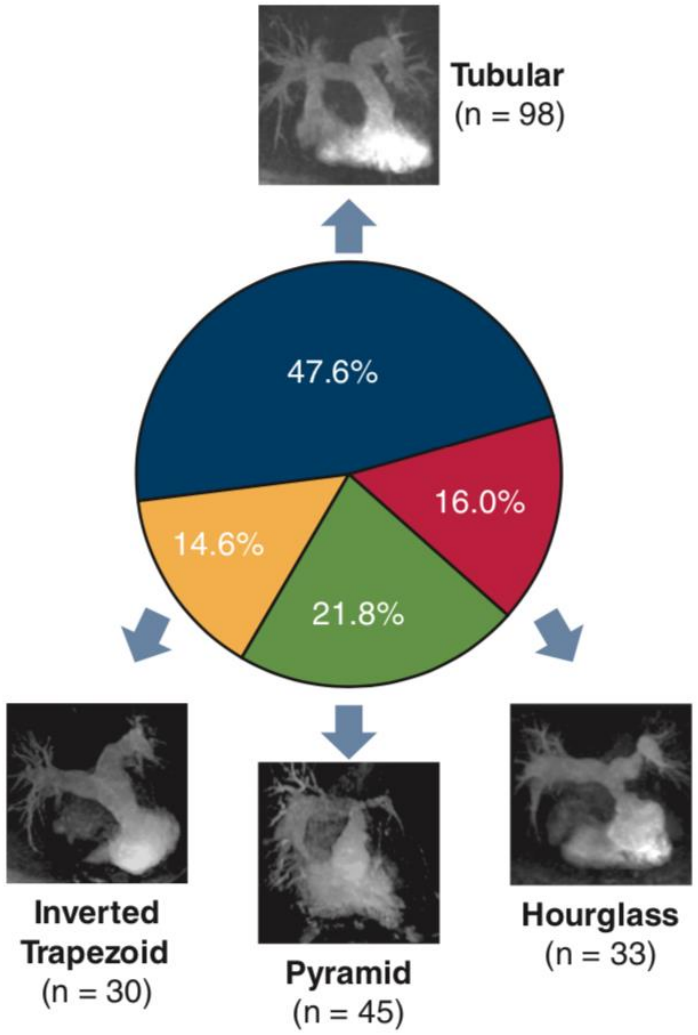
DECREASING QRS DURATION

INCREASING LV EF

IMPROVING FUNCTIONAL STATUS

NO IMPROVEMENT IN SURVIVAL or REDUCTION OF ARRYTHMIA BURDEN!!!

Outflow tract geometries are associated with adverse outcome indicators in repaired tetralogy of Fallot



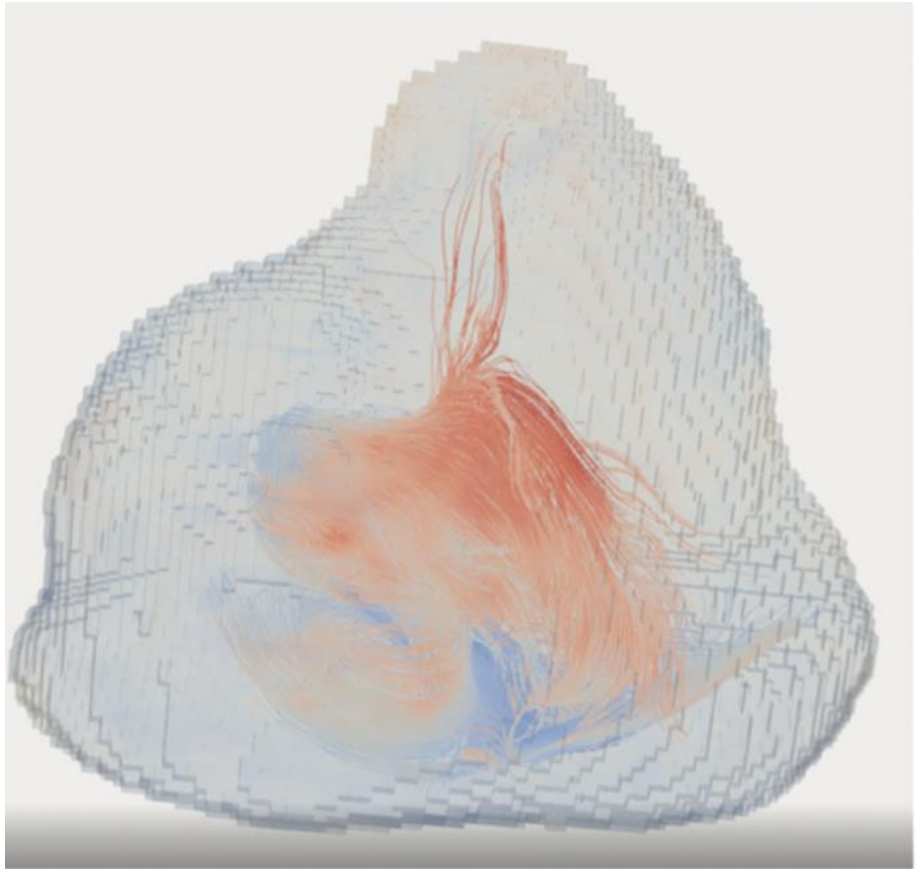
Pyramid-shaped RVOT has the largest RV EDVI and pulmonary valve annulus diameter

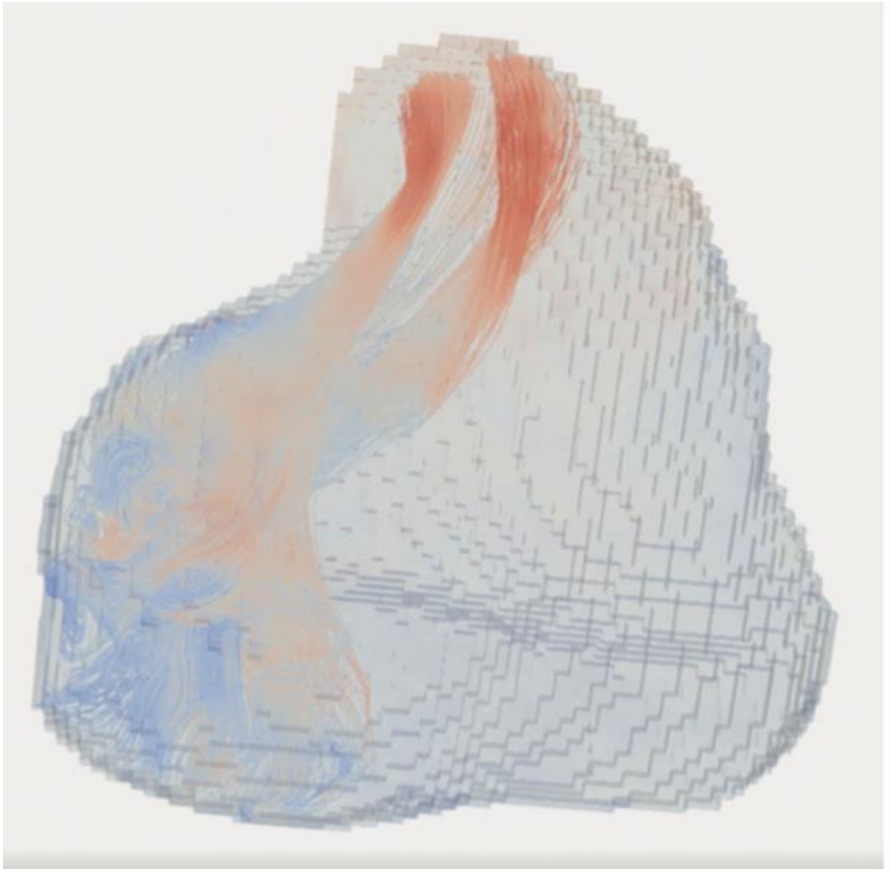
Inverted trapezoid-shaped RVOT has the smallest RV EDVI, pulmonary valve annulus diameter and shortest QRS duration

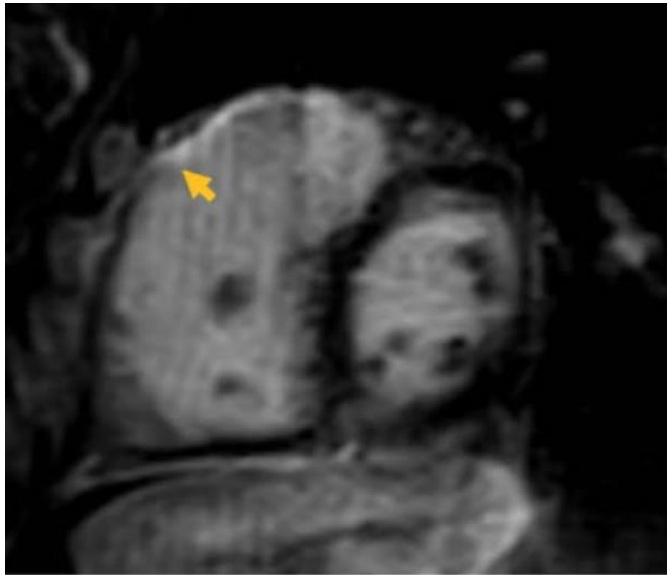
Less extensive incision and pathing of the RVOT resulting in the better preservation of the RVOT mechanics

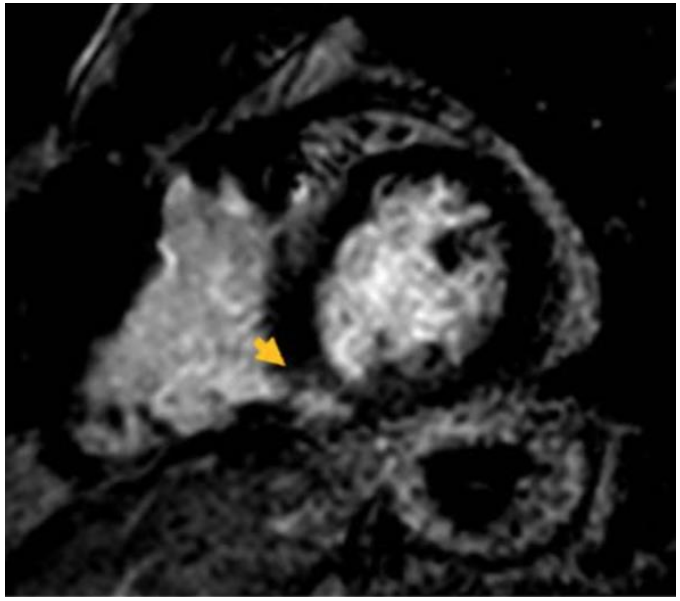
The Journal of Thoracic and Cardiovascular Surgery • July 2021

4D Flow MRI



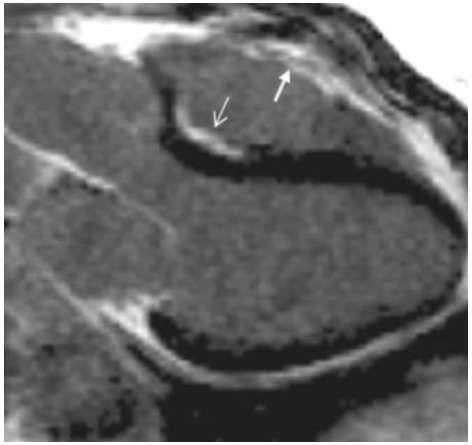






Ventricular Fibrosis Suggested by Cardiovascular Magnetic Resonance in Adults With Repaired Tetralogy of Fallot and Its Relationship to Adverse Markers of Clinical Outcome

Sonya V. Babu-Narayan, BSc, MRCP; Philip J. Kilner, MD, PhD; Wei Li, MD, PhD; James C. Moon, MRCP; Omer Goktekin, MD; Periklis A. Davlouros, MD; Mohammed Khan, MPH; Siew Yen Ho, PhD, FRCPath; Dudley J. Pennell, MD, FRCP; Michael A. Gatzoulis, MD, PhD



RV and LV LGE

ventricular dysfunction

ventricular arrhytmia

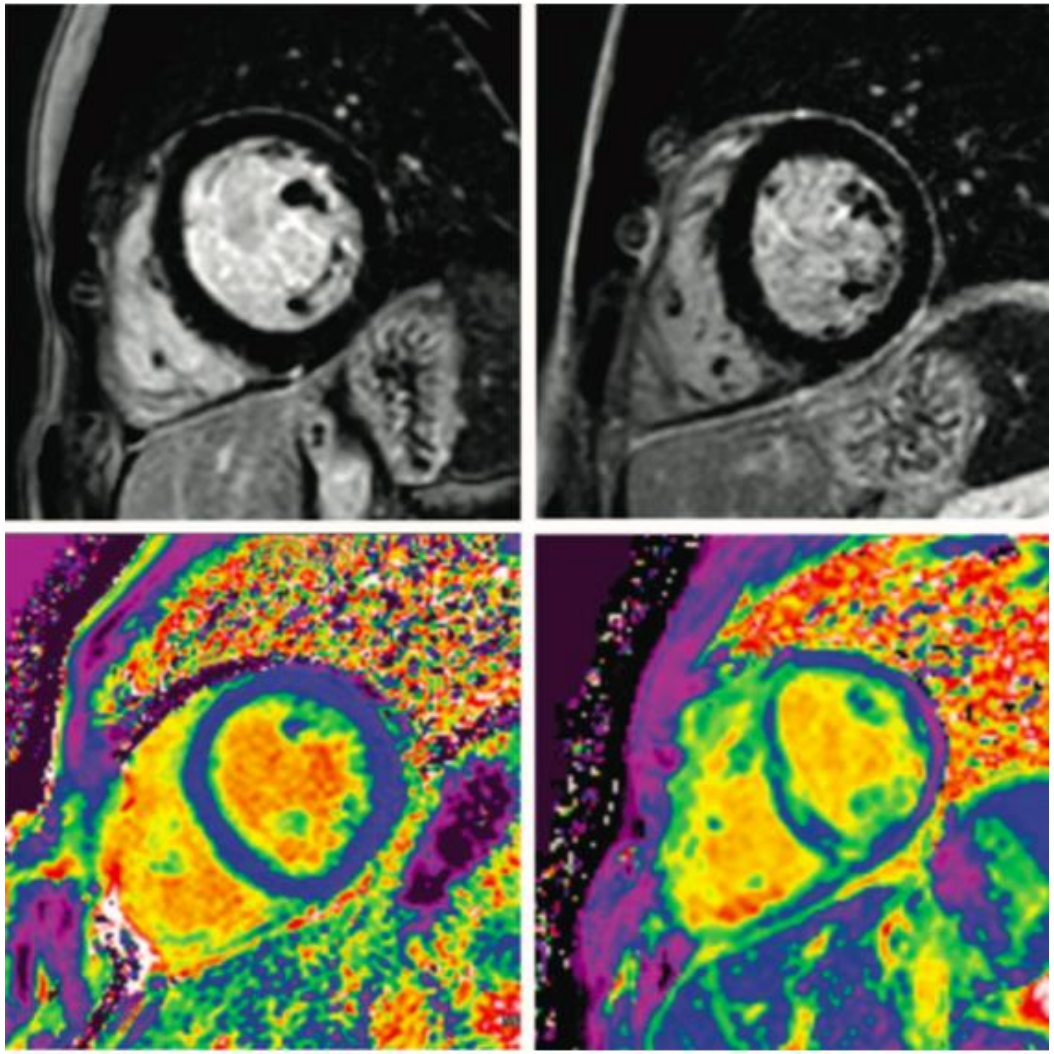
exercise intolerance

neurohormonal activation

OLDER
HISTORY OF REDO SURGERY

T1 mapping

T1-mapping techniques allow quantification of ECV (extracellular volume fraction) and diffuse myocardial fibrosis



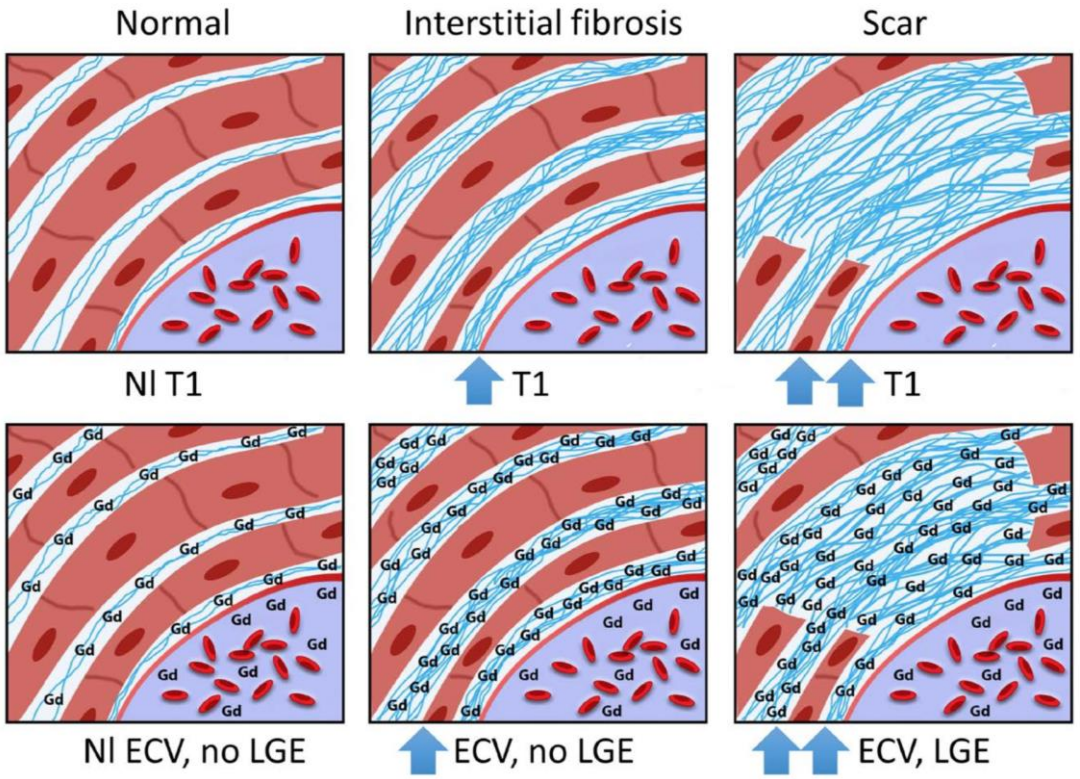
Myocardial ECV Fraction Assessed by CMR Is Associated With Type of Hemodynamic Load and Arrhythmia in Repaired Tetralogy of Fallot

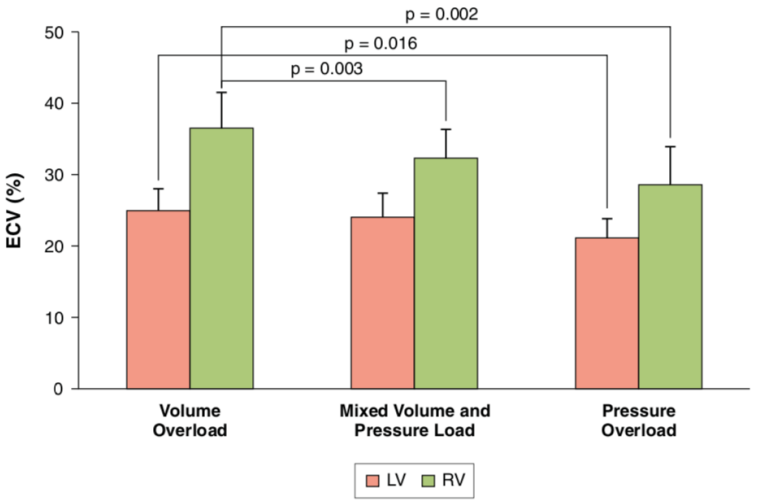
Chun-An Chen, MD, PhD, Susan M. Dusenbery, MD, MS, Anne Marie Valente, MD, Andrew J. Powell, MD, Tal Geva, MD

Positive linear relationship between LV and RV ECV

Greater ECV associated with RV volume overload, lower RV outflow gradient and female gender

LV ECV independently associated with arrhytmia



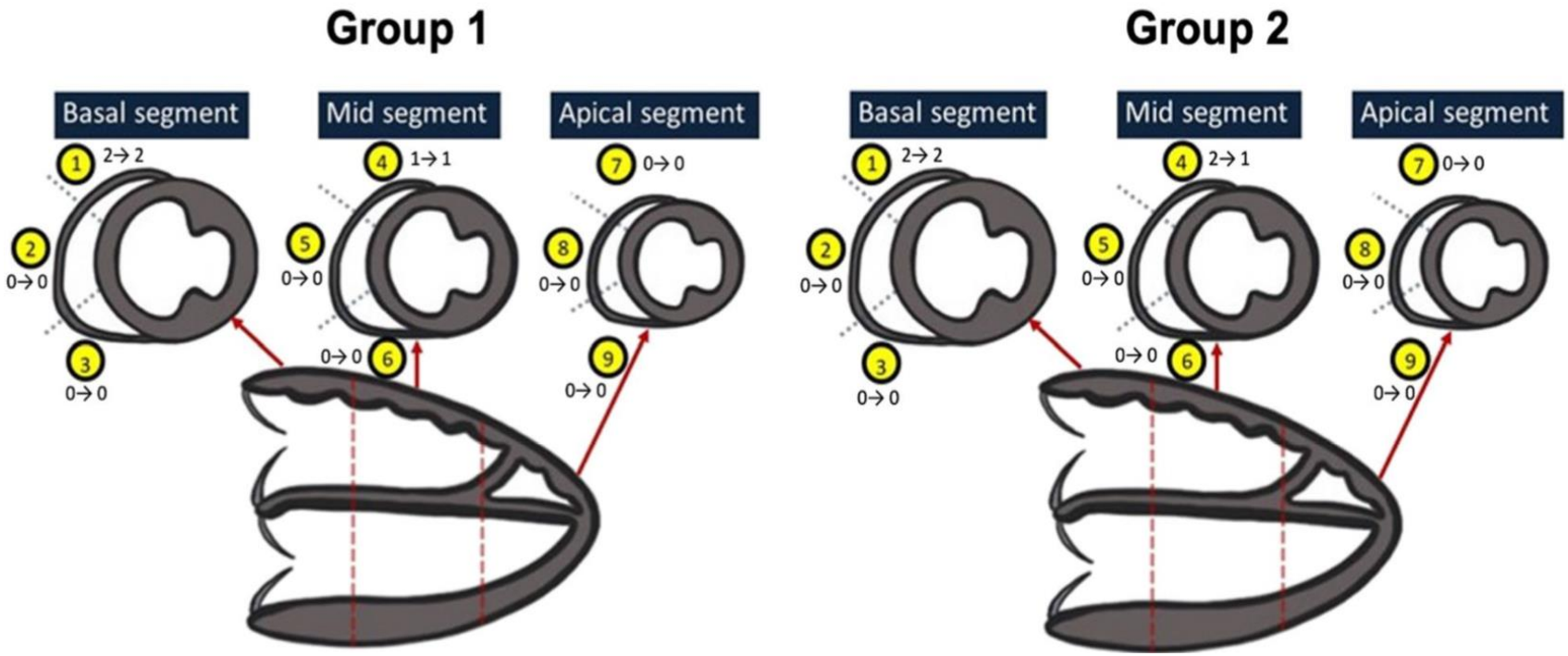


Longitudinal changes in extent of late gadolinium enhancement in repaired Tetralogy of Fallot: a retrospective analysis of serial CMRs

Kwannapas Saengsin[1], Minmin Lu[1], Lynn Sleeper[1,2], Tal Geva[1,2] and Ashwin Prakash[1,2*]

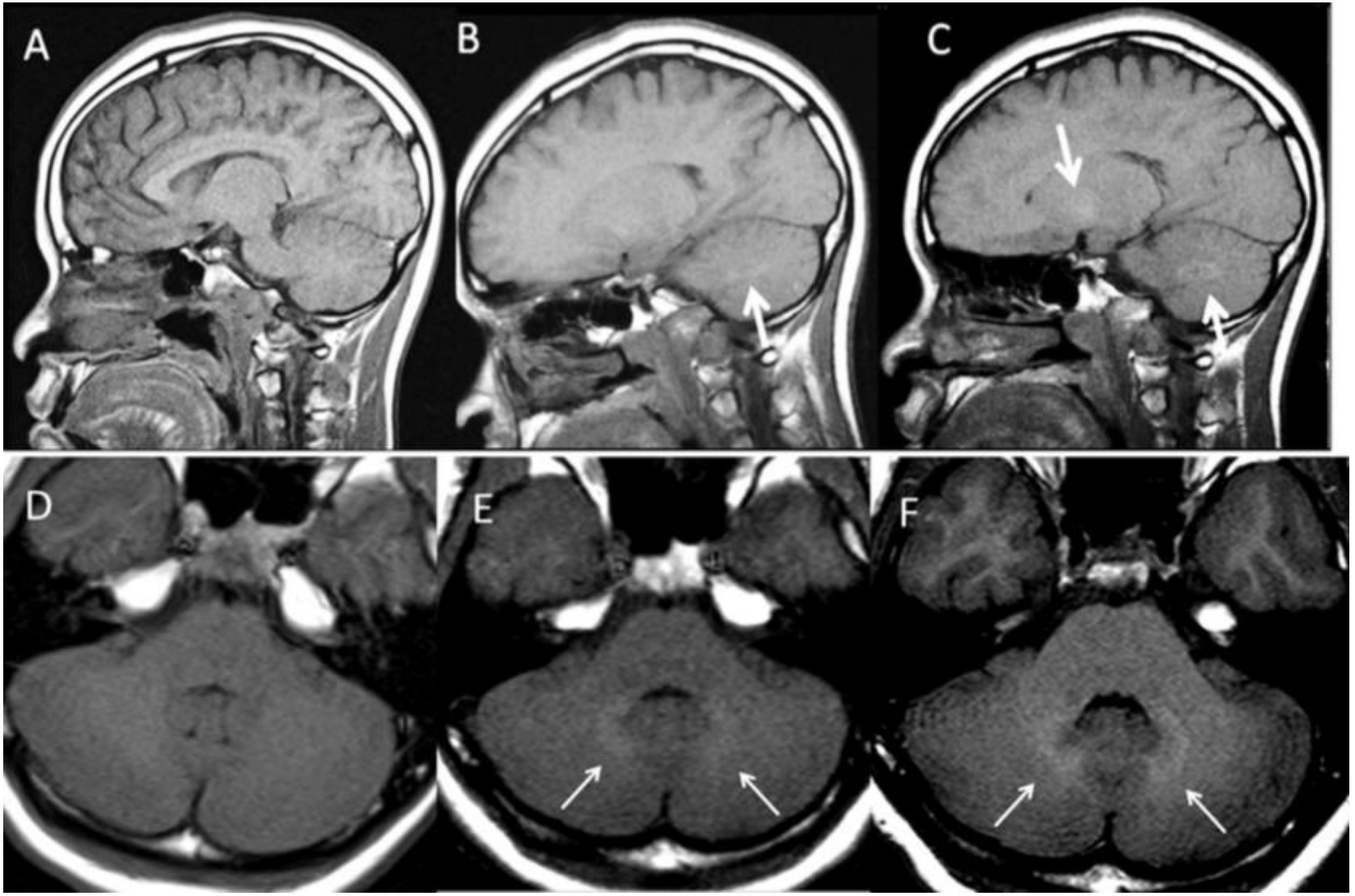
RV LGE present in all patients on the first CMR

No significant progression in the extent was seen on intermediate term follow up (5 year)



Progressive increase of T1 signal intensity in the dentate nucleus and globus pallidus on unenhanced T1-weighted MR images in the pediatric brain exposed to multiple doses of gadolinium contrast

Donna R. Roberts [a,b,*], Kenton R. Holden [b,c]



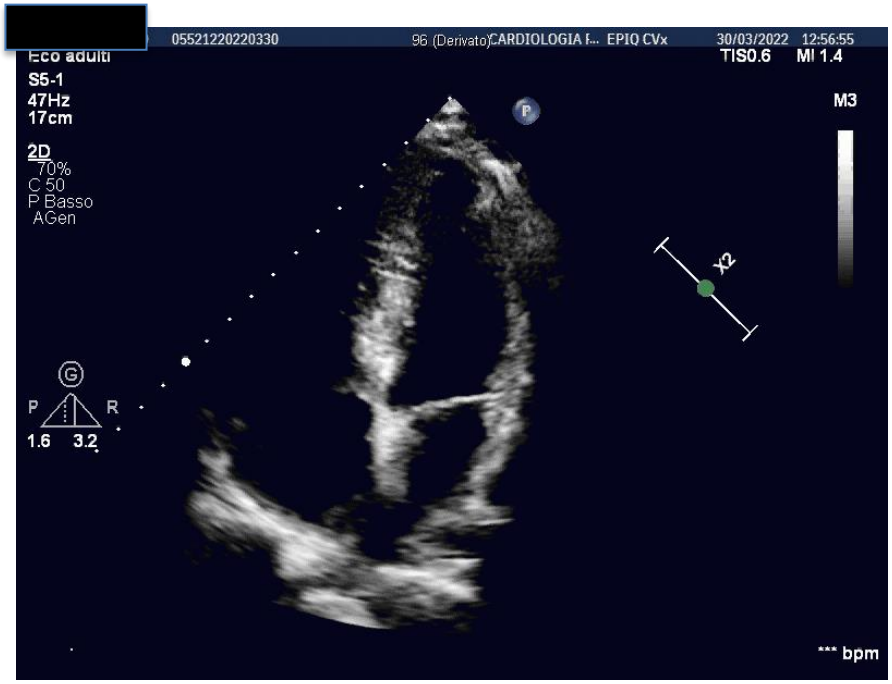
BERNARDO 34 aa

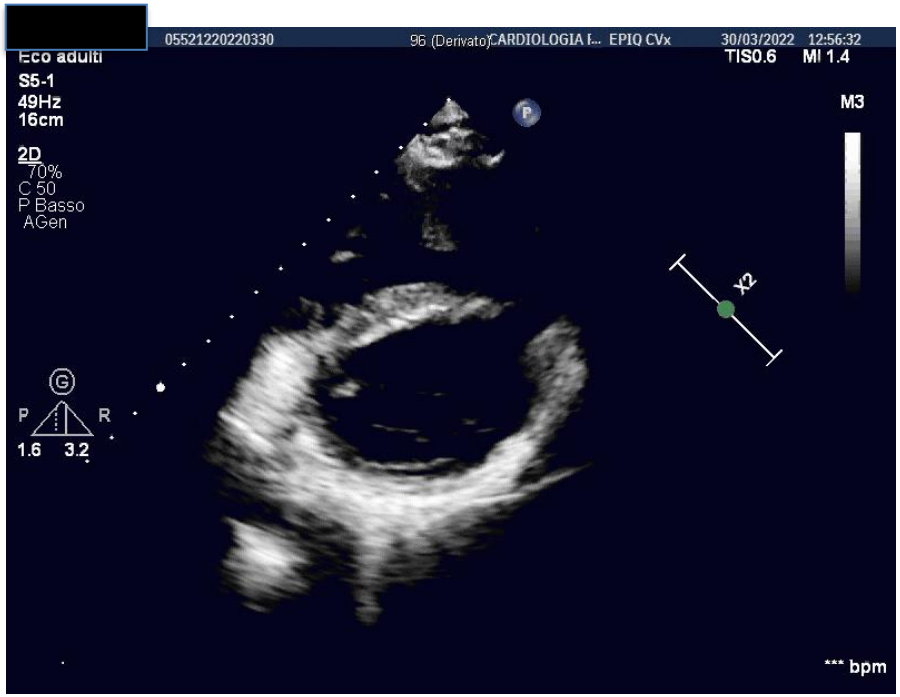
23/5/1990

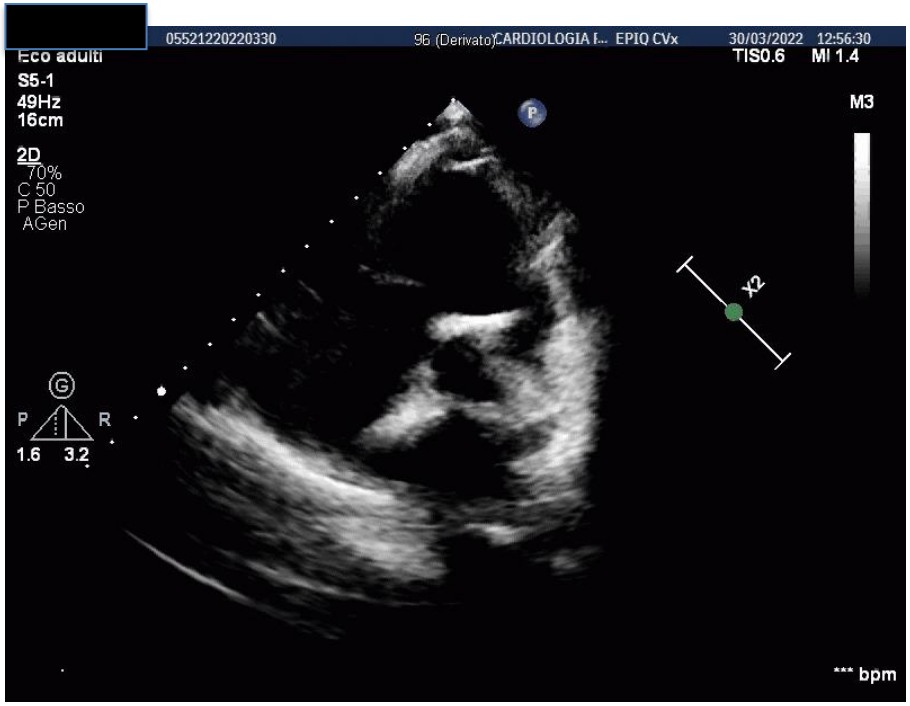
TOF s/p a intervento CCH di chiusura DIV e patch transanulare fino all'origine del ramo polmonare sx

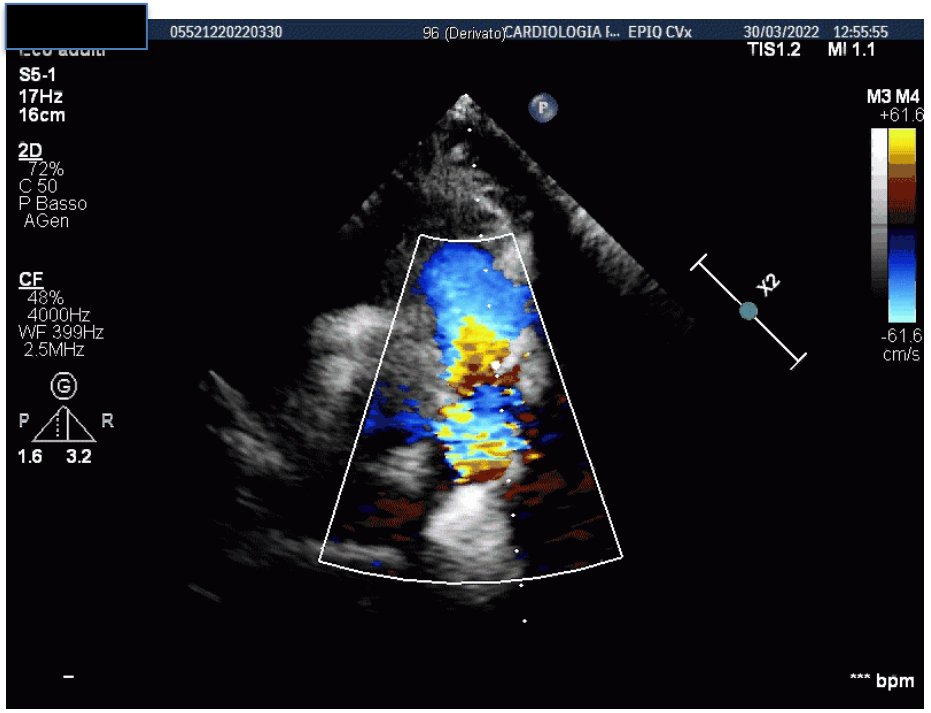
2022

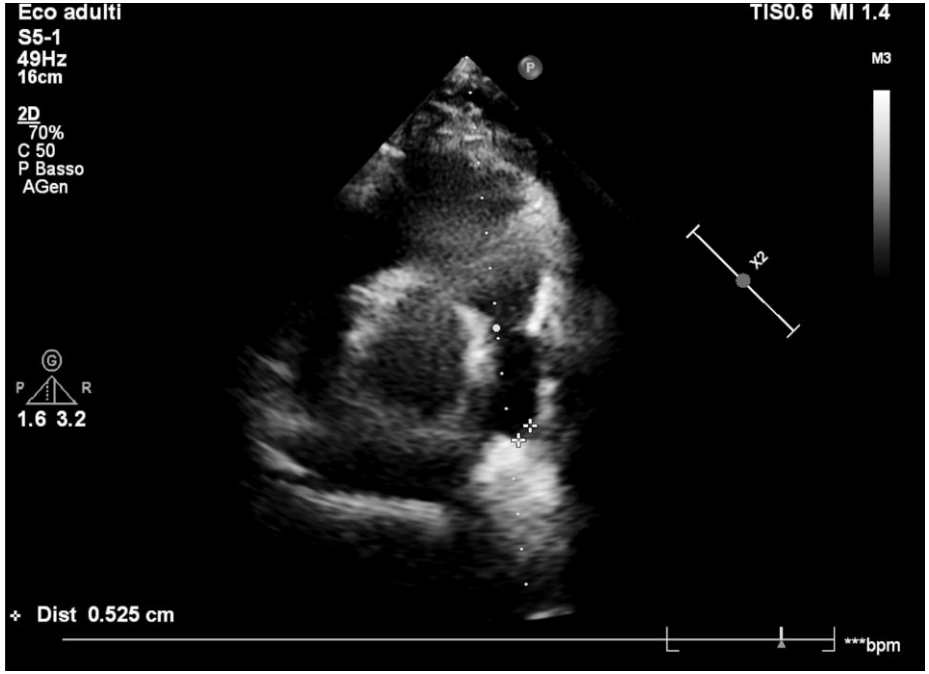
Visita cardiologica presso l'ospedale di Ivrea

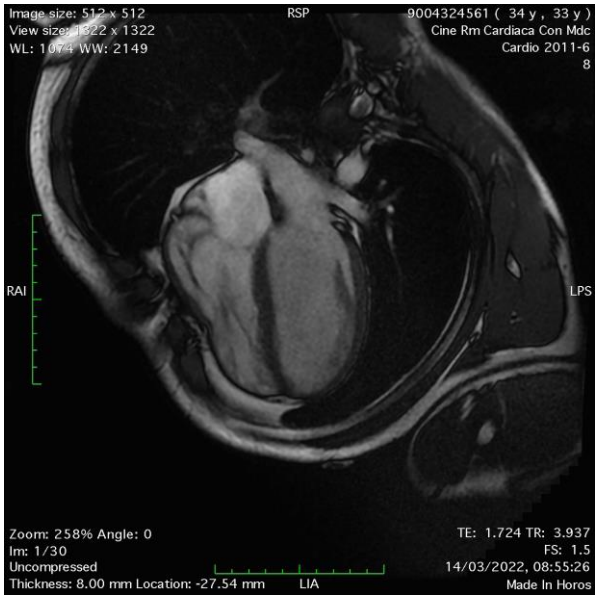





05521220220330
96 (Derivato)CARDIOLOGIA I... EPIQ CVx
30/03/2022 12:56:30
TIS0.6 MI 1.4
Eco adulti
S5-1
49Hz
16cm
2D
70%
C 50
P Basso
AGen
M3
x2
P R
1.6 3.2
*** bpm

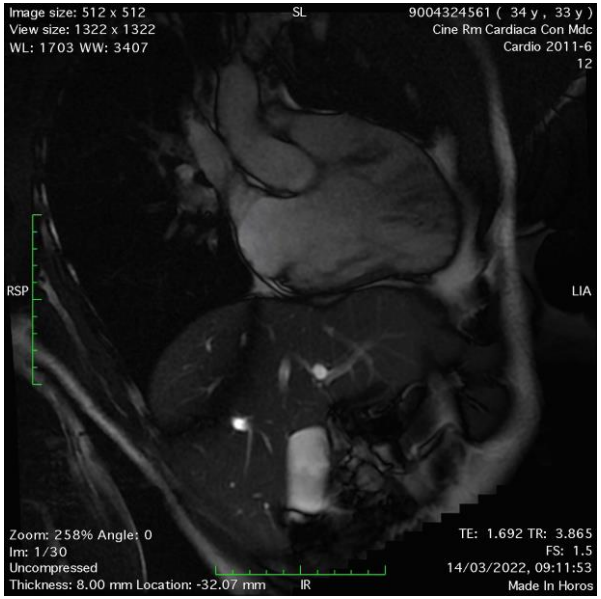

05521220220330
96 (Derivato)CARDIOLOGIA I... EPIQ CVx
30/03/2022 12:55:55
TIS1.2 MI 1.1
S5-1
17Hz
16cm
2D
72%
C 50
P Basso
AGen
CF
48%
4000Hz
WF 399Hz
2.5MHz
M3 M4
+61.6
-61.6
cm/s
x2
P R
1.6 3.2
*** bpm

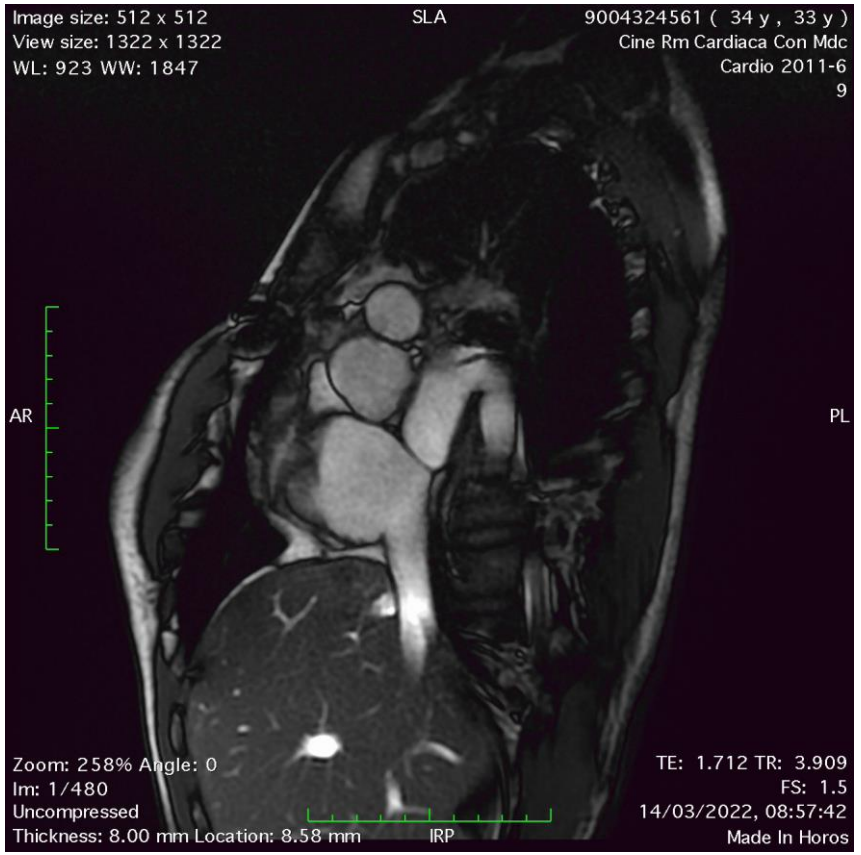

Eco adulti
S5-1
49Hz
16cm
2D
70%
C 50
P Basso
AGen
TIS0.6 MI 1.4
M3
x2
P R
1.6 3.2
Dist 0.525 cm
***bpm



VDX

EDVI 150 ml/m2 (v.n. 68-114)
EDSVI 80 ml/m2 (v.n. 21-50)
FE 47%
FR polmonare 37%
Atrio dx 21 cm2





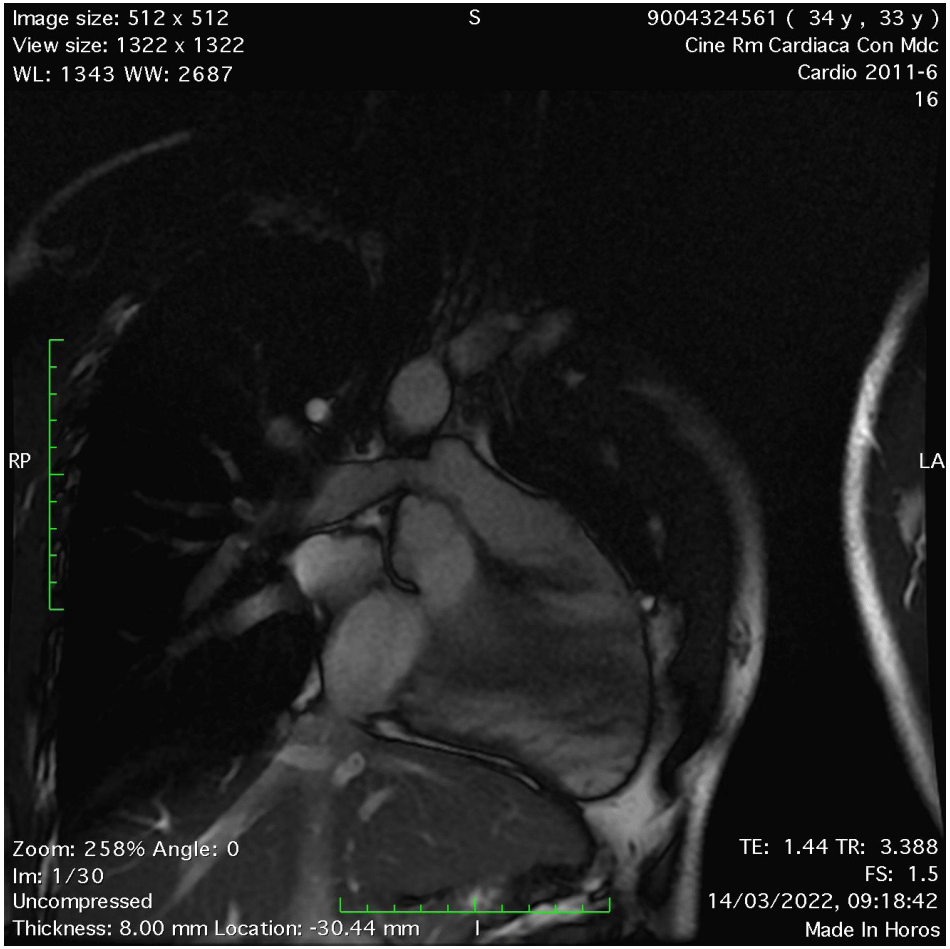
VSX

EDVI 104 ml/m2
EDSVI 50 ml/m2
FE 52%

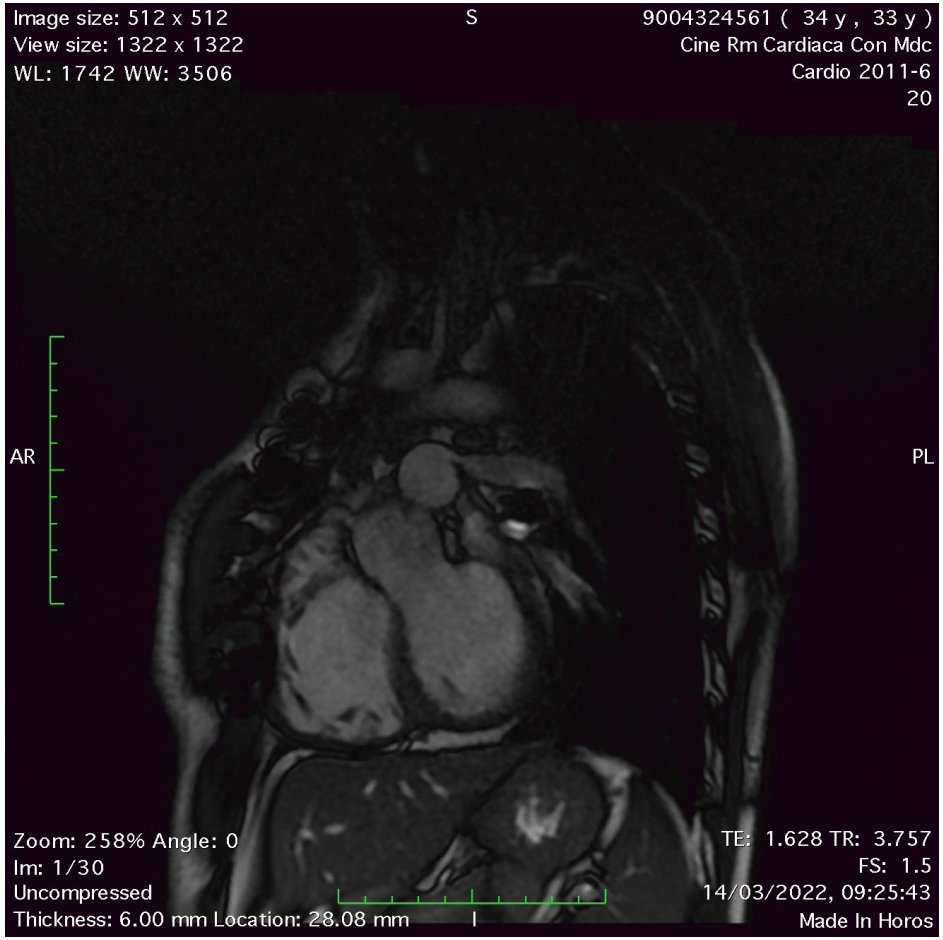
FLUSSO SBILANCIATO NEI RAMI POLMONARI

Peggiora il rapporto V/Q dei polmoni e riduce la capacità di esercizio

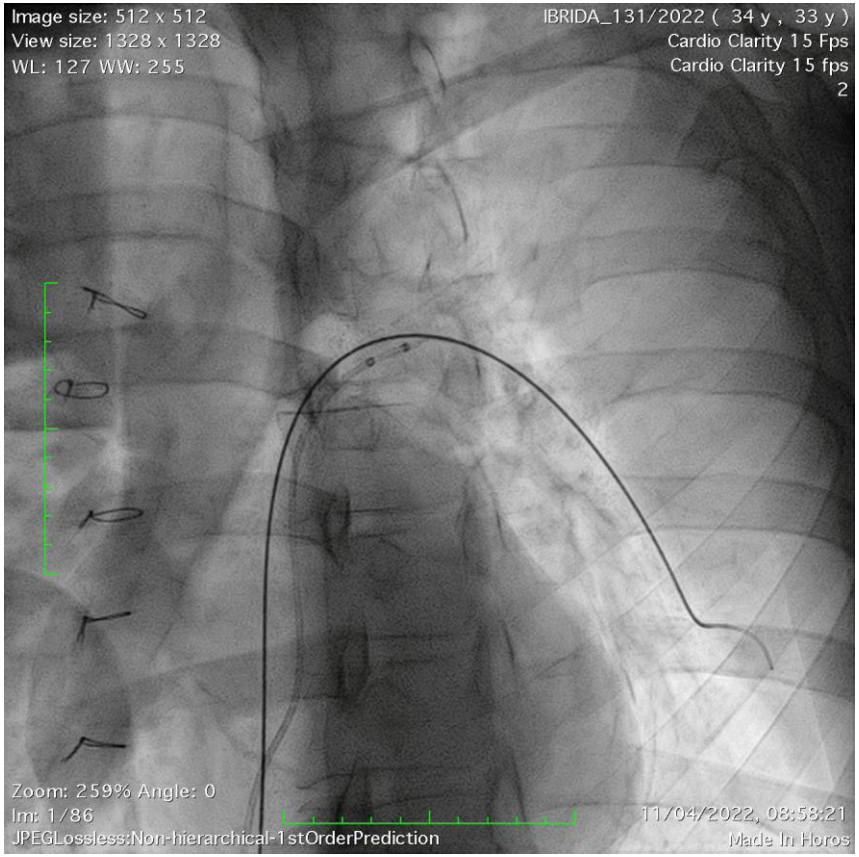
80%

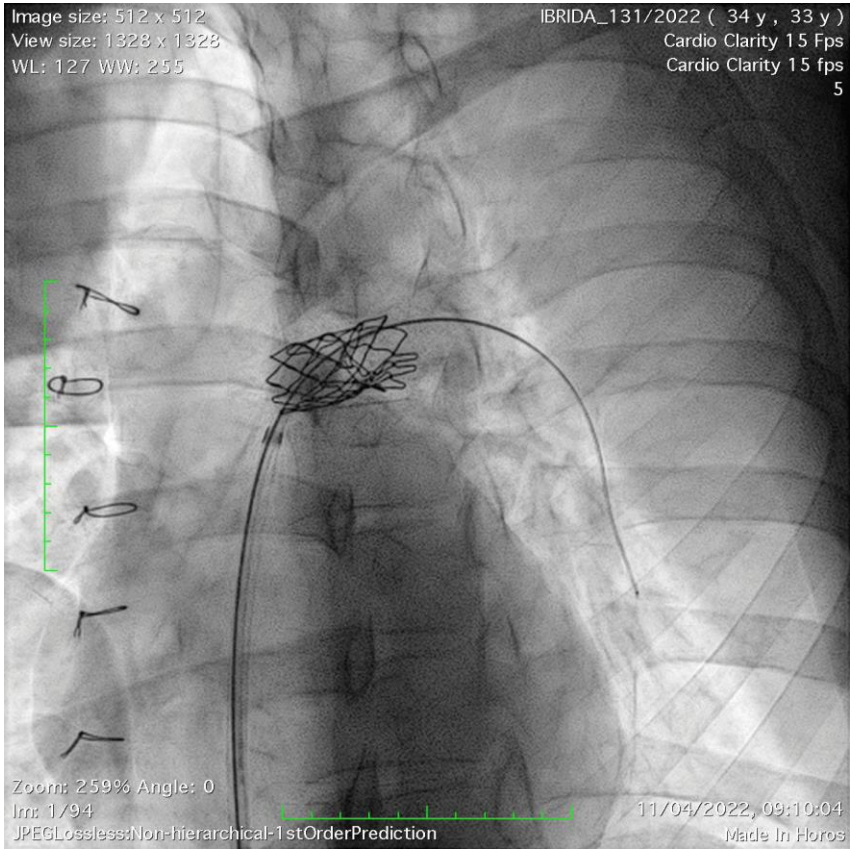


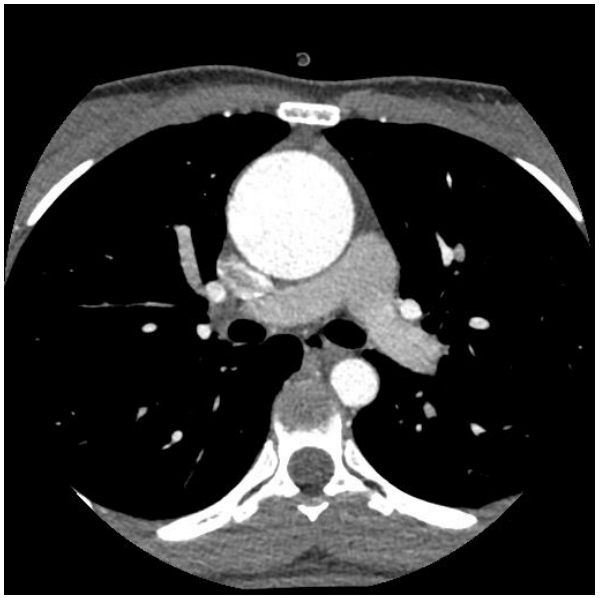
20%

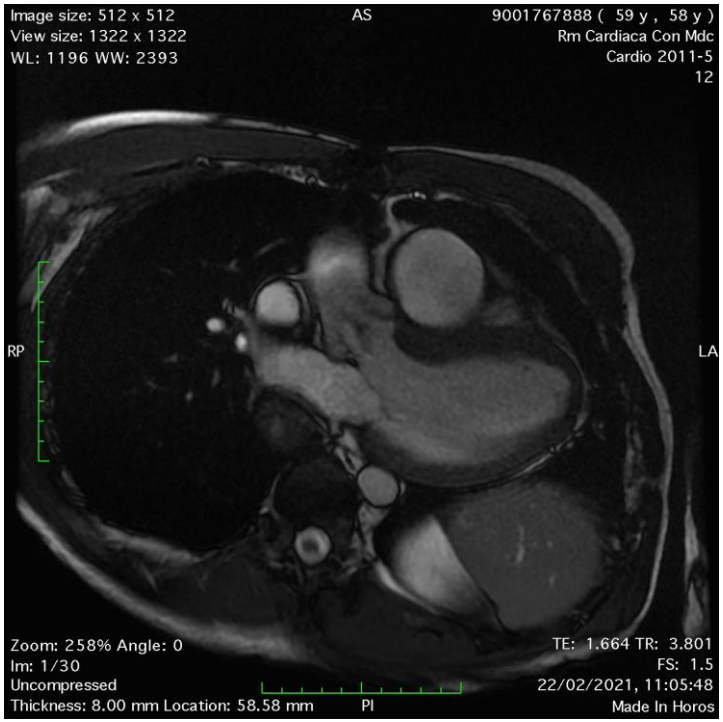


STENTING DELL'OSTIO DI LPA CON CP 34 MM MONTATO SU BIB 14X30









Aortic disease and interventions in adults with tetralogy of Fallot

Alexander C Egbe,[1] William R Miranda,[1] Naser M Ammash,[1] Nandan S Anavekar, Venkata R Missula,[1] Srikanth Kothapalli,[1] Arooj R Khan,[1] Sameh M Said,[2] Heidi M Connolly[1]

453 adult patients with TOF

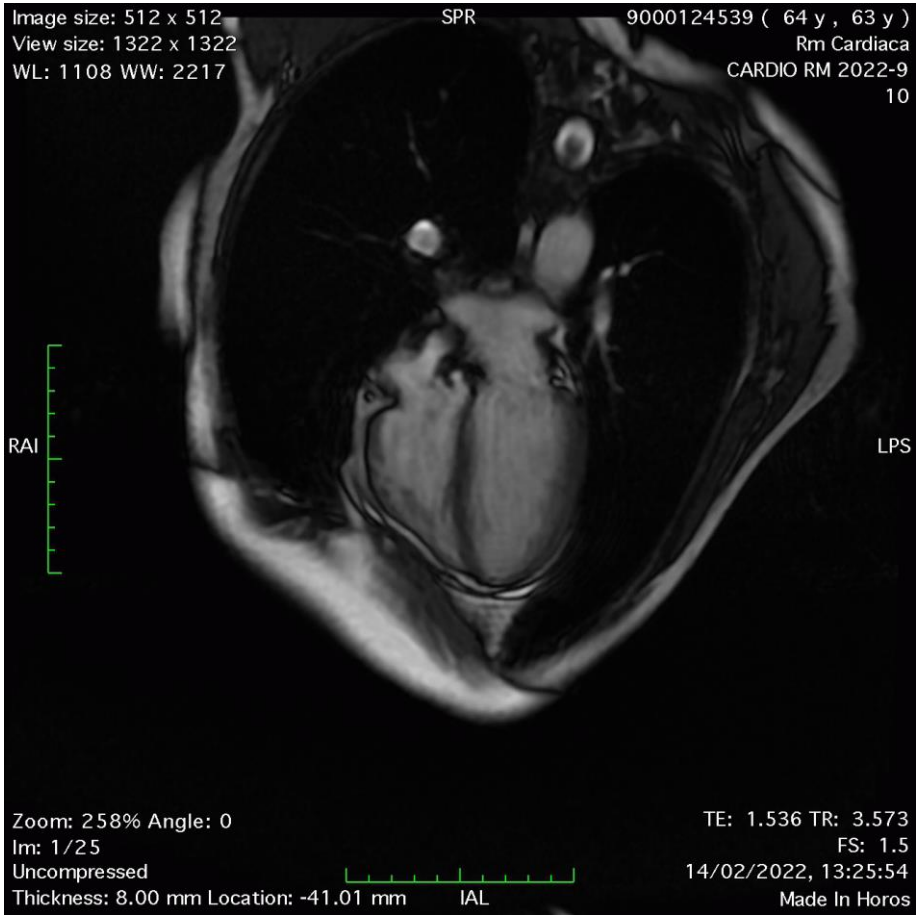
51% aortic root dilatation
69% ascending aorta dilatation
Aortic regurgitation 28%-> 3% moderate

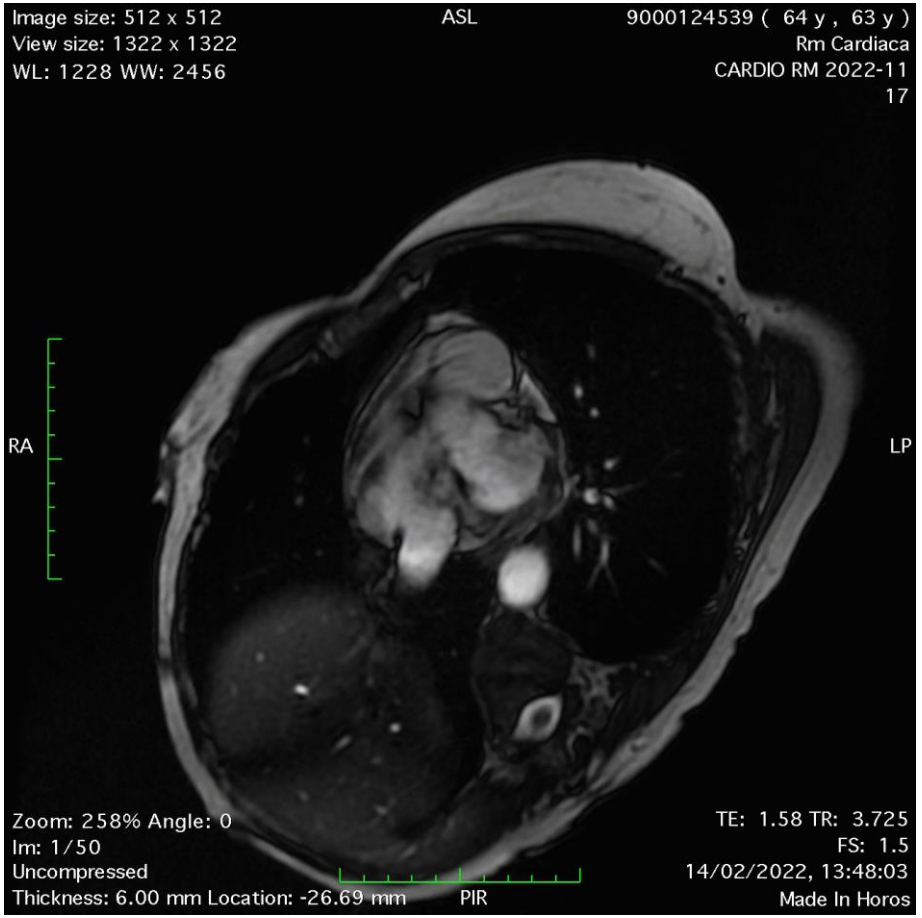
91% did not show progressive aortic dilatation during follow up (8y)

No patient had aortic dissection (50-56 mm did not undergo aorta surgery)

Almost all the cases of dissection at aortic dimensions of 70 mm

DIV RESIDUO 6-10%





Carlo 60 aa

All’età di 13: intervento per Tetralogia di Fallot

Nessun follow up negli anni

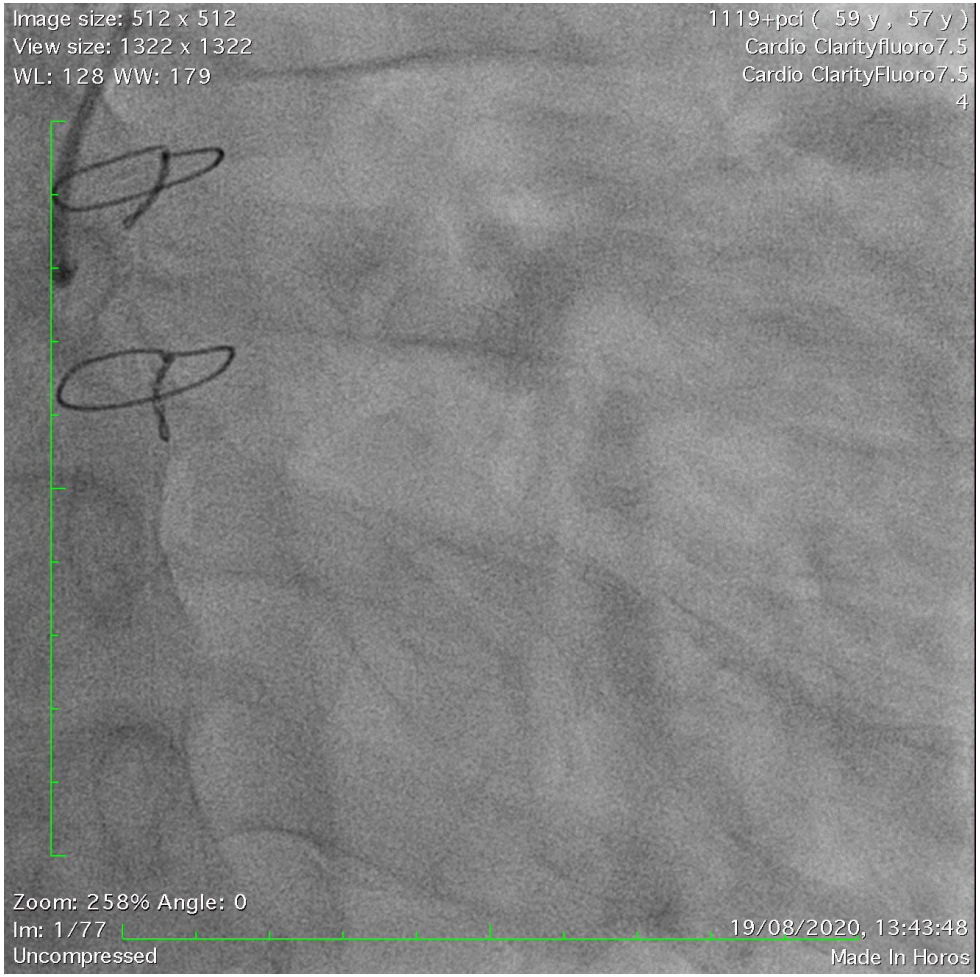
Fattori di rischio per CAD: Iperteso, dislipidemico e fumatore

IRC stadio III su base nefroangiosclerotica

8/2020

Ospedale Molinette

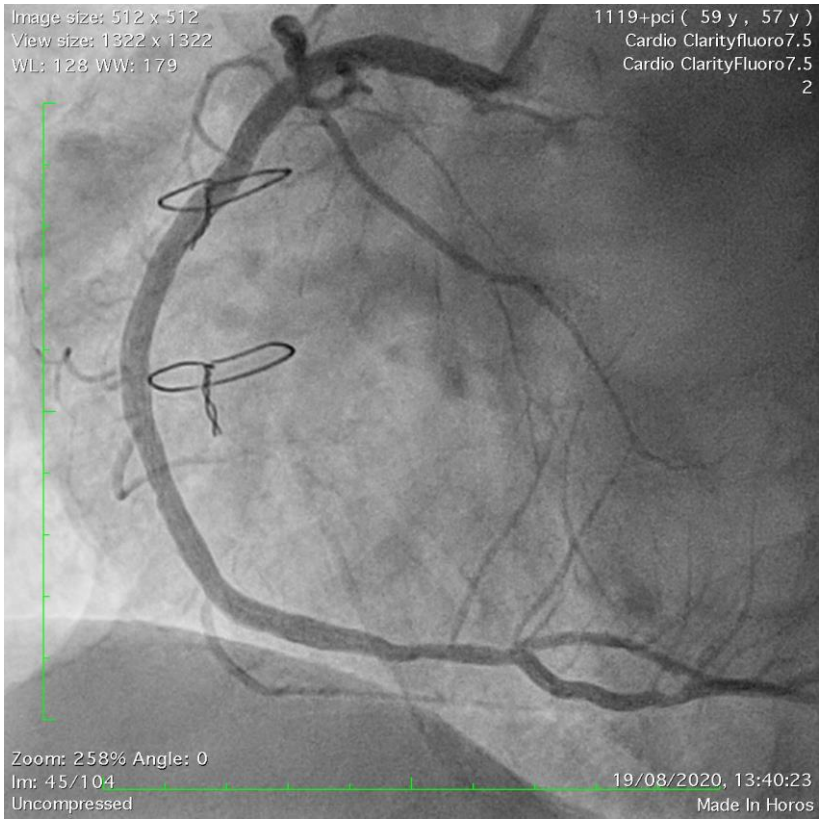
Ricovero per NSTEMI



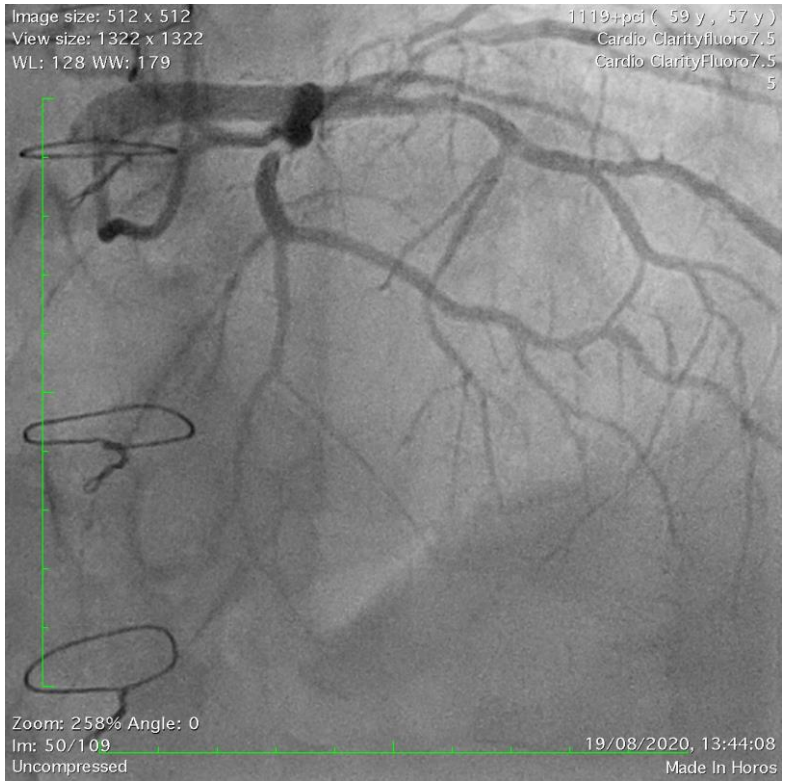
PCI+DES su Cx III

Residua stenosi subcritica di IVA II e CDX

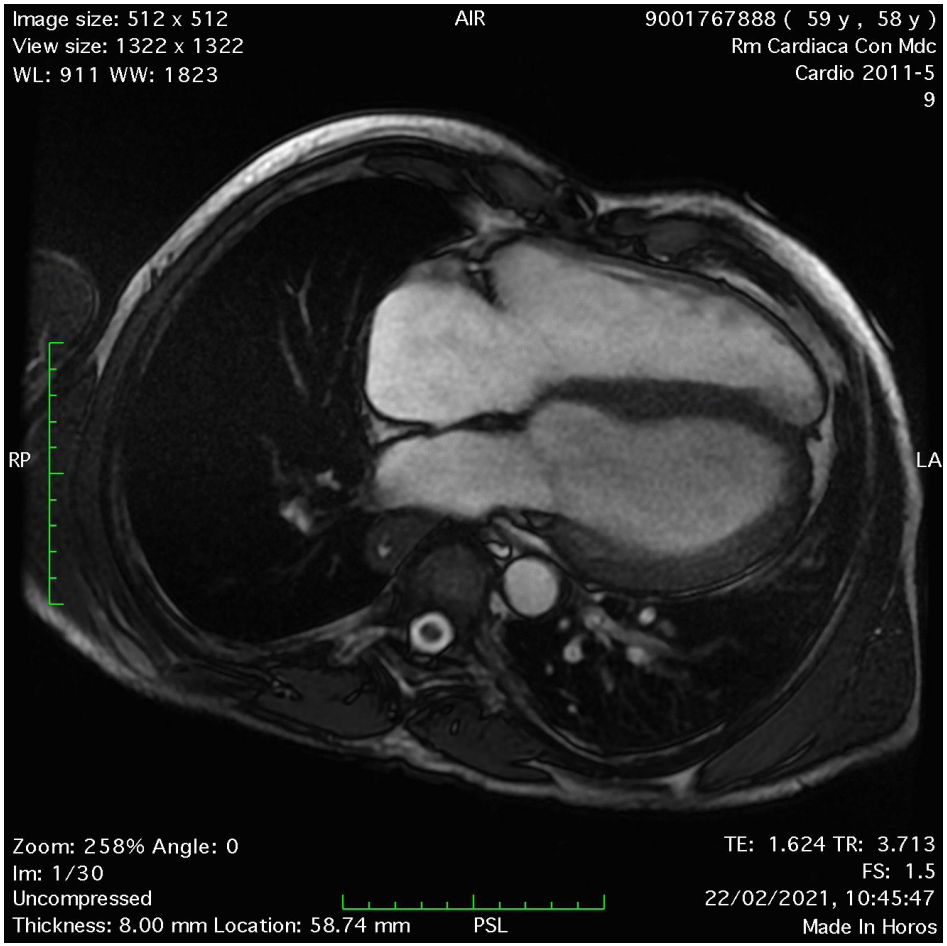
12/2020 Ecocardio



Vsx DTD 53 mm EDVI 106 ml/m2,
ipertrofia concentrica (SIV 15 mm)
FE 42%
ipocinesia infero-laterale e antero laterale
disfunzione diastolica II
IAO moderata



Vdx dilatato 47 mm TAPSE 24 mm
FAC 25% Paps 25 mmHg
tronco e rami polmonari dilatati



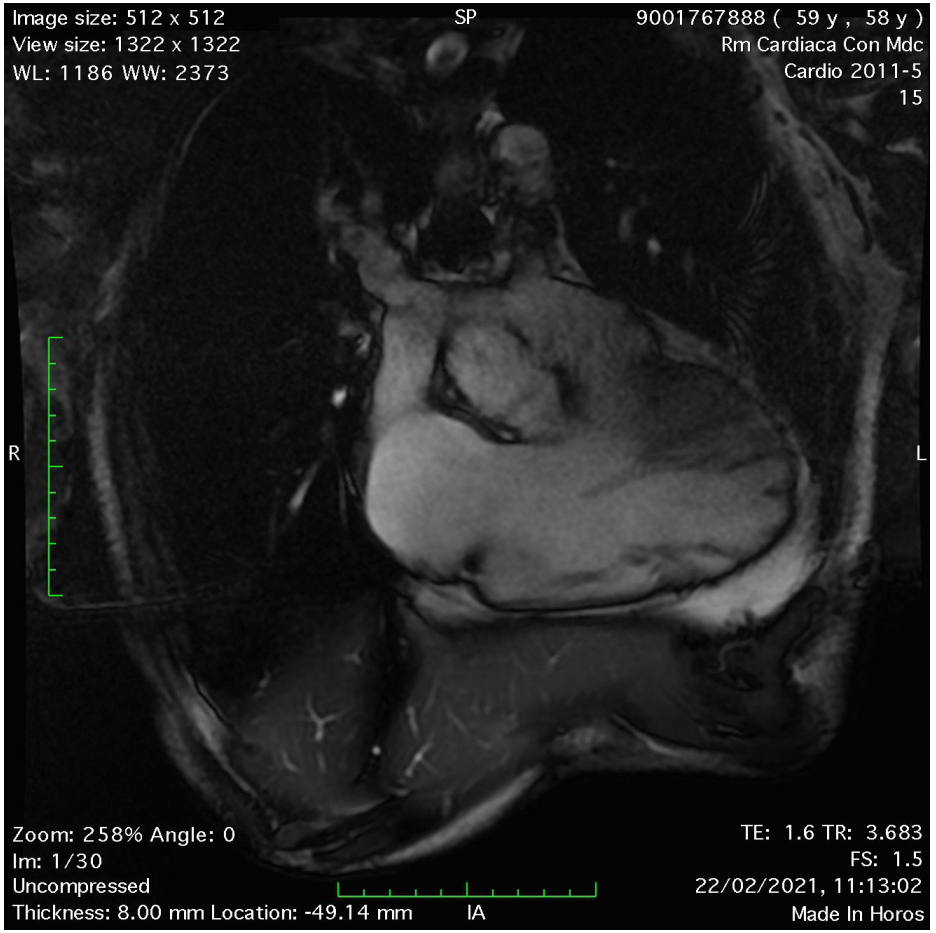
VDX

EDVI 205 ml/m2 (v.n. 59-105)

EDSVI 114 ml/m2 (v.n. 13-42)

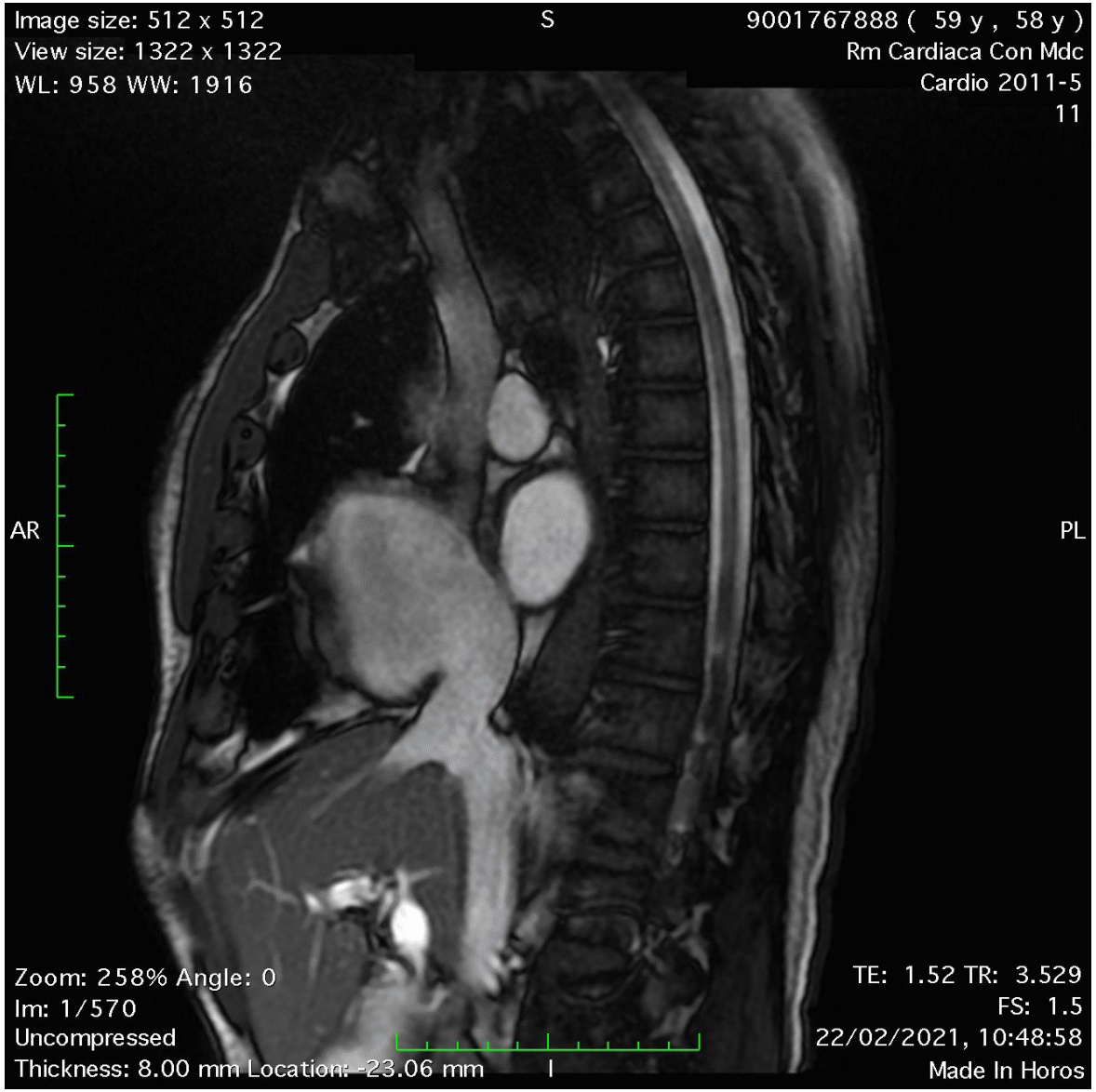
FE 45%

Atrio dx 34 cm2



Ampio patch infundibolare con anastomosi distale alla biforcazione polmonare

FR polmonare 40%



Vsx

EDVI 129 ml/m2 (v.n. 62-97)

EDSVI 61 ml/m2 (v.n. 15-37)

FE 52%

Atrio sx 24 cm2

IAO moderata FR 25%

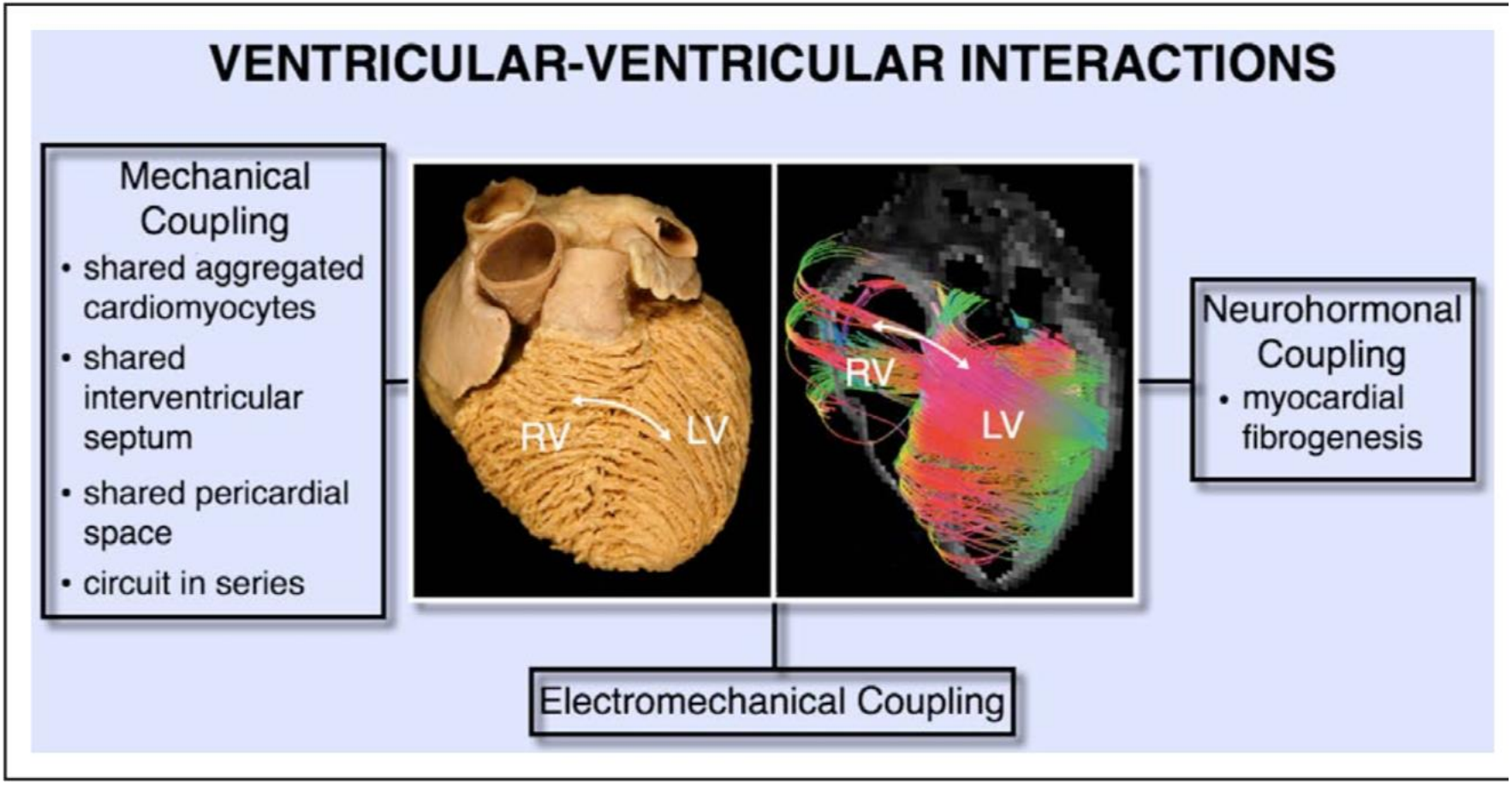
Ipocinesia parete infero-laterale media e antero laterale mediobasale

NO LGE GFR <30!!!!

The Forgotten Ventricle?

The Left Ventricle in Right-Sided Congenital Heart Disease

Justin T. Tretter, MD; Andrew N. Redington, MD

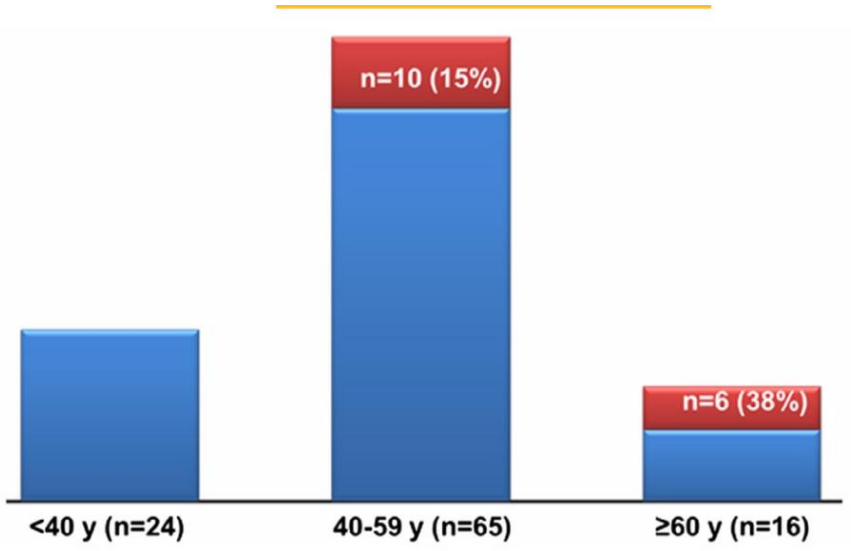


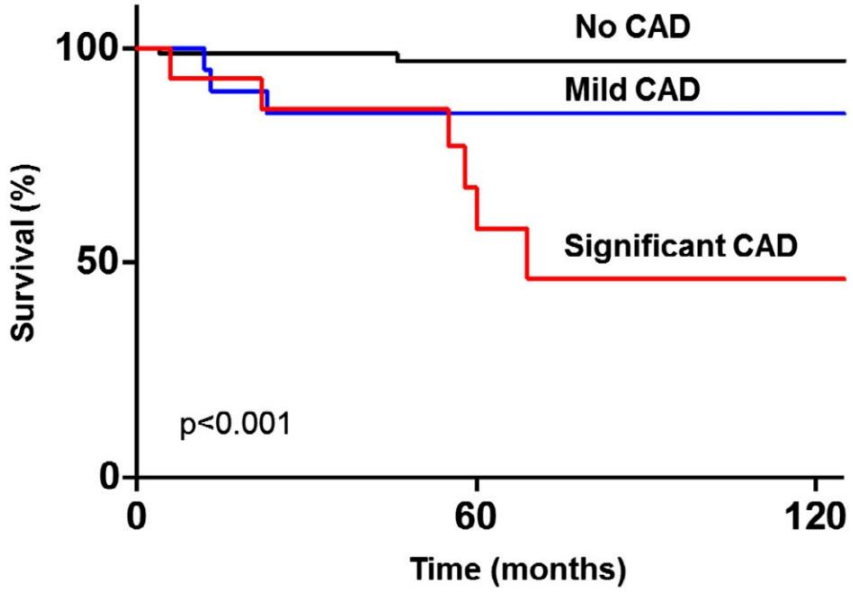
Coronary artery disease in adults with tetralogy of Fallot

Alexander C. Egbe MD, MPH | Sindhura Ananthaneni MD | Raja Jadav MD | Srikanth Kothapalli MD | Charanjit S. Rihal MD | Muhammad Masood MD | Mounika Angirekula MD | Maria Najam MD | Numra Bajwa MBBS | Karim Tarek MBBS | Jessey Matthew MBBS | Heidi M. Connolly MD

Coronary angiograms were performed in 105 pz:

Preoperative evaluation for cardiac surgery (75%)
Abnormal stress test (18%)
Chest pain and/or dyspnea (0,7%)
NSTEMI (3%)
LV dysfunction (3%)





VI CORSO GUCH

Il paziente adulto con cardiopatia congenita

TORINO
03 DICEMBRE 2022
NH TORINO CENTRO