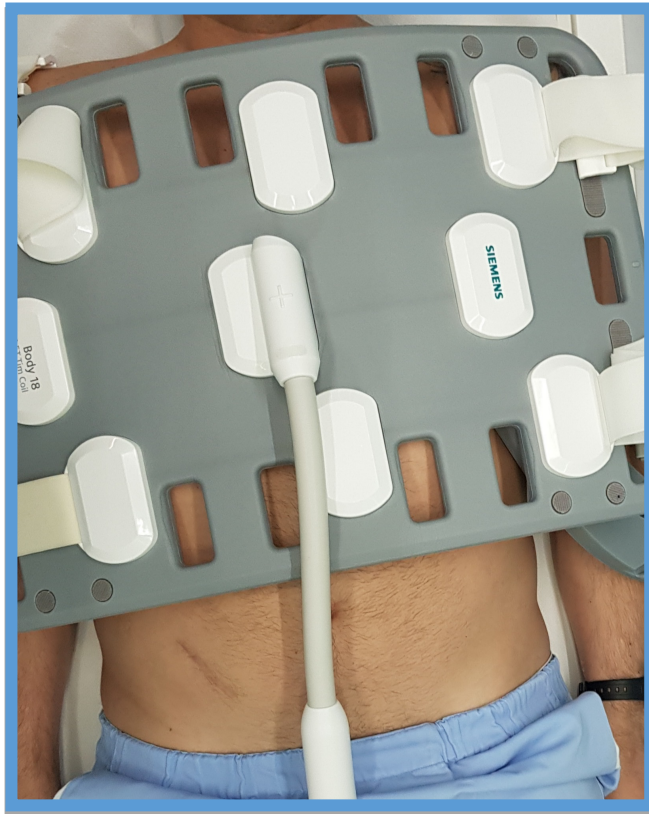
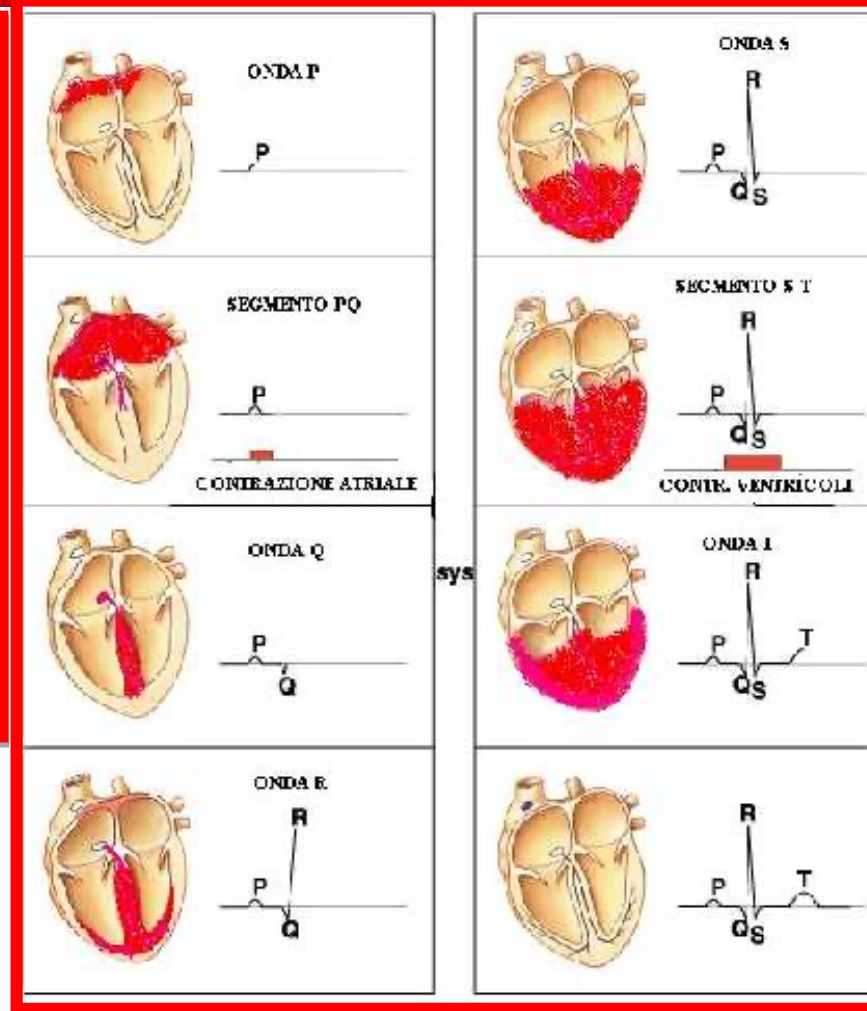
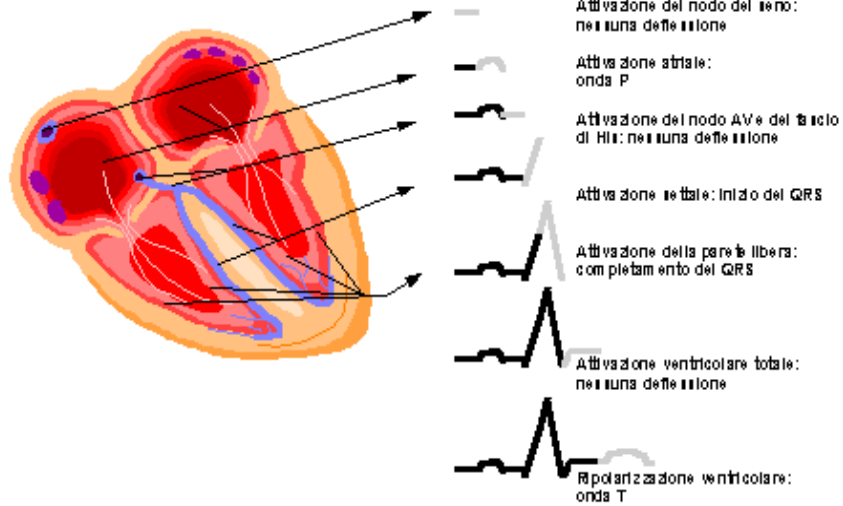


SCELTA BOBINA DEDICATA



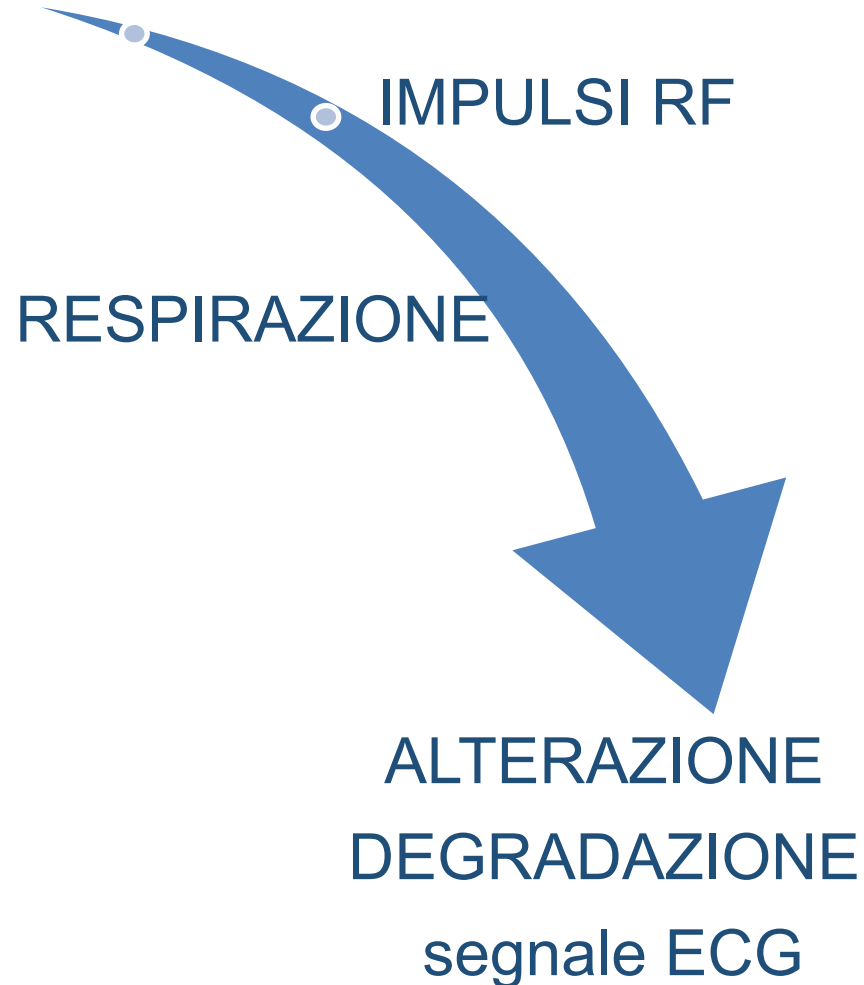
Le Cardiopatie congenite: Tecniche di studio

Principali fasi della attivazione cardiaca



Le Cardiopatie congenite: Tecniche di studio

Correnti indotte da variazione
di gradiente



1. Mancata sincronizzazione
2. Mancanza di valore diagnostico della traccia di monitoraggio ECG durante RM

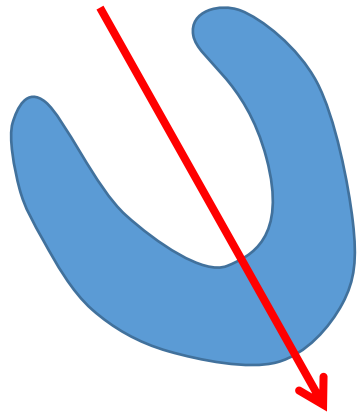


Posizionare con cura gli elettrodi

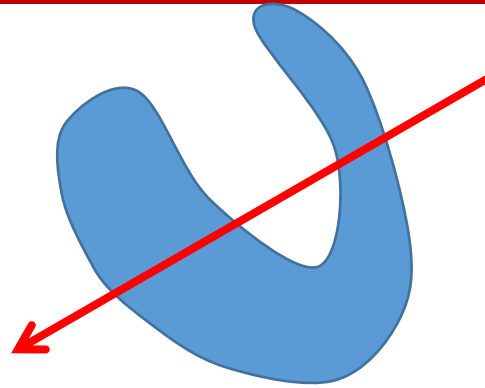


Ottenere un onda R che si distingua
dal resto del tracciato per essere
rilevata dalla macchina

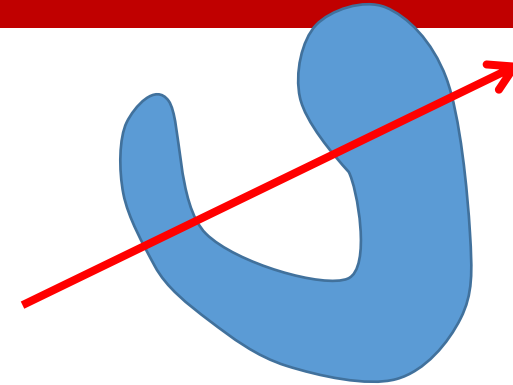
Le Cardiopatie congenite: Tecniche di studio



Normale asse elettrico
cardiaco



Deviazione asse
destra



Deviazione asse
Sinistro negativo

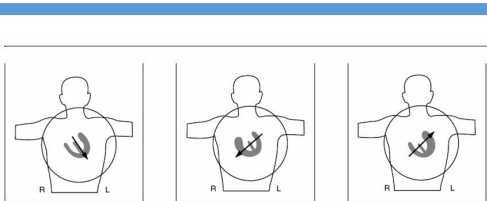
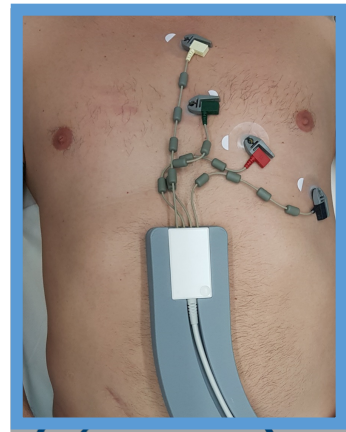
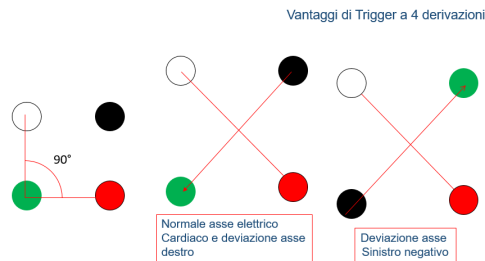
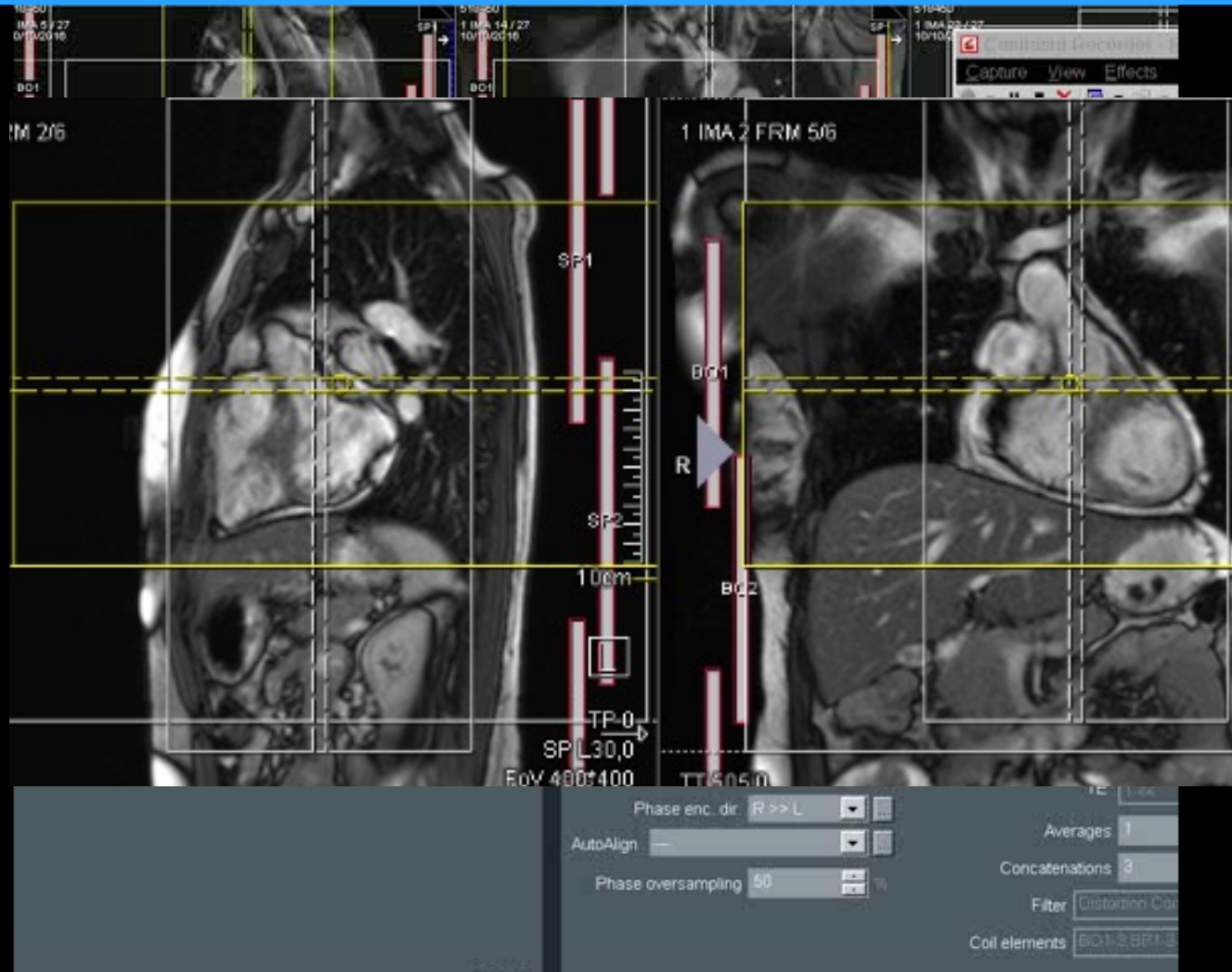


Figura 4.5 Da sinistra a destra:
Asse elettrico normale del cuore - Deviazione asse a destra - Deviazione asse a sinistra (più negativa).



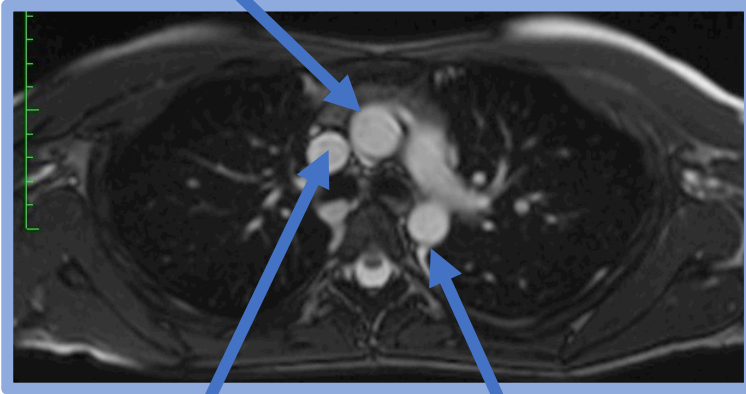
Bianco e rosso sono attivi, verde attivo
in comune e nero la massa

Le Cardiopatie congenite: Tecniche di studio



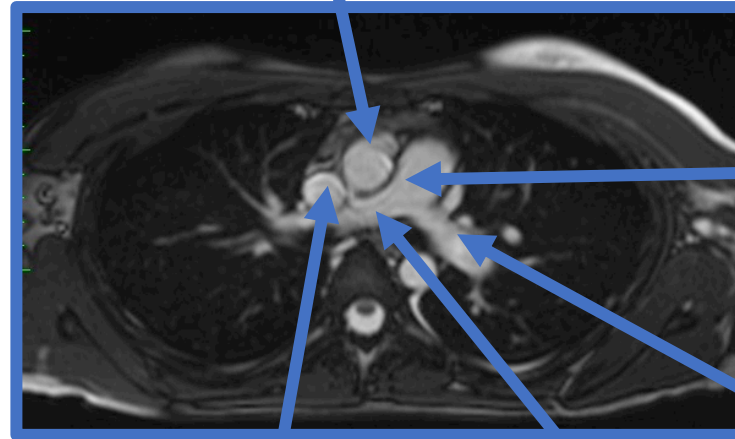
Anatomia radiologica del cuore

Aorta Ascendente



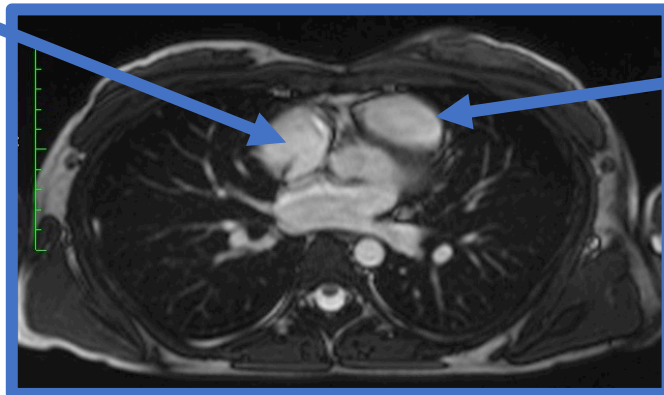
Vena Cava Superiore Aorta Discendente
 Atrio Destro

Aorta Ascendente



Arteria Polmonare
 Vena Cava Sup. Arteria Polmonare dx
 Arteria Polmonare sx

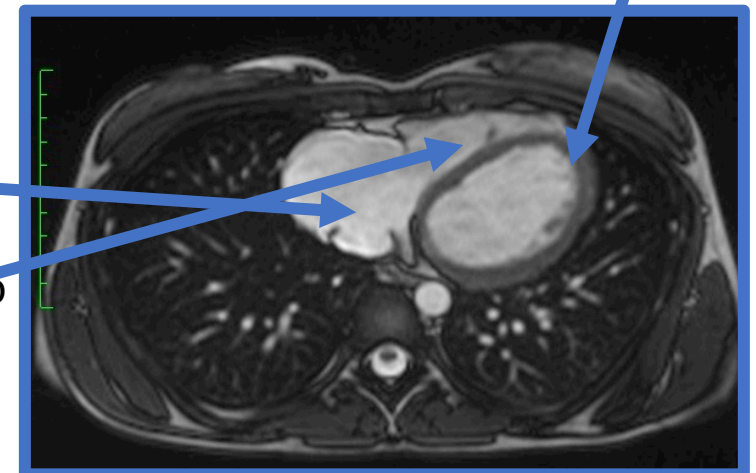
Ventricolo sinistro



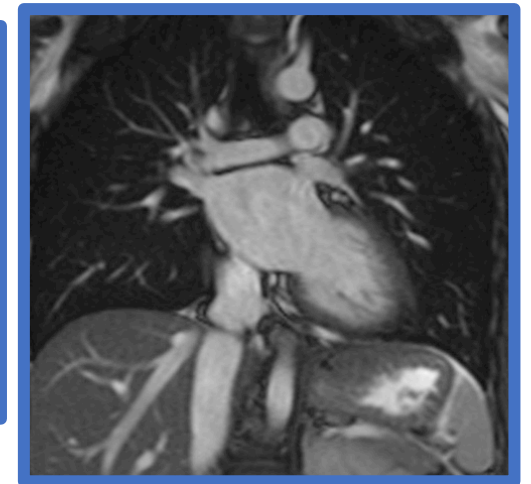
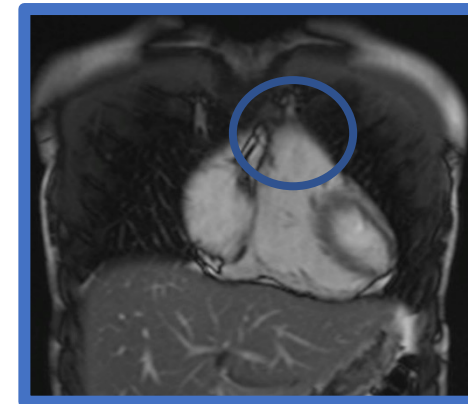
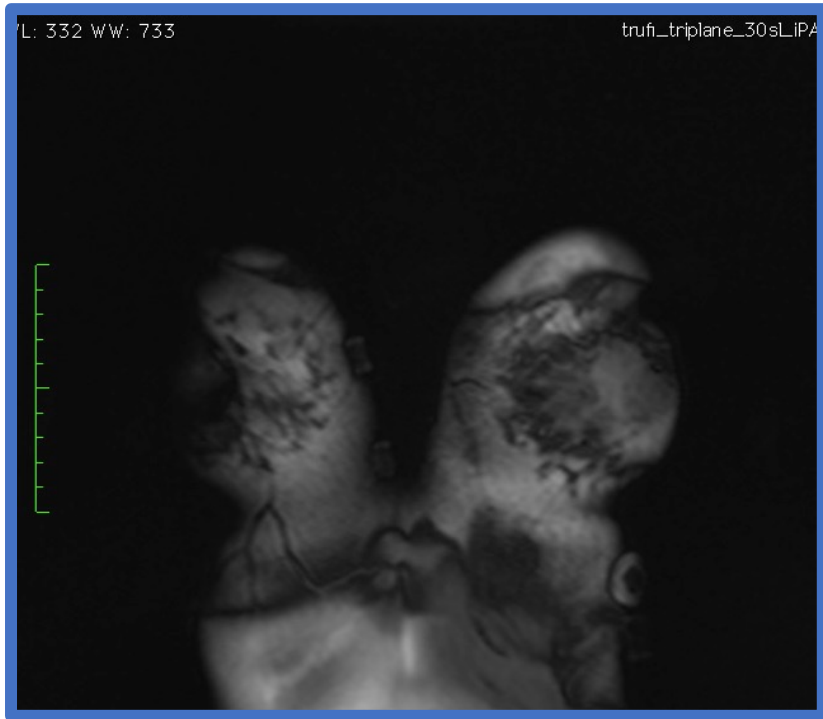
Ventricolo Destro

Atrio Destro

Ventricolo Destro



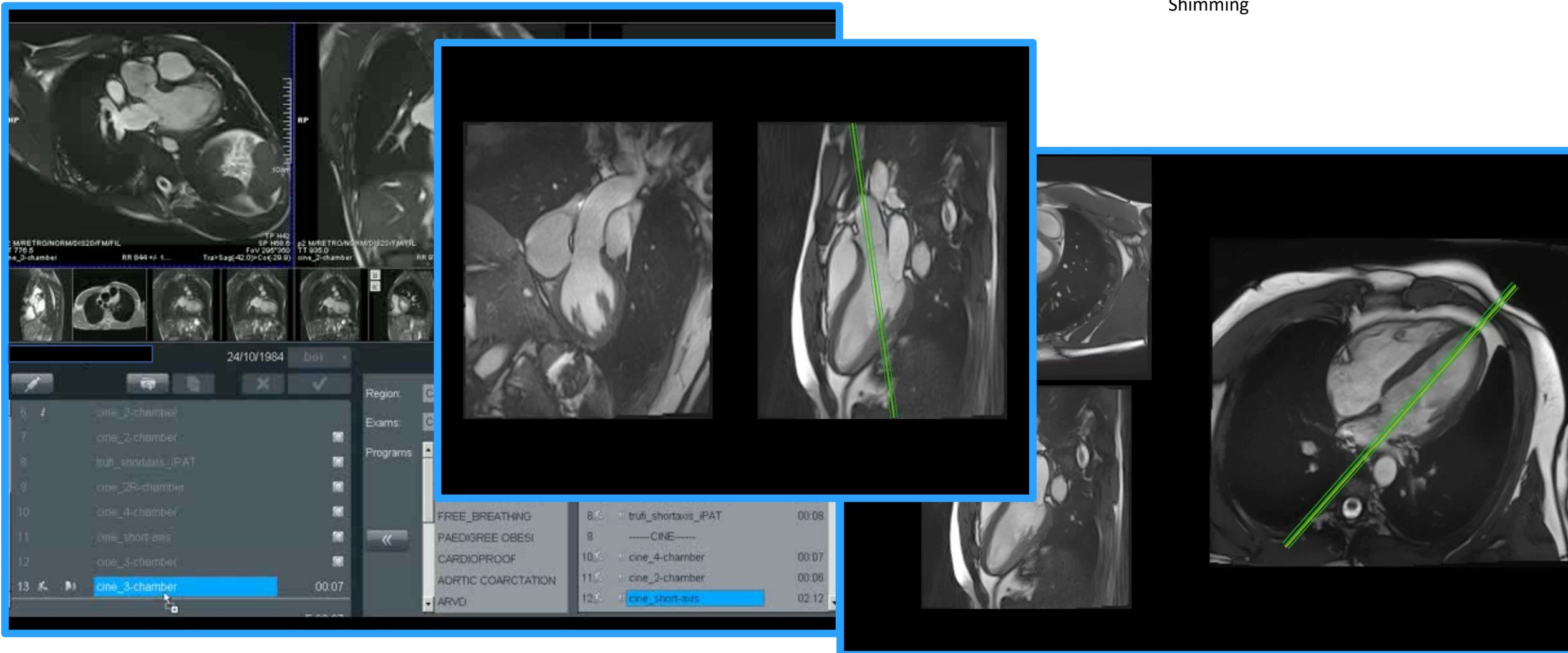
Anatomia radiologica del cuore



3 CAMERE LVOT

Posizionare lo strato lungo l'aorta ascendente e verticalmente alla valvola aortica

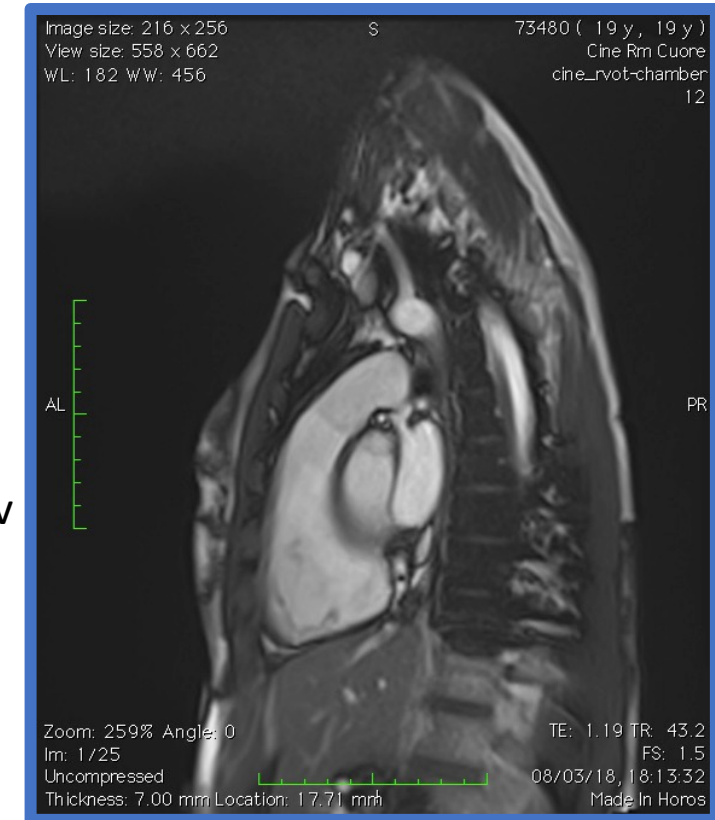
Cine rm
Tecnica SSFP
Almeno 25 Fasi
Imaging parallelo
Riduzione dei
Segment per Wiew
Se frequenza alta
Shimming



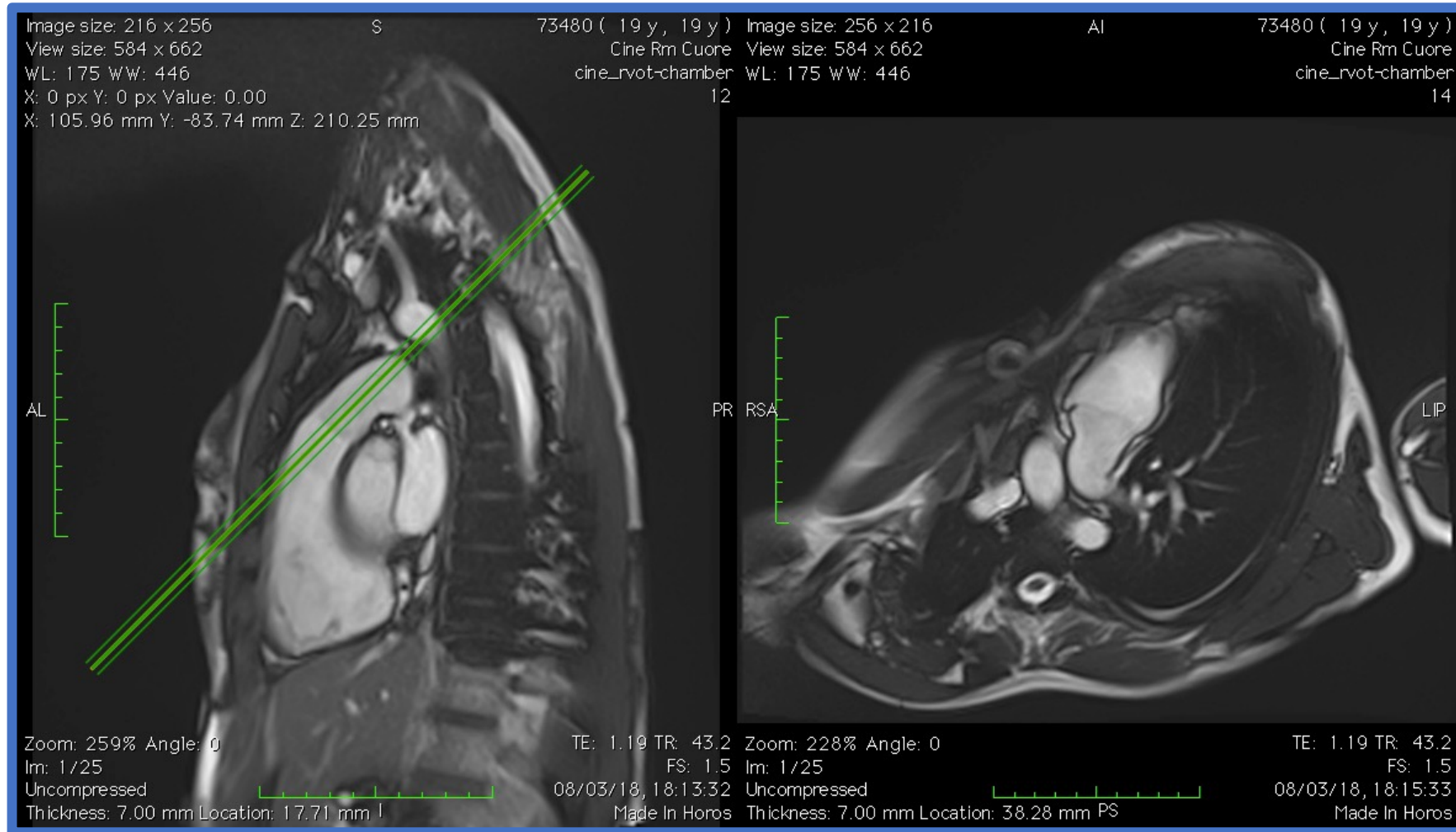
RVOT (efflusso destro)



Cine rm
Tecnica SSFP
Almeno 25 Fasi
Imaging parallelo
Riduzione dei
Segment per Wiew
Se frequenza alta
Shimming



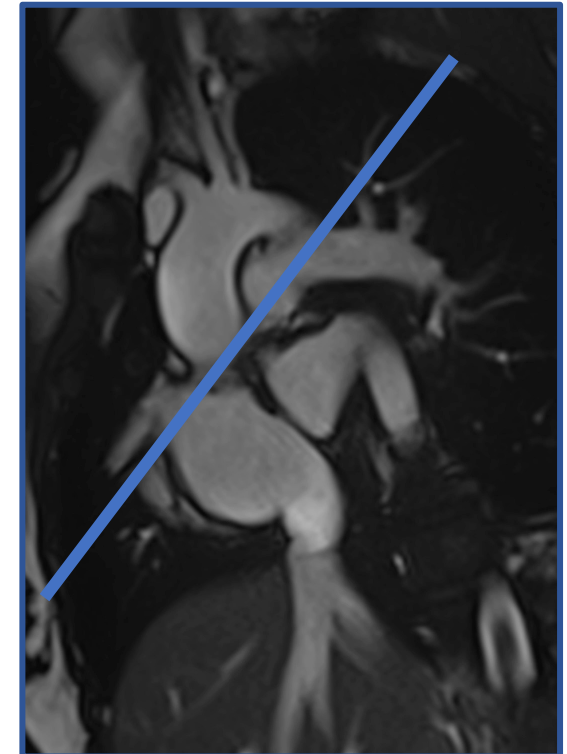
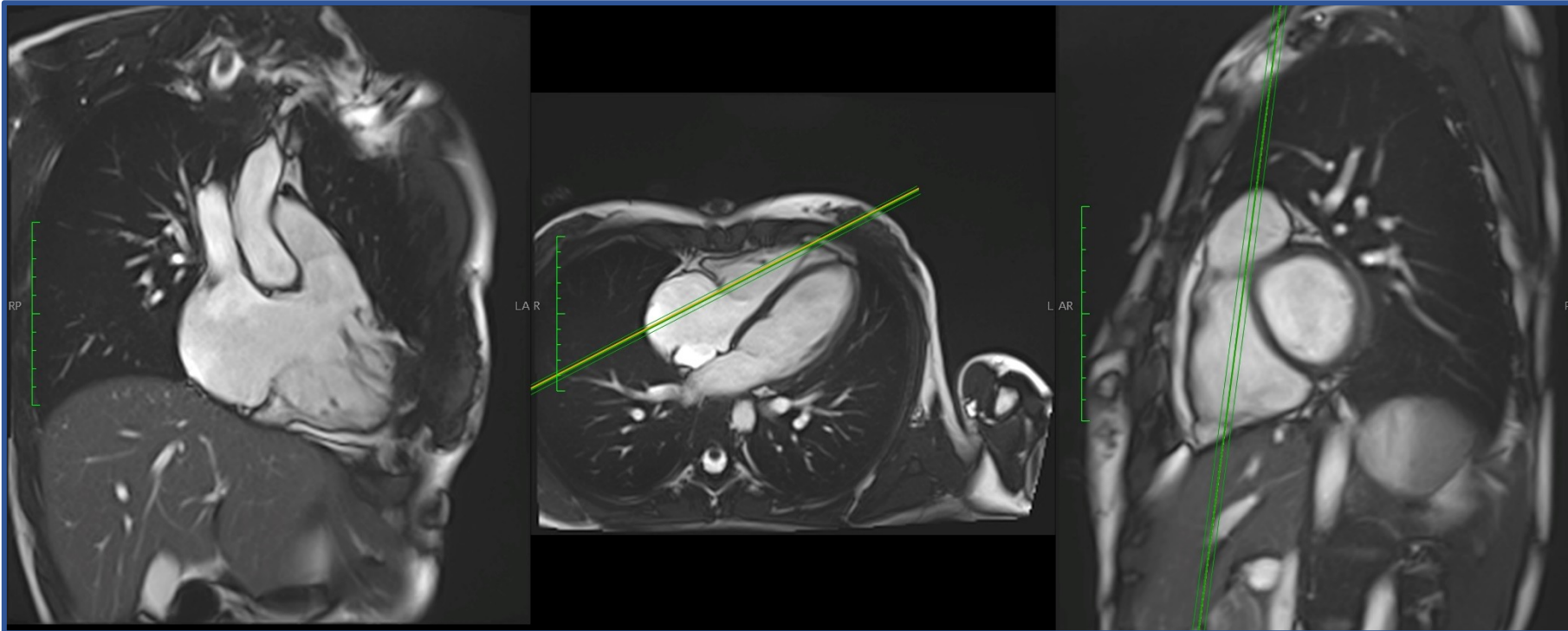
Contro-Efflusso-destro



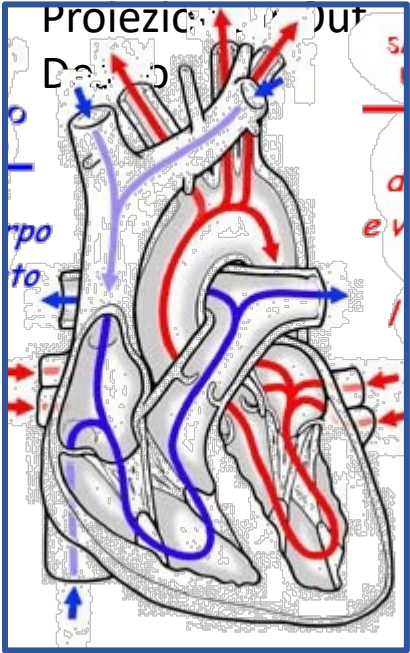
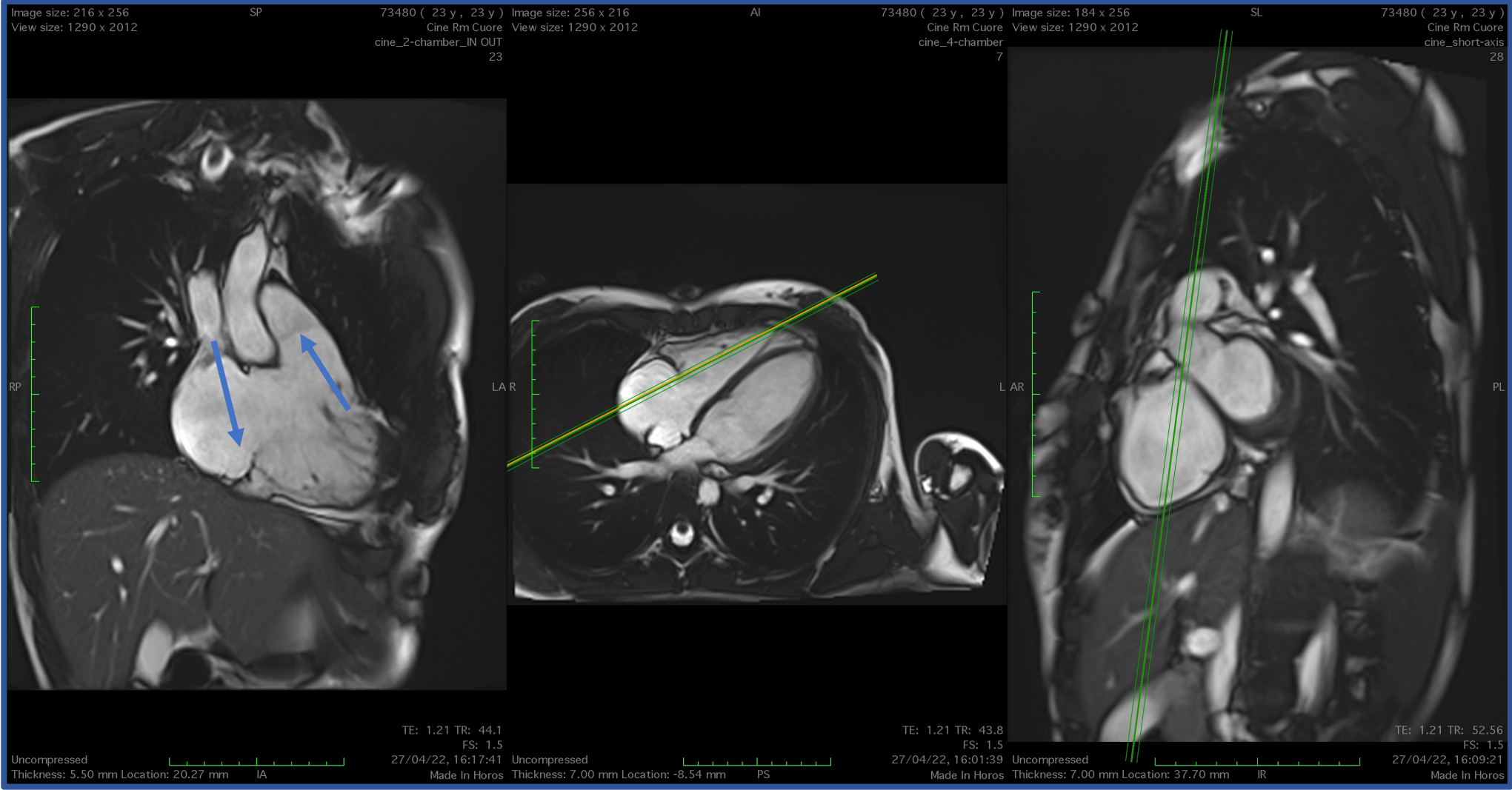
IN OUT Destro

Variante della sag 2ch dx
che a differenza
si aggiunge inclinazione su asse corto

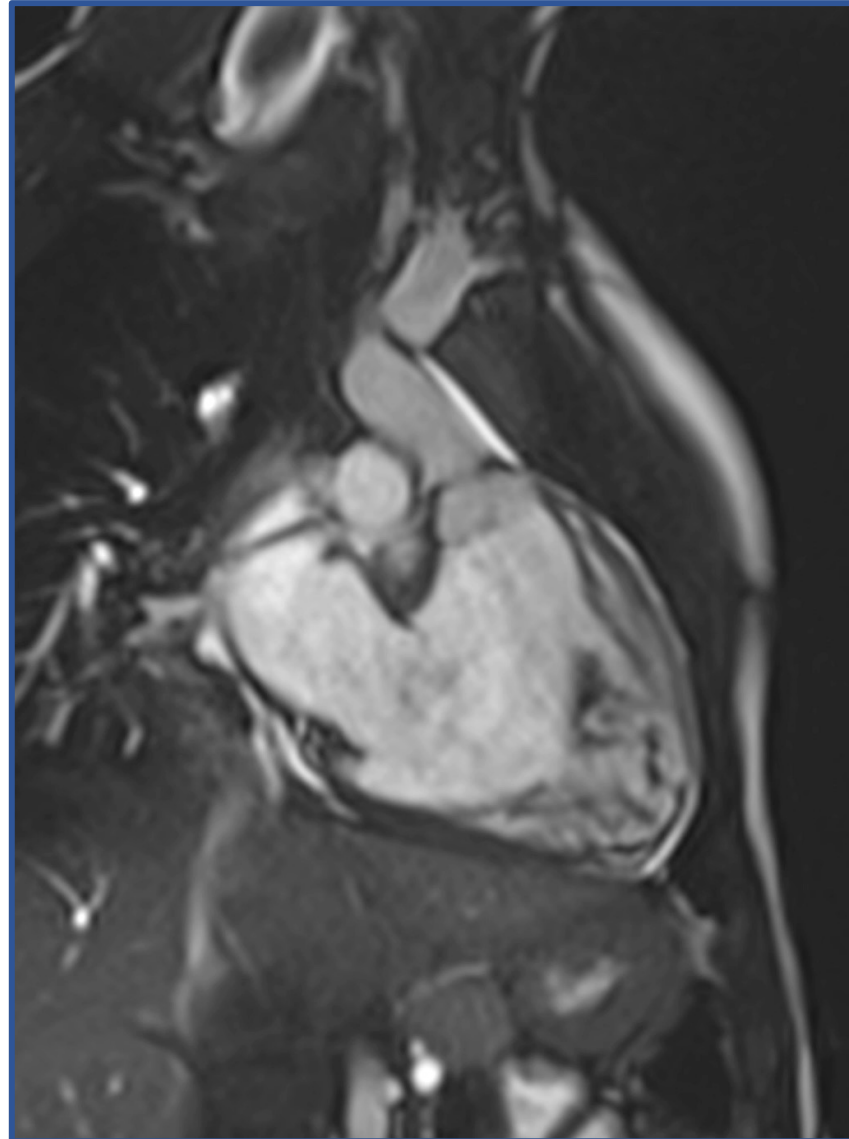
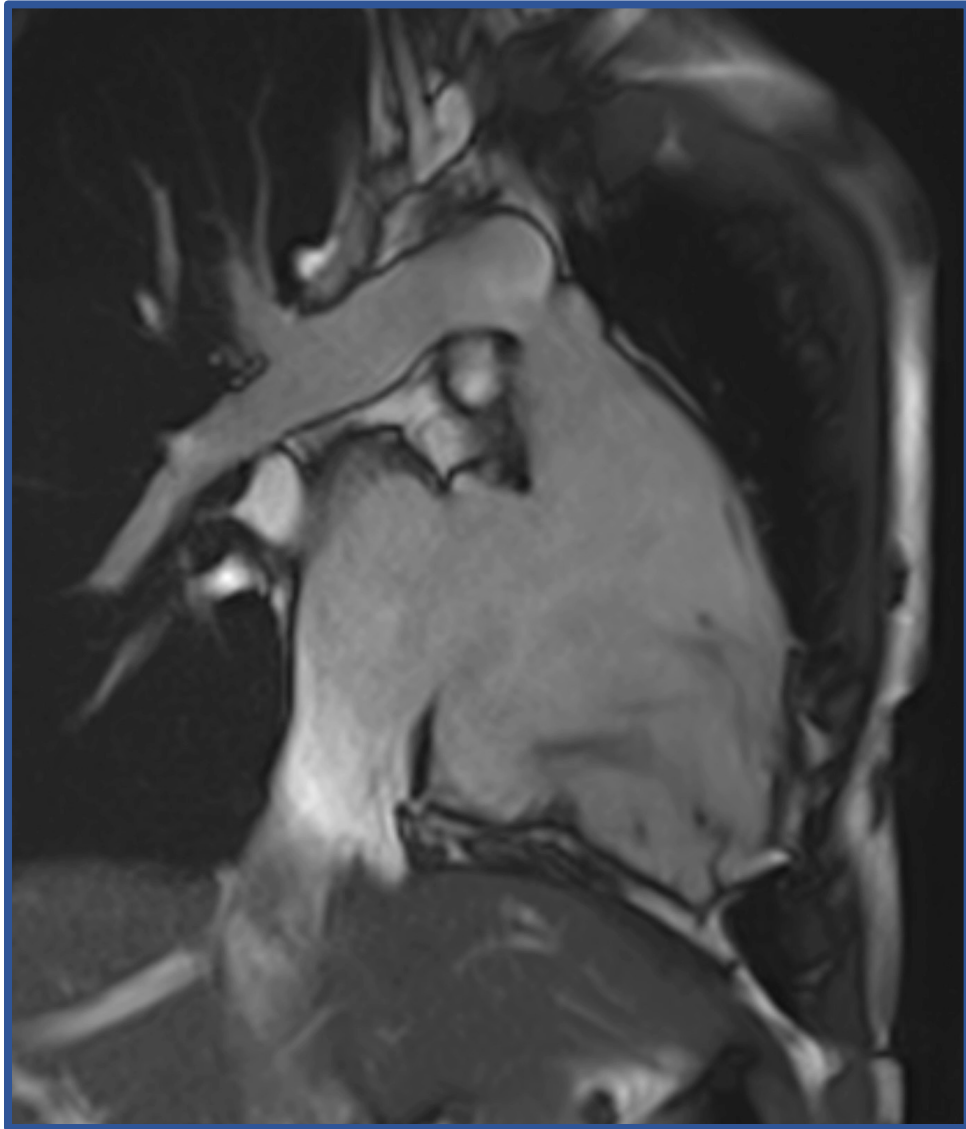
Criterio di correttezza:
Visualizzazione contemporanea cava sup in atrio destro
Eiezione arteria polmonare



IN OUT FLOW DX



IN OUT FLOW DX. casi clinici

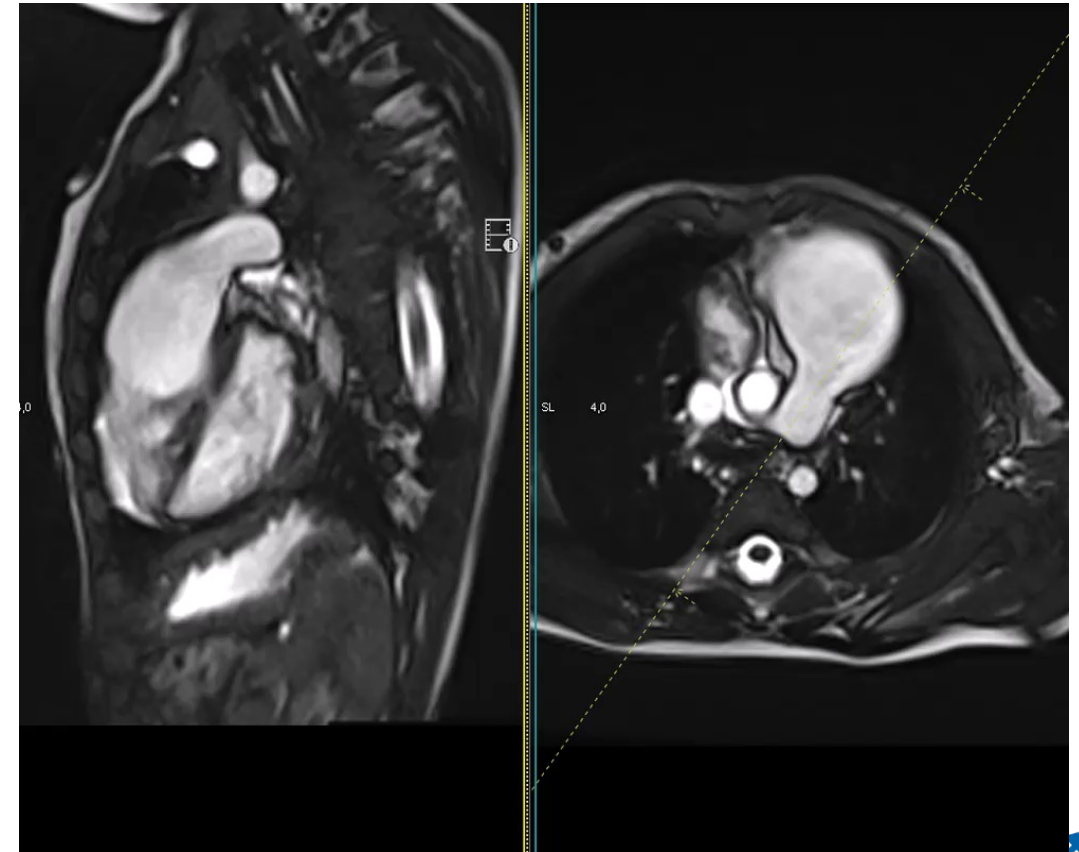
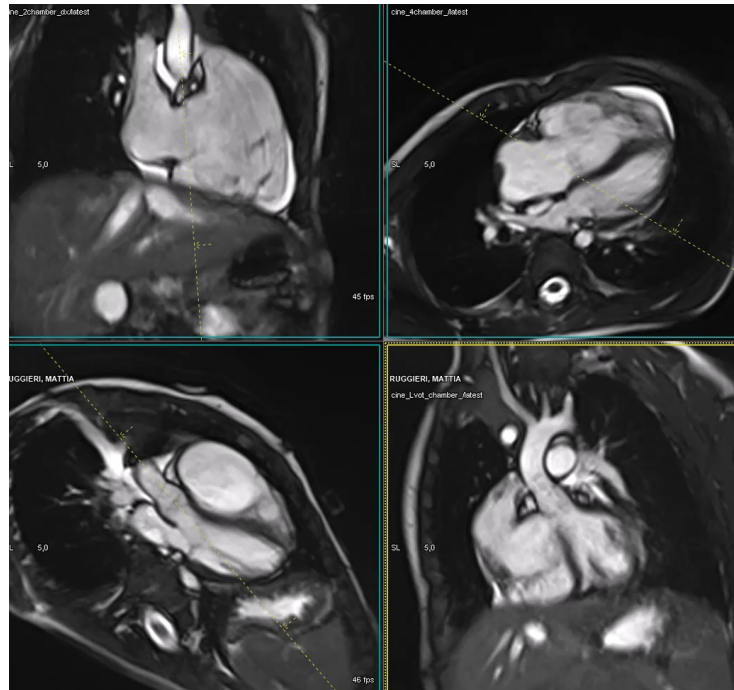


Tetralogia di Fallot

Le Cardiopatie congenite: Tecniche di studio

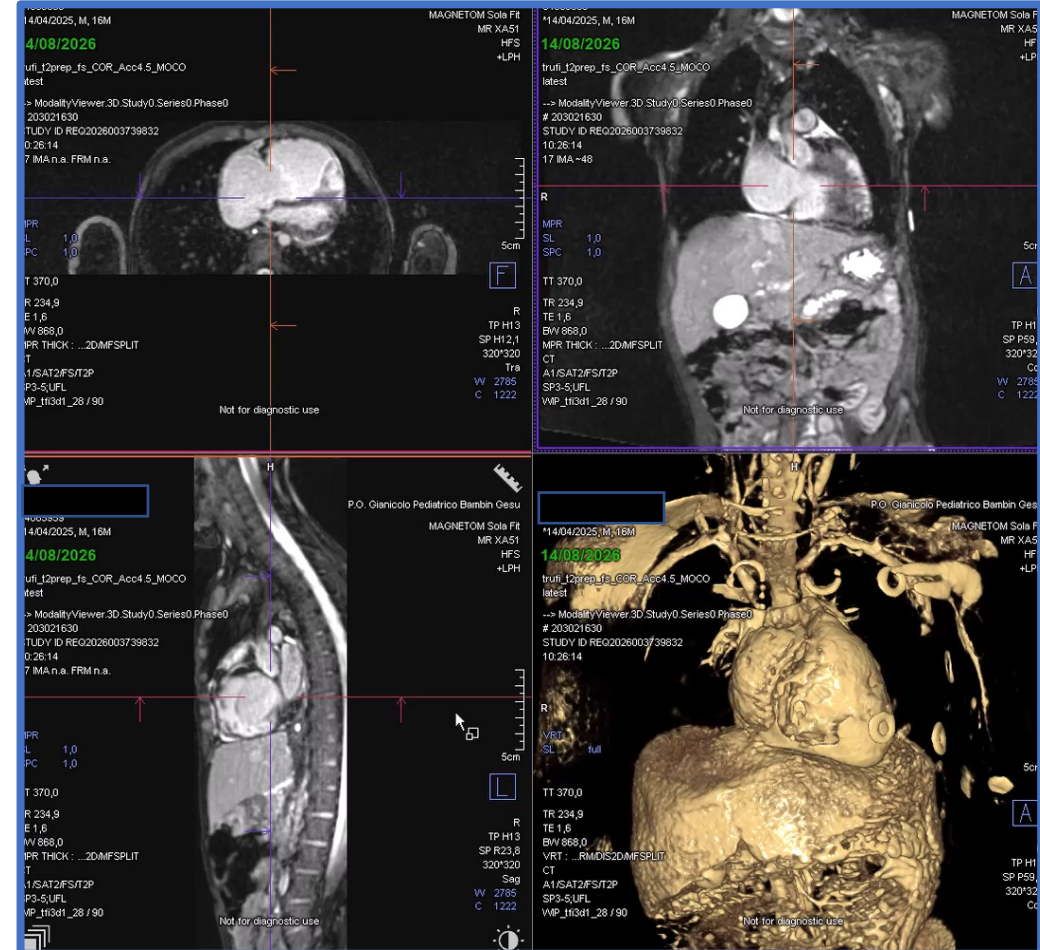
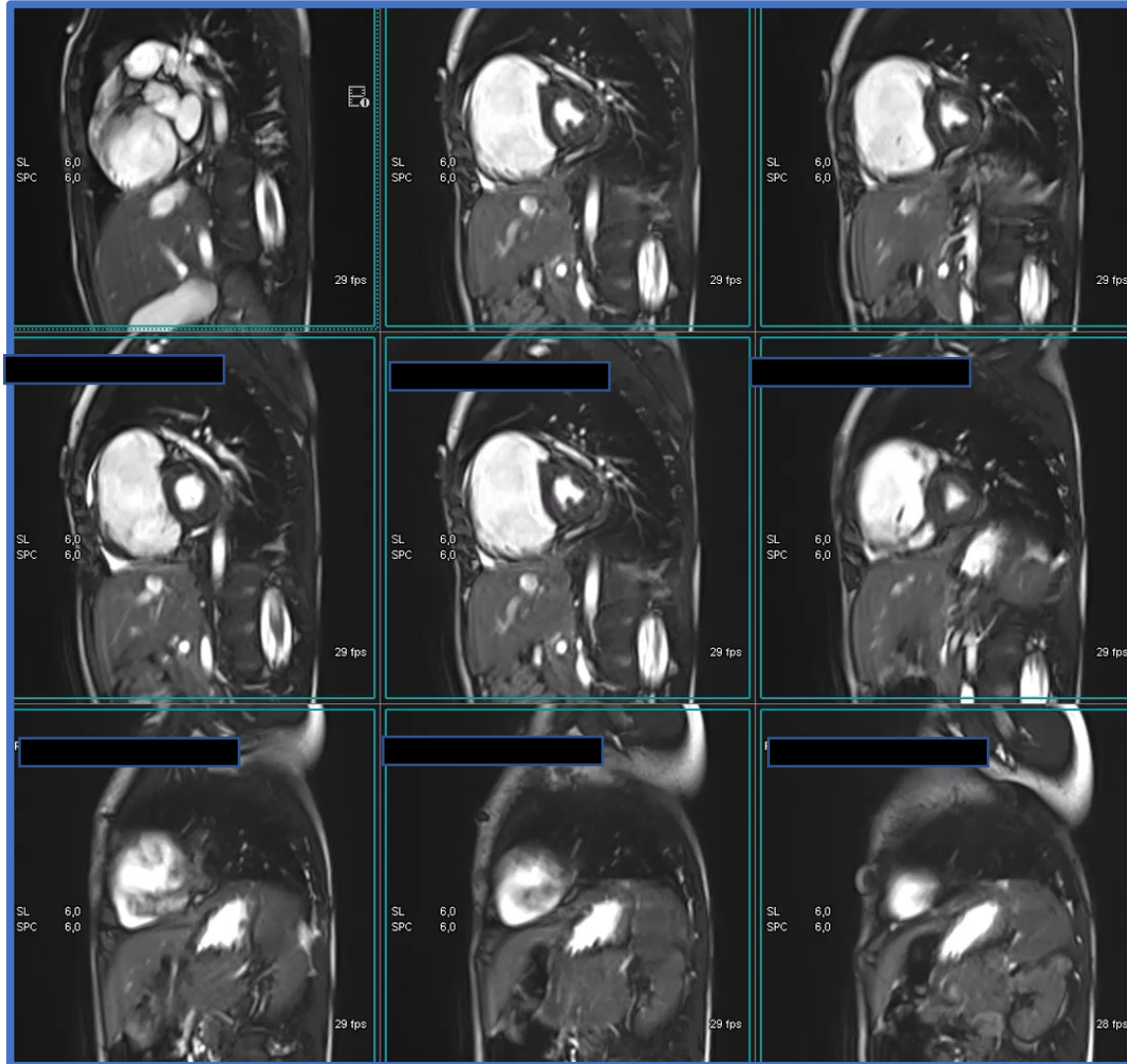
Cardiopatie in storia Naturale

- Sono cardiopatie non cianotizzanti
- O lievemente cianotizzanti
- Possono manifestarsi dopo i primi mesi di vita
- Con sintomatologia da affaticamento
- O scarso accrescimento-



Cardiopatia primitiva destro
16 Mesi

Le Cardiopatie congenite: Tecniche di studio

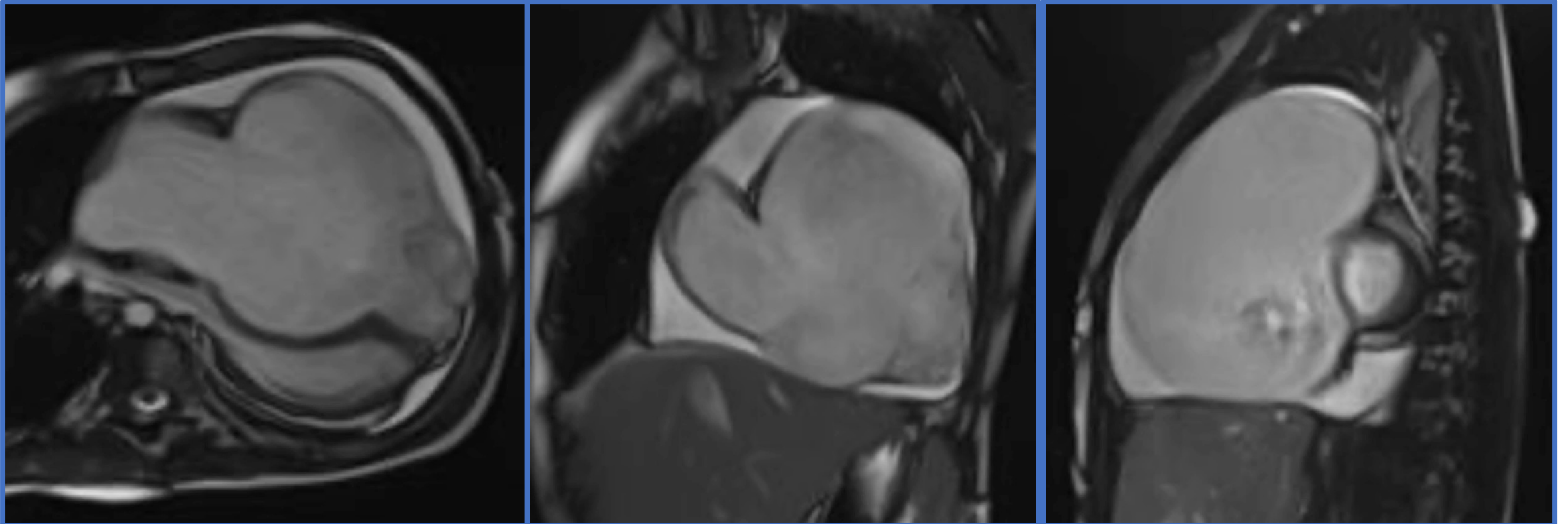


UHL ANOMALY

S.J, 12 yo, F

Estrema dilatazione del
ventricolo destro (RV)
all'ecocardiografia TT

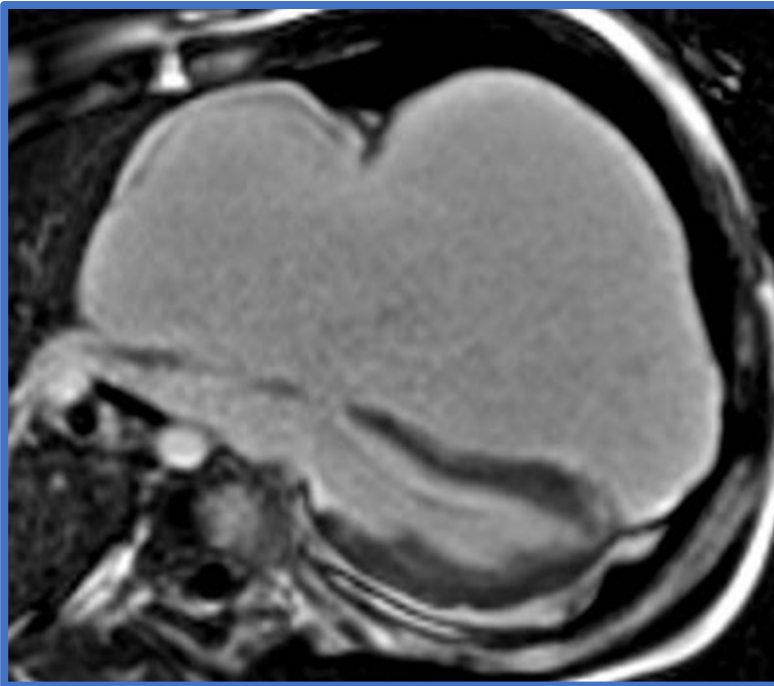
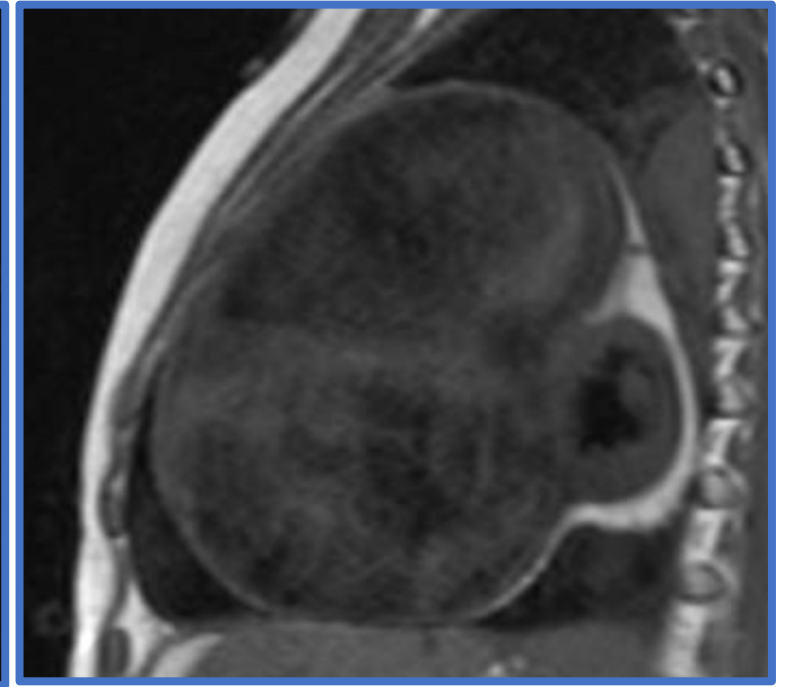
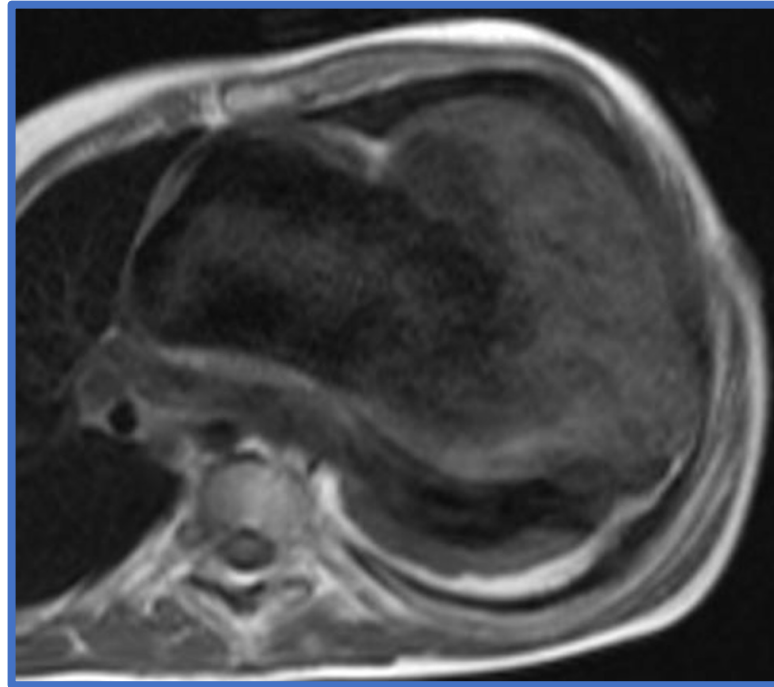
Grave rigurgito della valvola
tricuspide

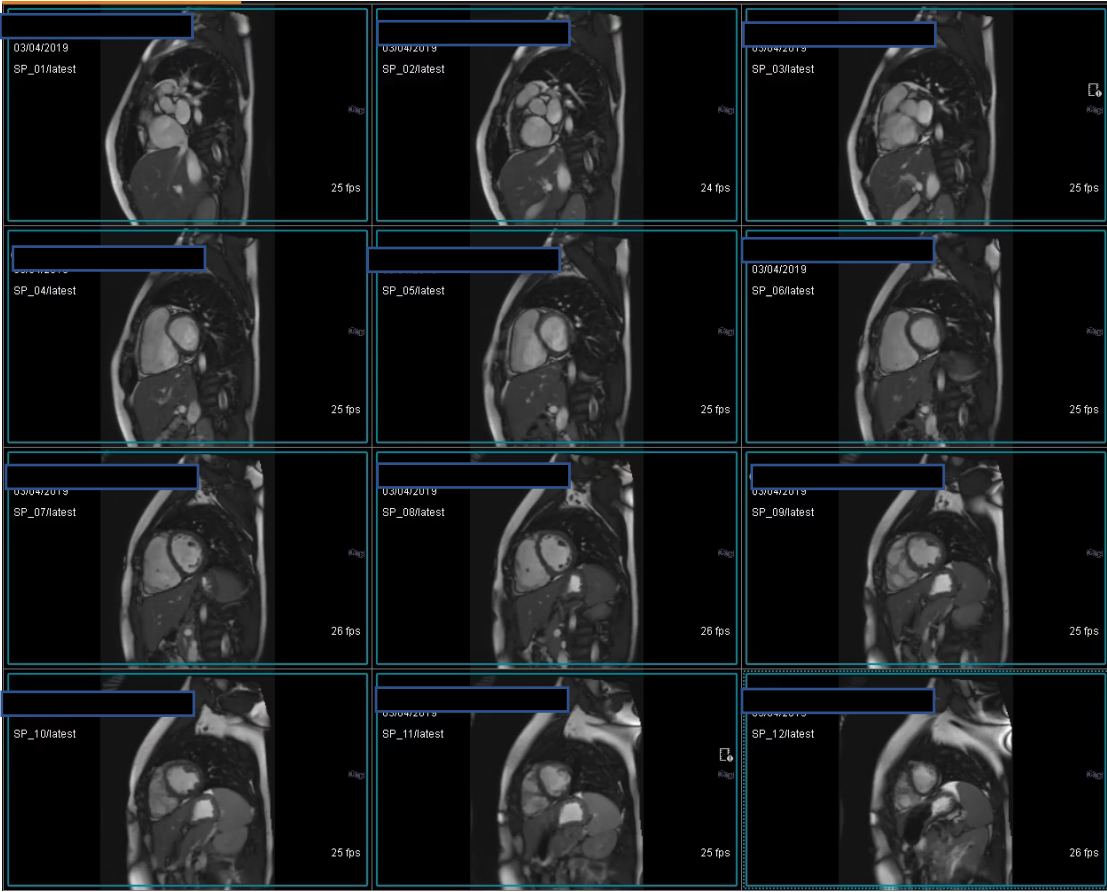
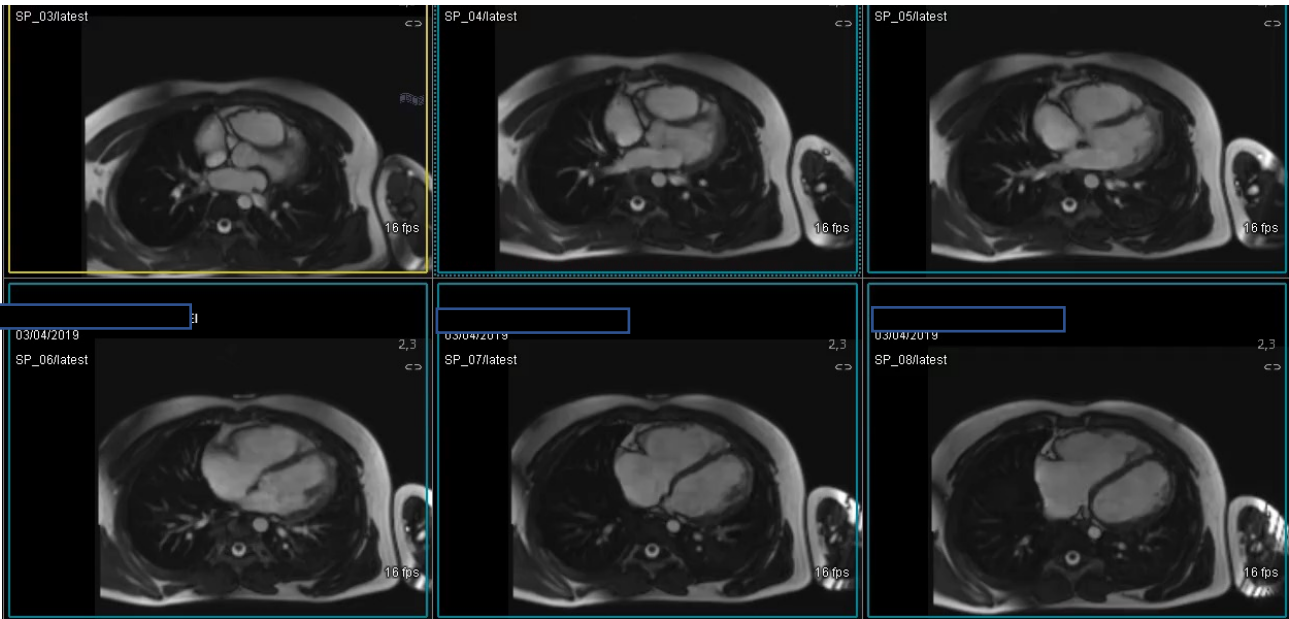


Rara Malformazione congenita

Assenza totale del miocardio ventricolare destro con conseguente apposizione di endocardio ed epicardio

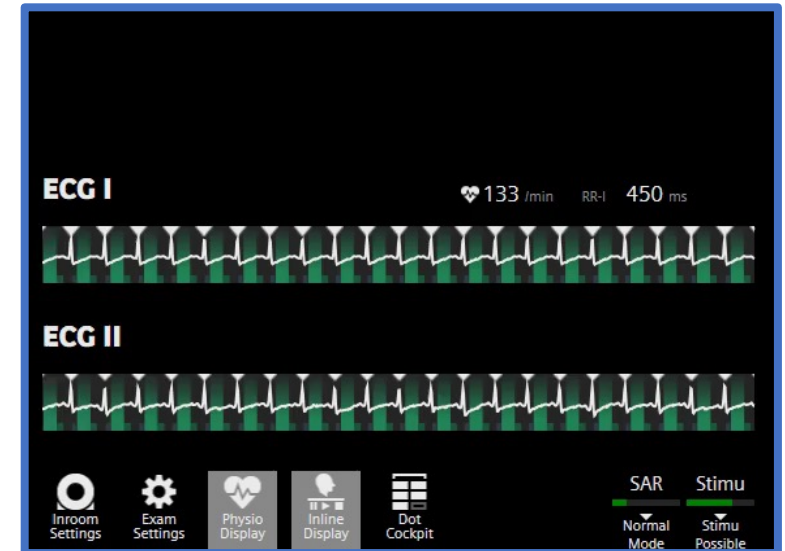
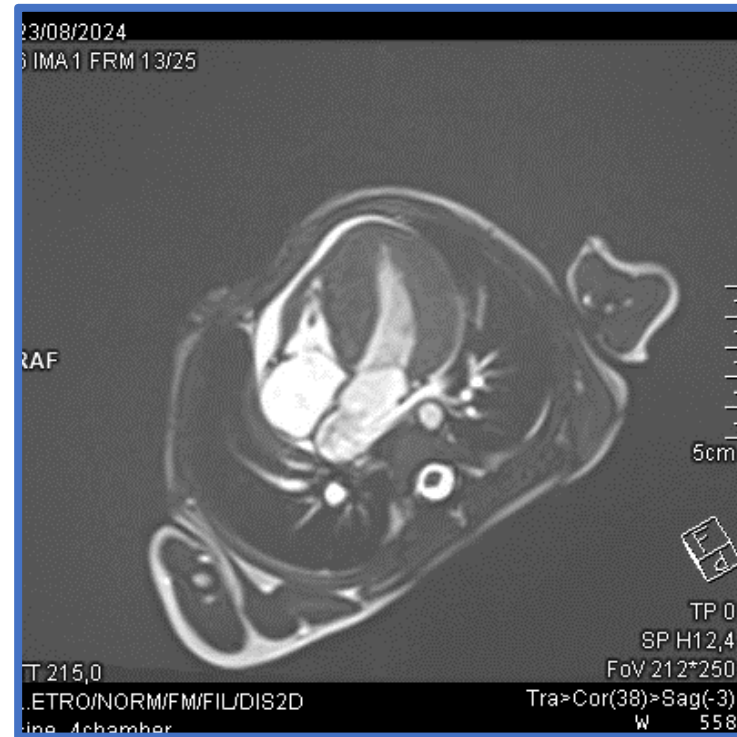
Sostituzione del miocardio con tessuto fibroso denso





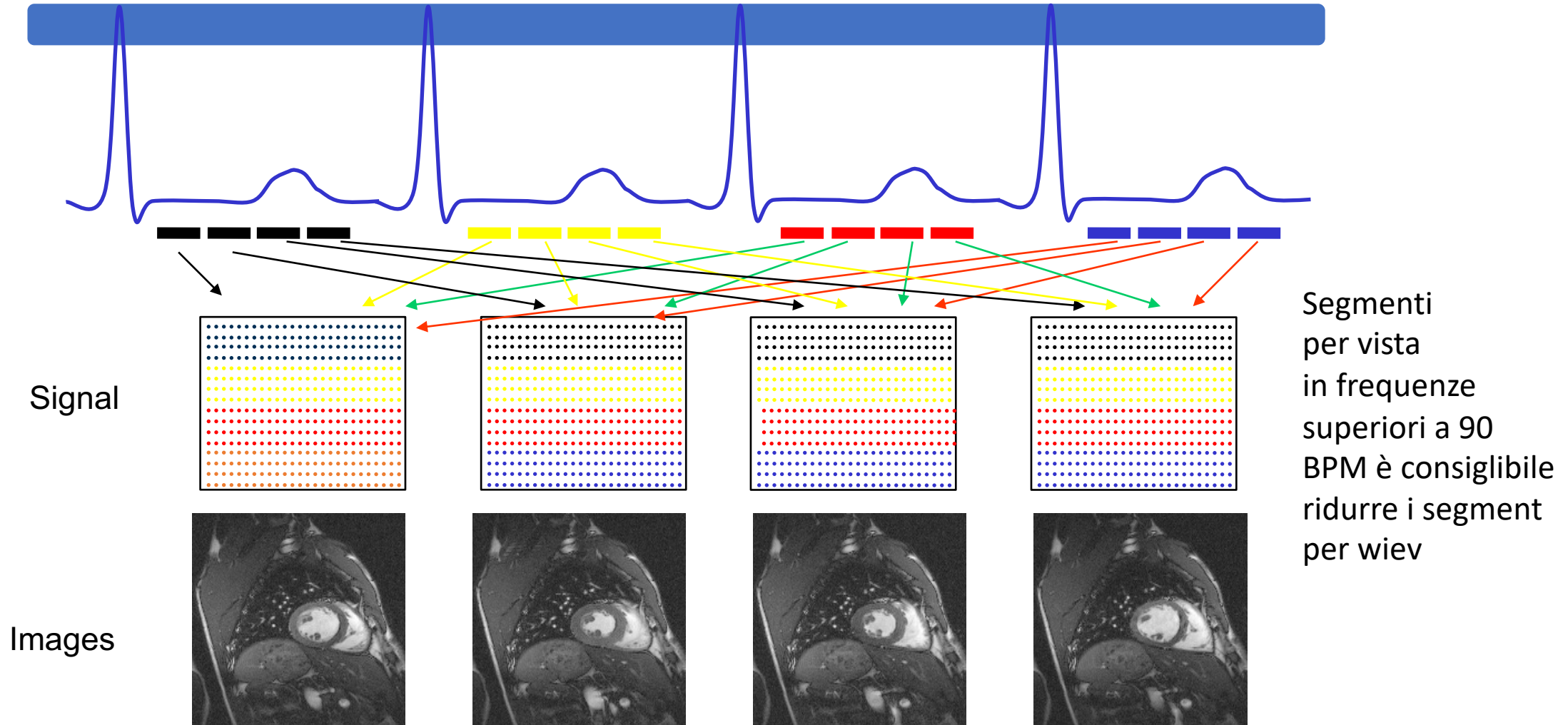
Displasia Aritmogena
Acquisizione Compressed Sensing

Saper affrontare i problemi.....



Tecnica RM: ECG gating - Trufi SSFP Cine

Segment wiew



13 sec 4 Auto 2 None 1.1x1.1x7.0 mm 1.00

Routine	Contrast	Resolution	Geometry	System	Physio	Inline	Sequence
Signal	Cardiac	PACE					

1st Signal/Mode: ECG/Retro

Average Cycle: No Signal ms

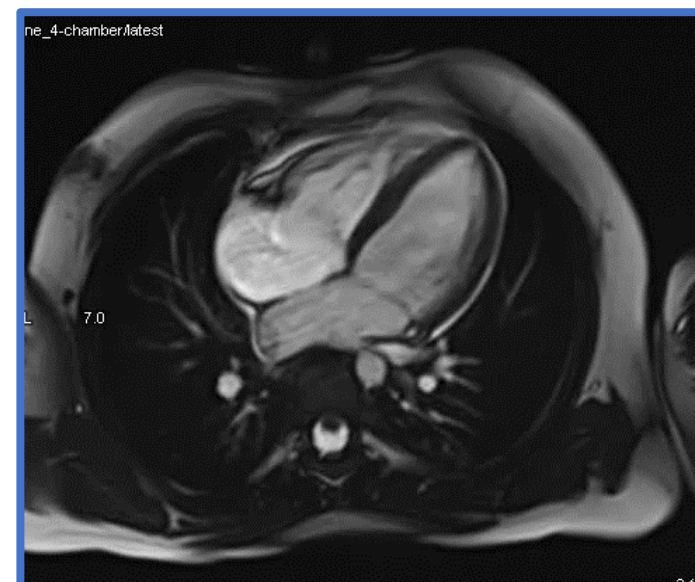
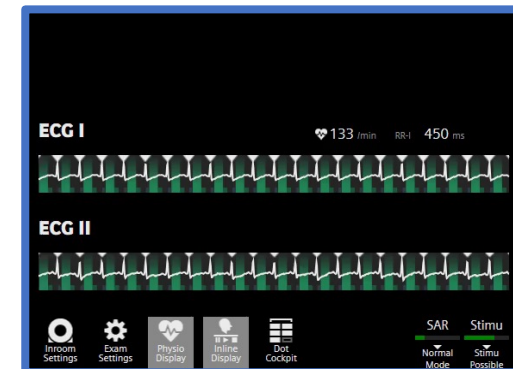
Concatenations: 1

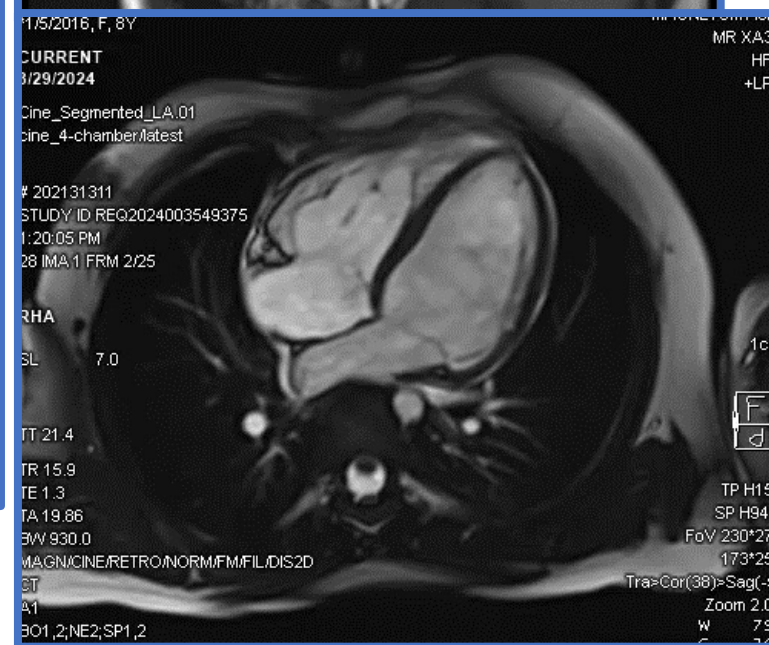
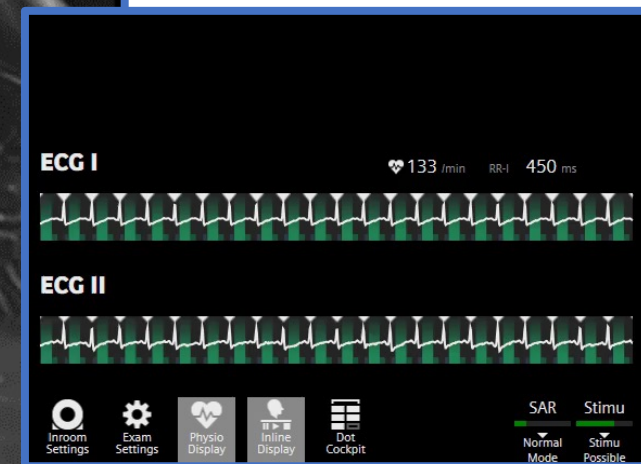
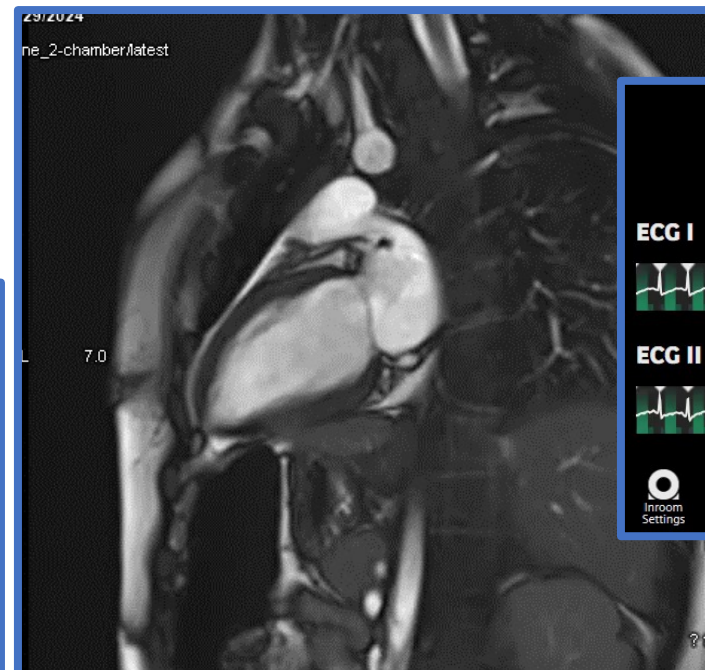
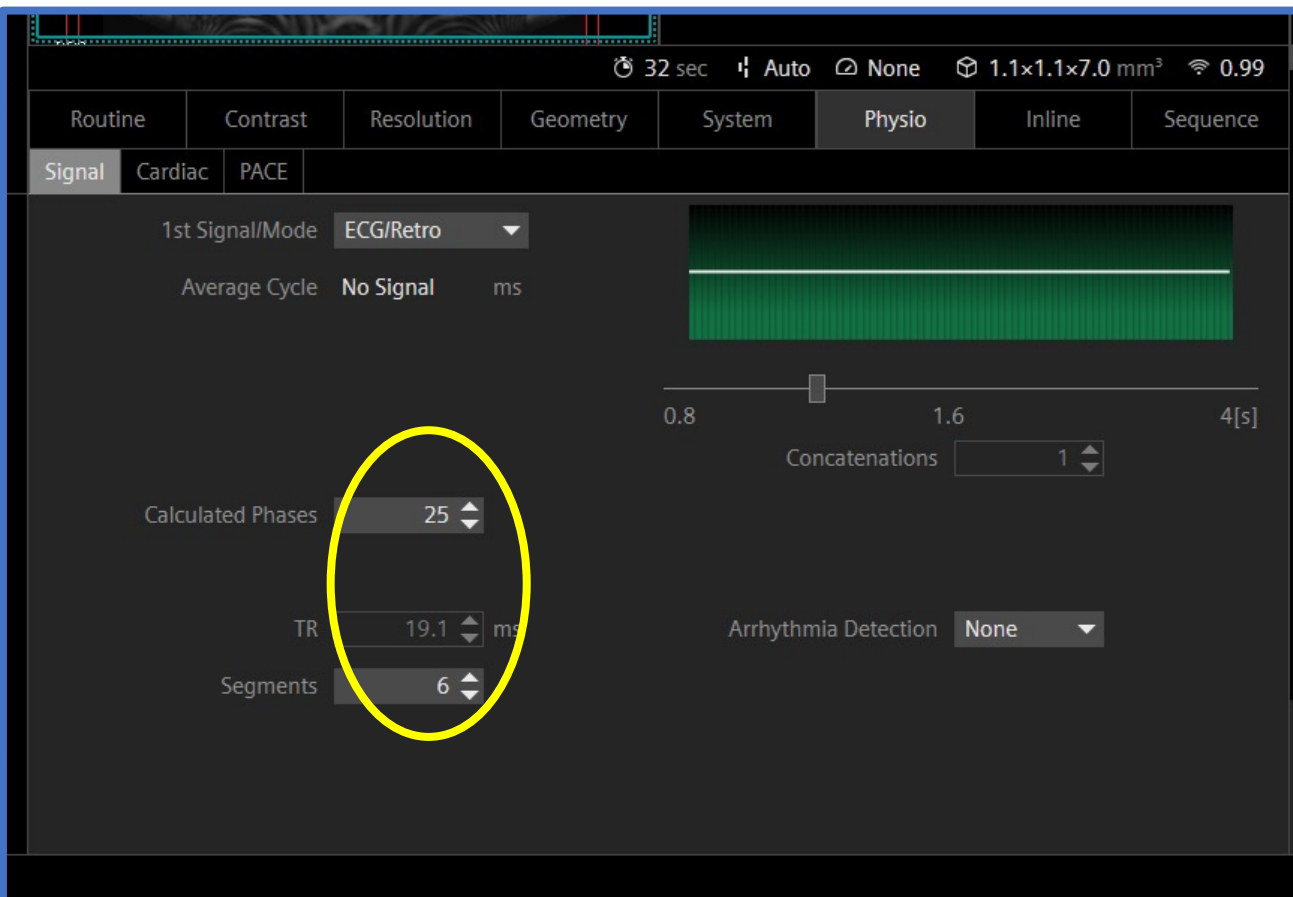
Calculated Phases: 25

TR: 47.7 ms

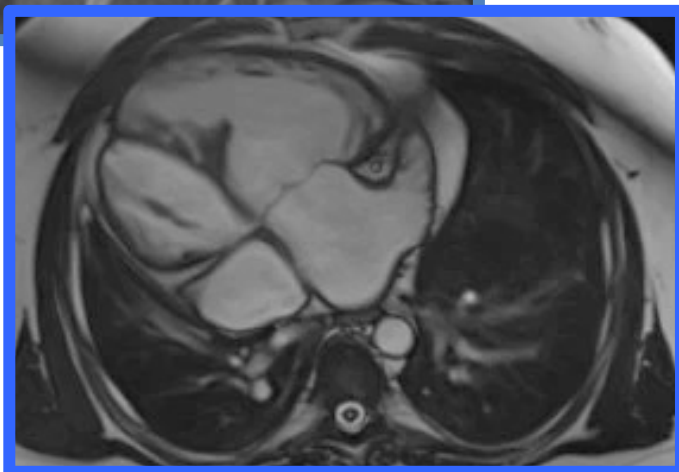
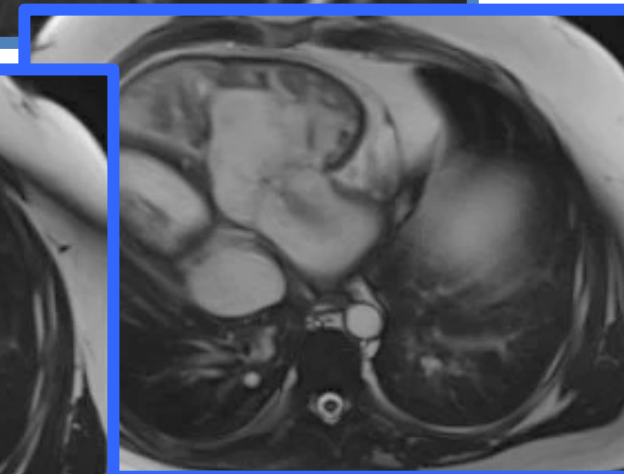
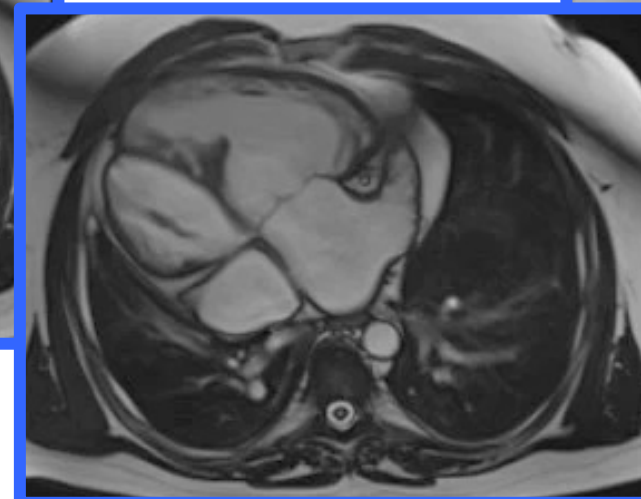
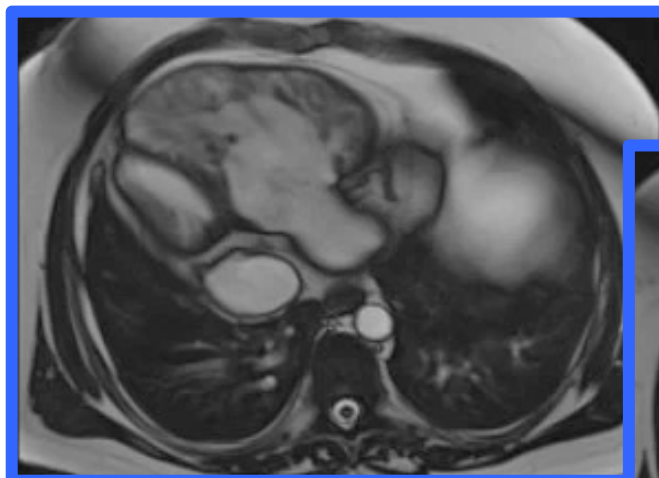
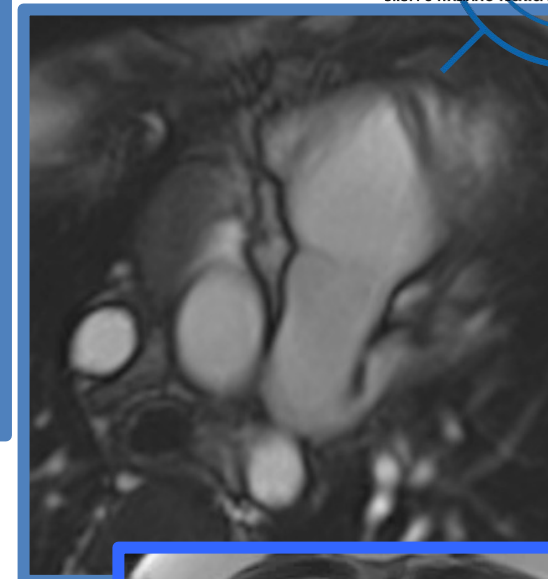
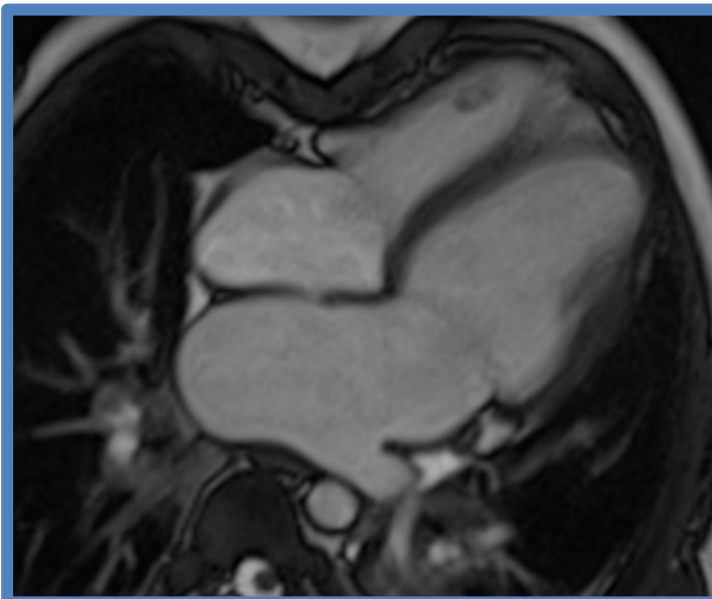
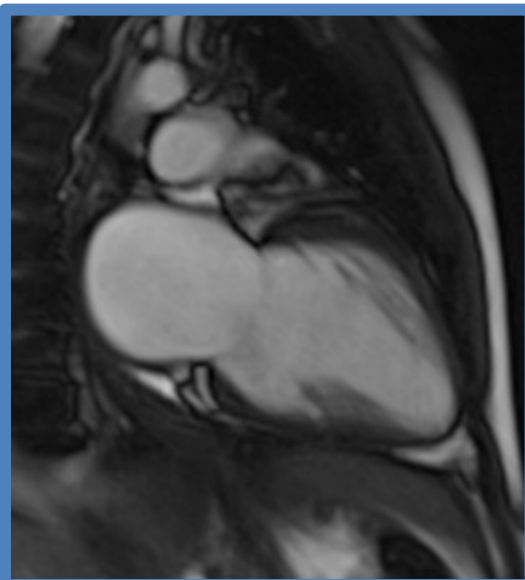
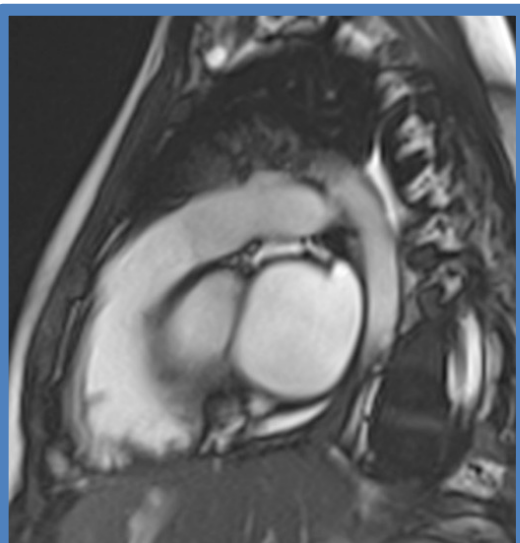
Segments: 15

Arrhythmia Detection: None



Sequenza cine SSFP
20 Fasi ciclo cardiaco
18 Segment per Vista
4 Nex

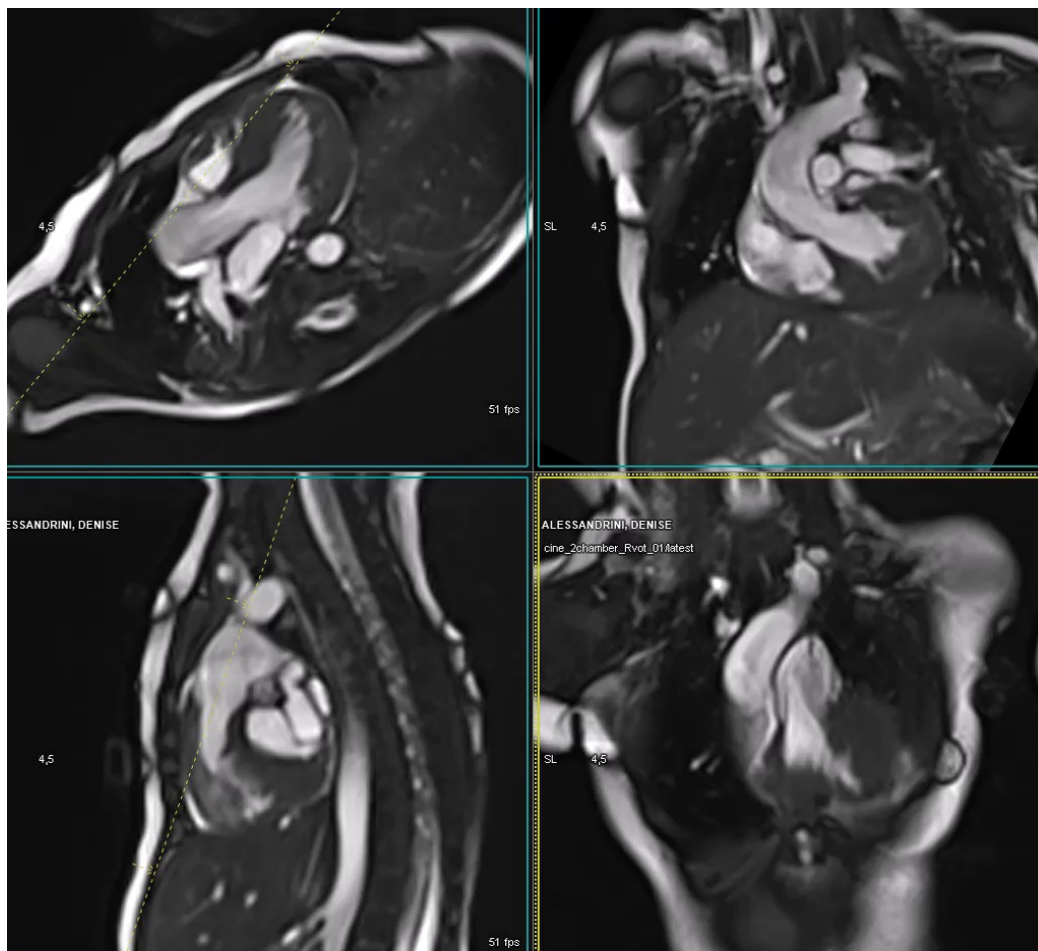


Studio cine rm respiro libero

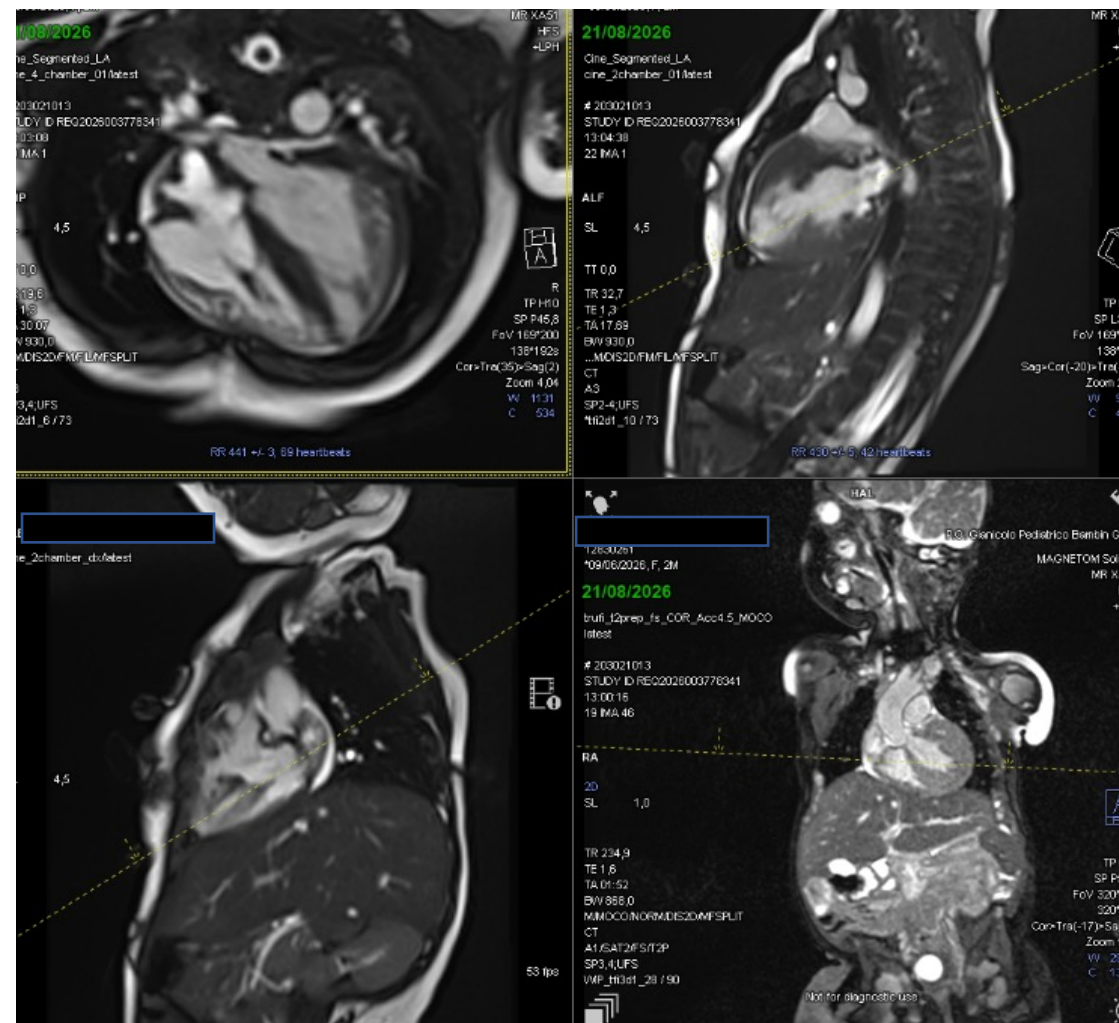
fabio.marconi@opbg.net

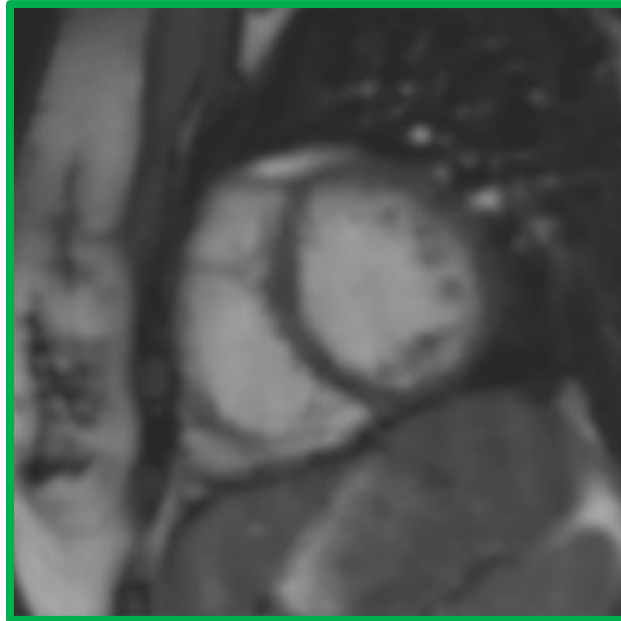
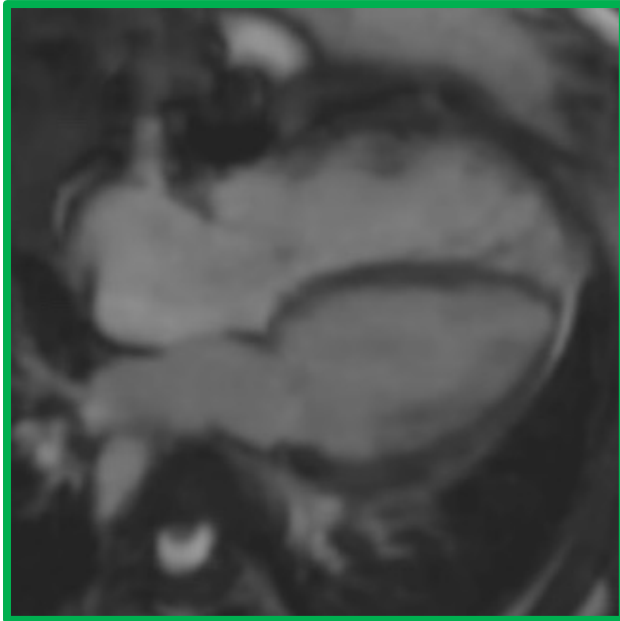
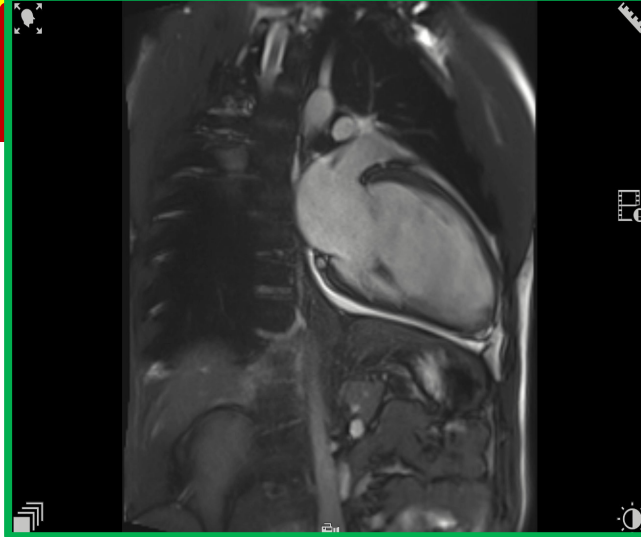
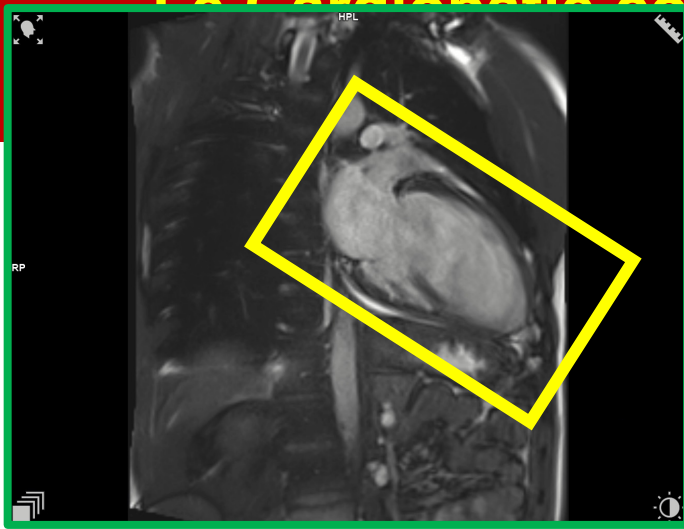
Tecniche di Imaging cardiologico mediante MRI

Le Cardiopatie congenite: Tecniche di studio



Non compatto 1 mese



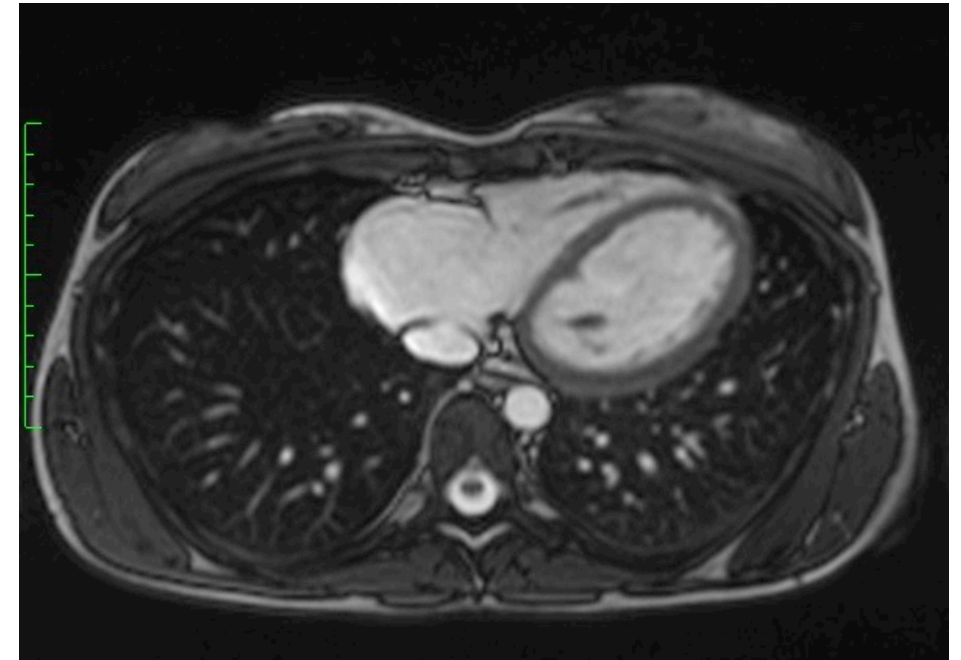
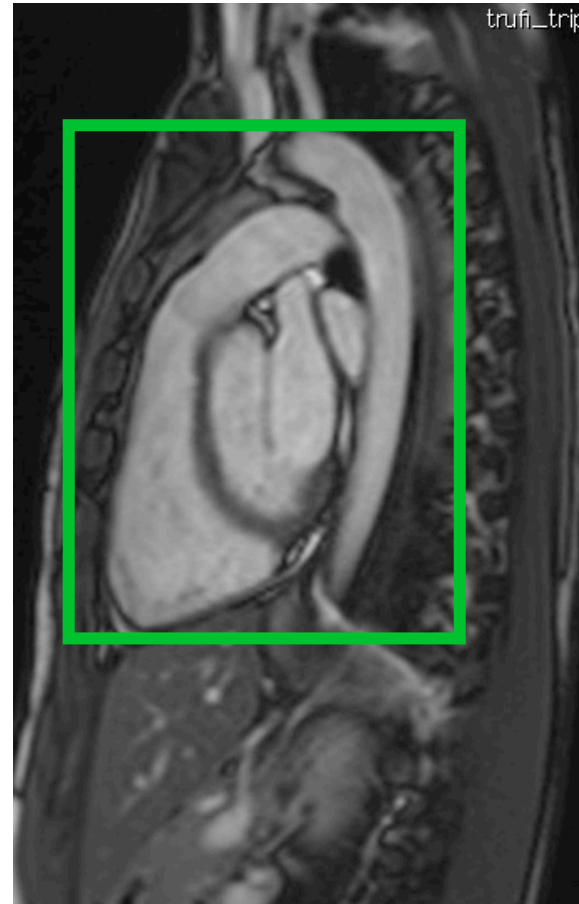
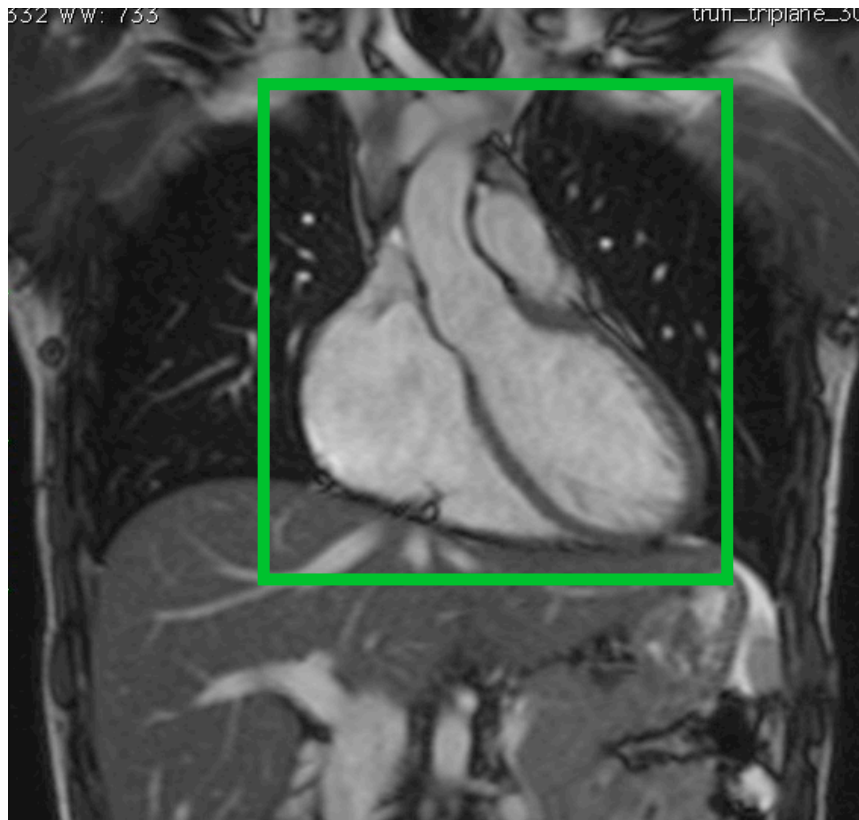


Accelerazione CS bassa ris.

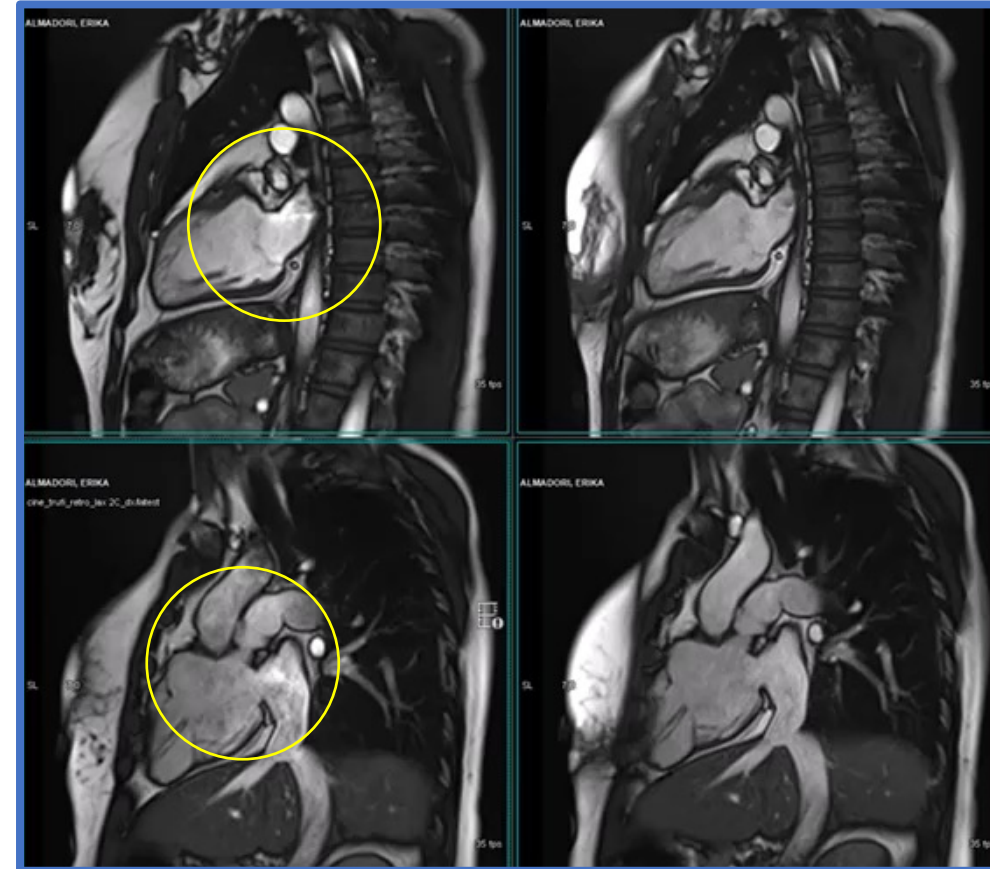
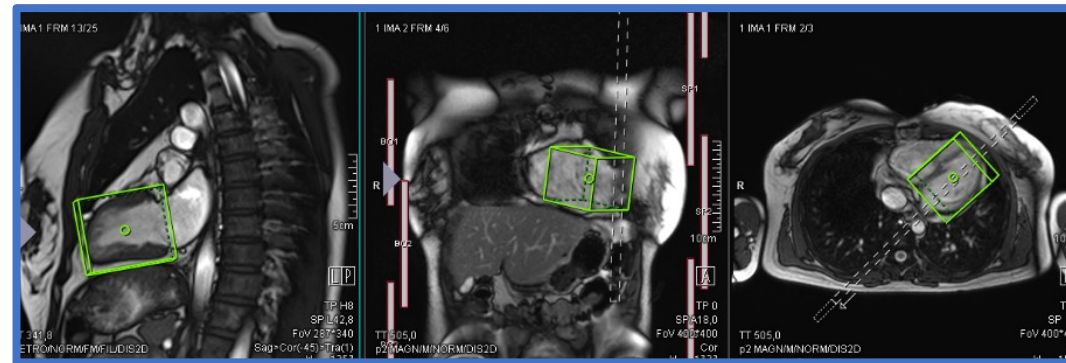
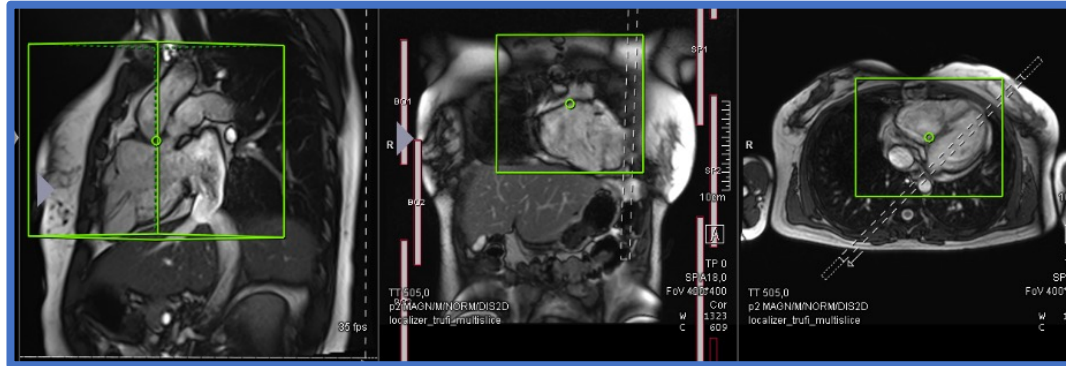


Accelerazione CS bassa ris. +AI

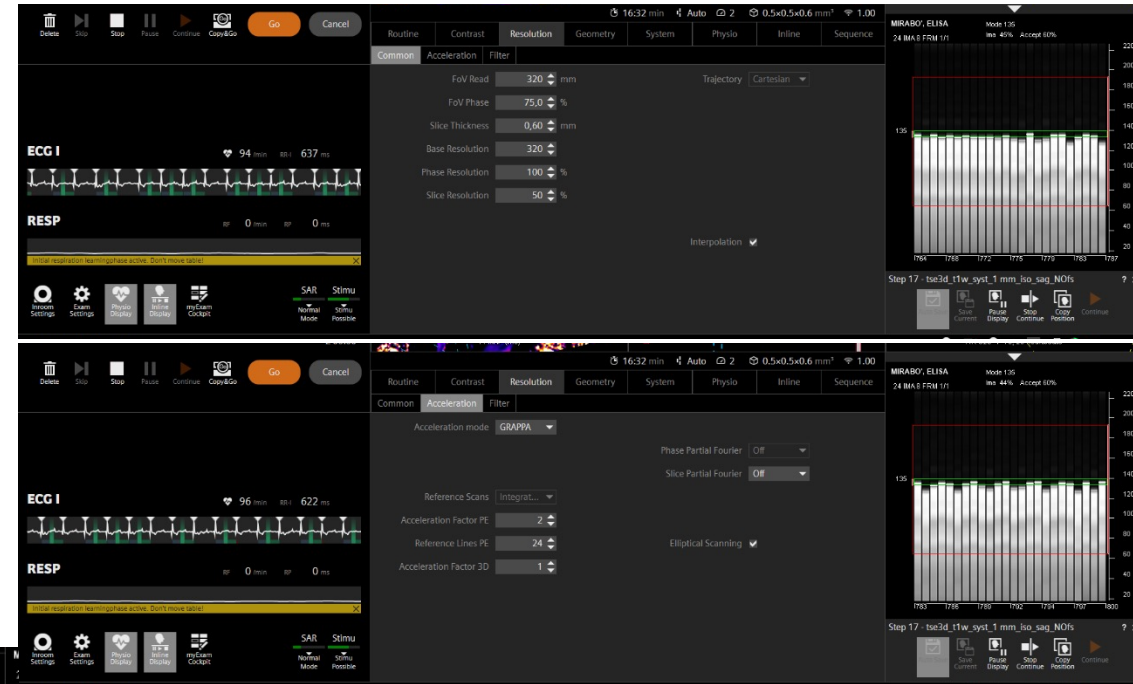
Le Cardiopatie congenite: Tecniche di studio



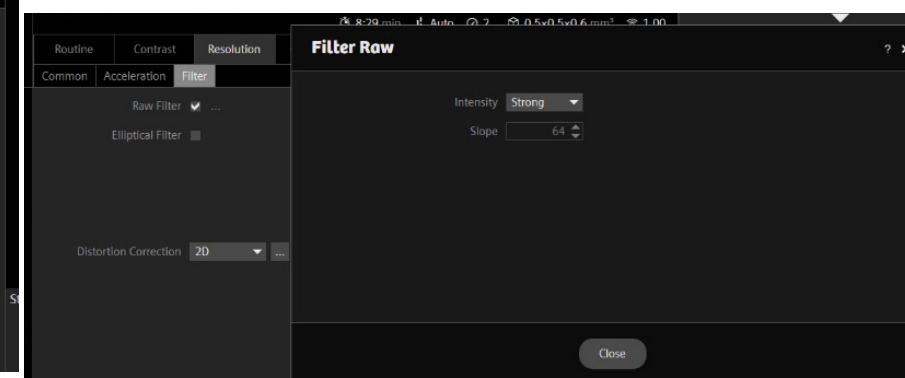
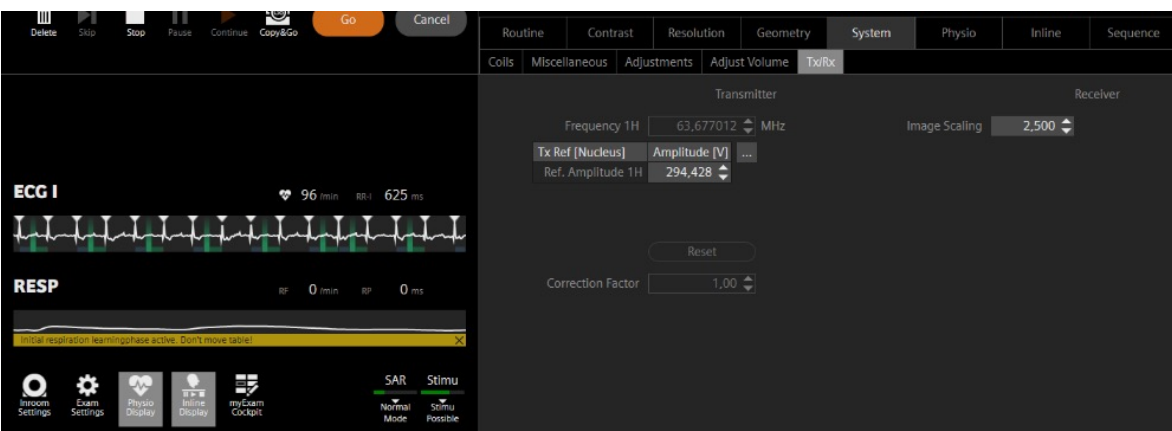
Le Cardiopatie congenite: Tecniche di studio



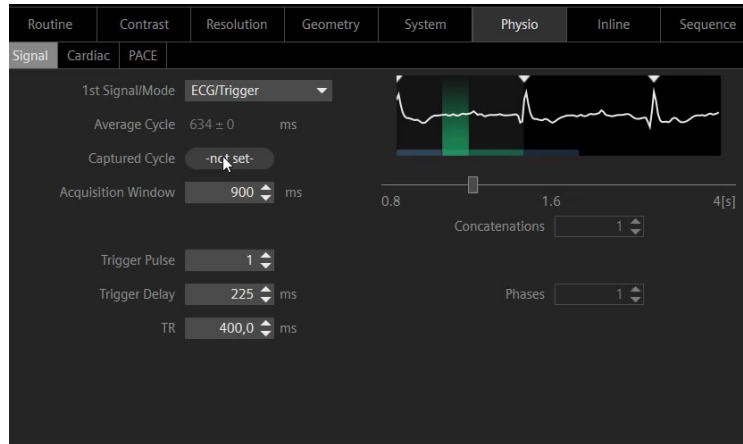
Le Cardiopatie congenite: Tecniche di studio



Ottimizzazione Whole Heart 3d



Le Cardiopatie congenite: Tecniche di studio

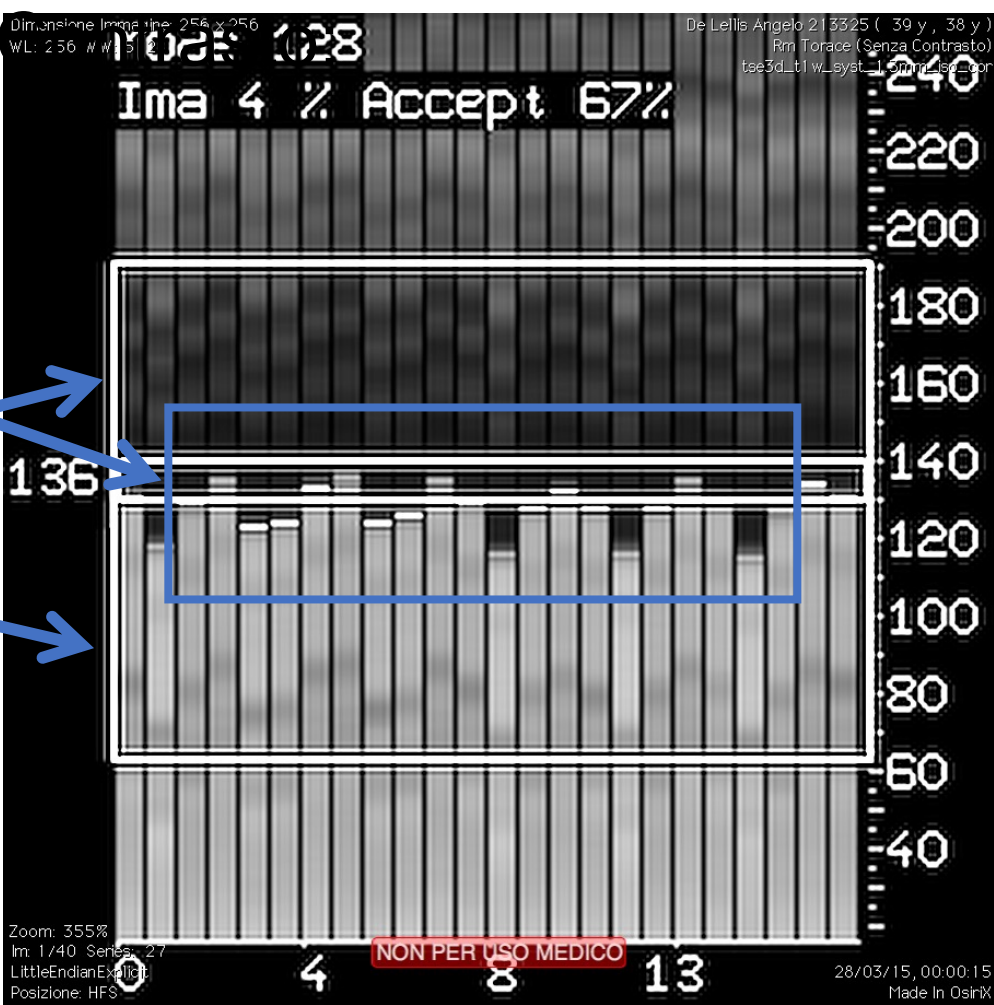
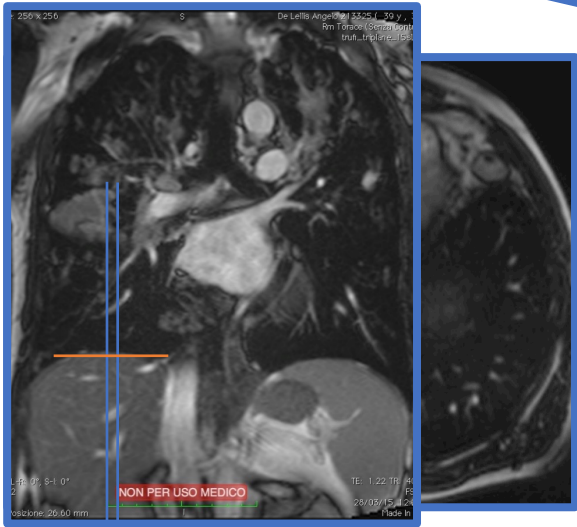


Acquisizione dati senza Mezzo di Setting whole heart ssfp-TSE BB

Risoluzione spaziale e Finestra di accettazione

Finestra di accettazione 2-5mm

Finestra di ricerca
5 cm



Sovra diaframmatica

Sotto diaframmatica

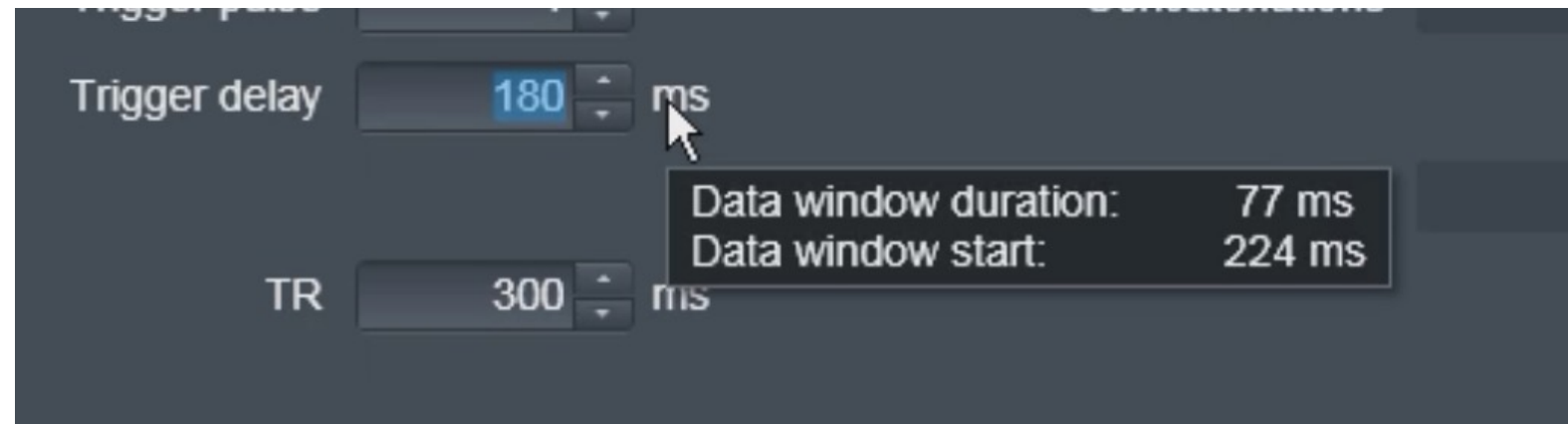
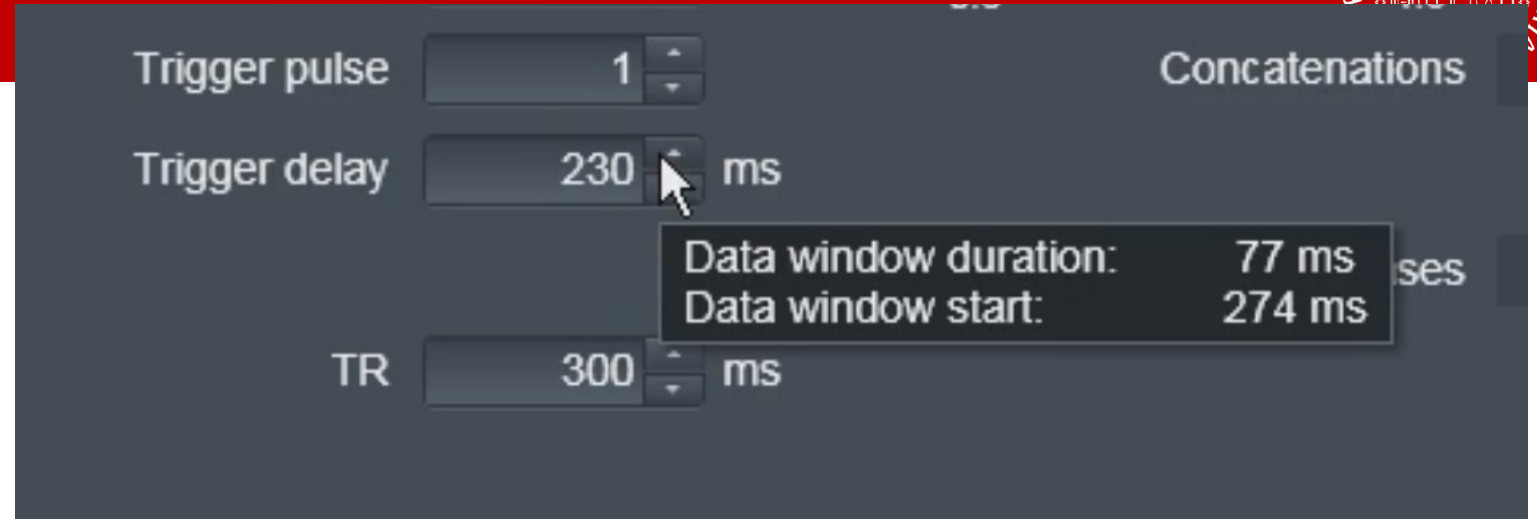


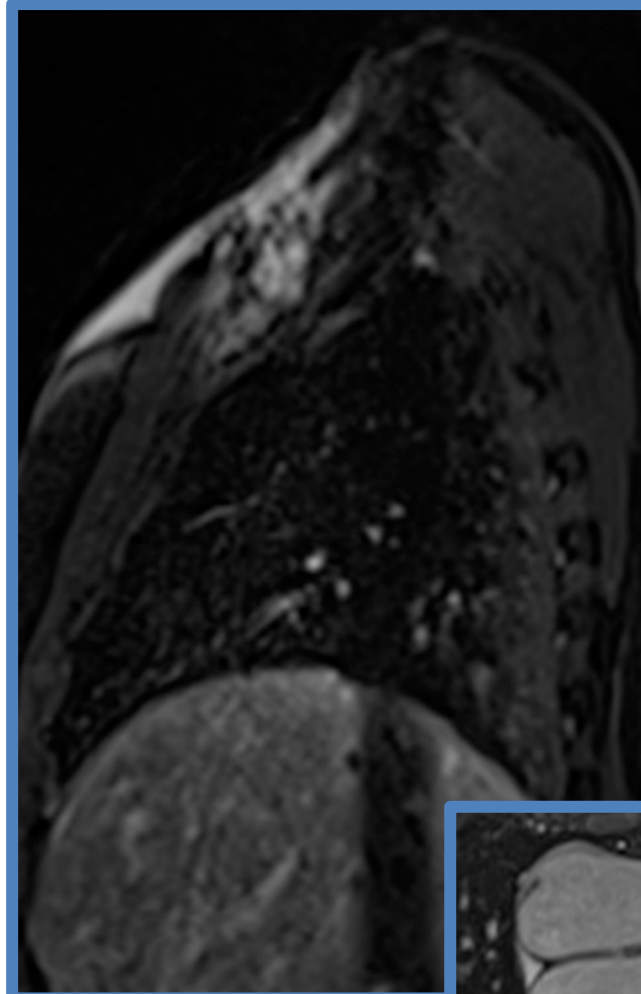
Le Cardiopatie congenite: Tecniche di studio

Centro sistole
253ms

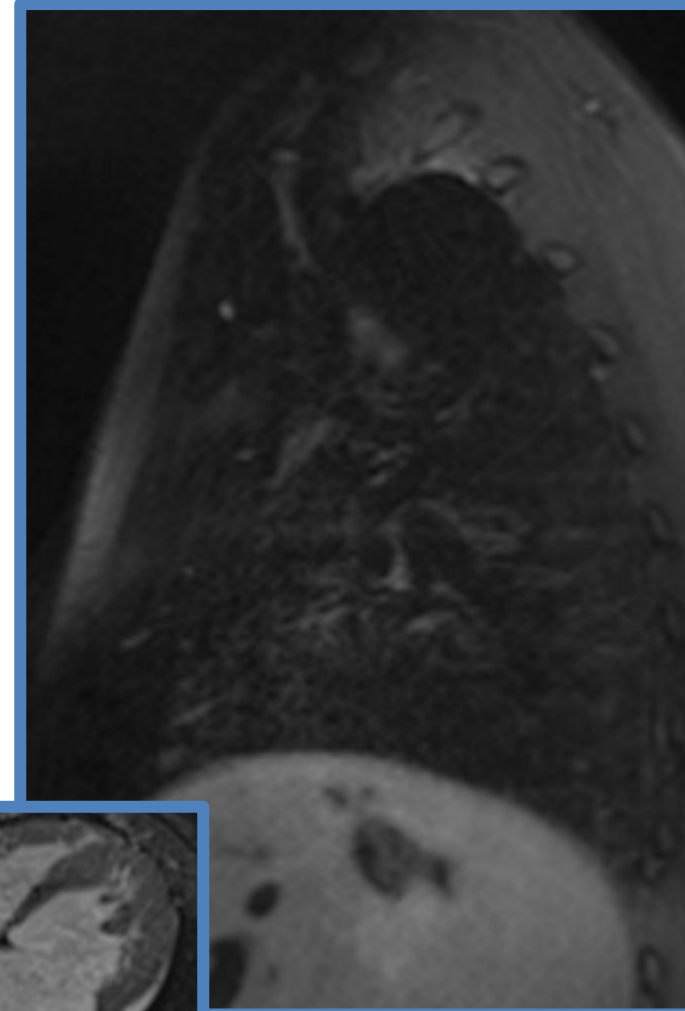
Durata Sistole
221ms 290ms

Durata Shot
77ms

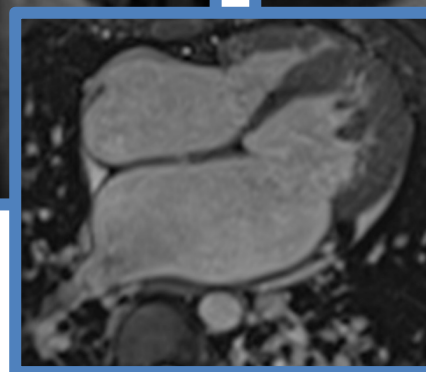




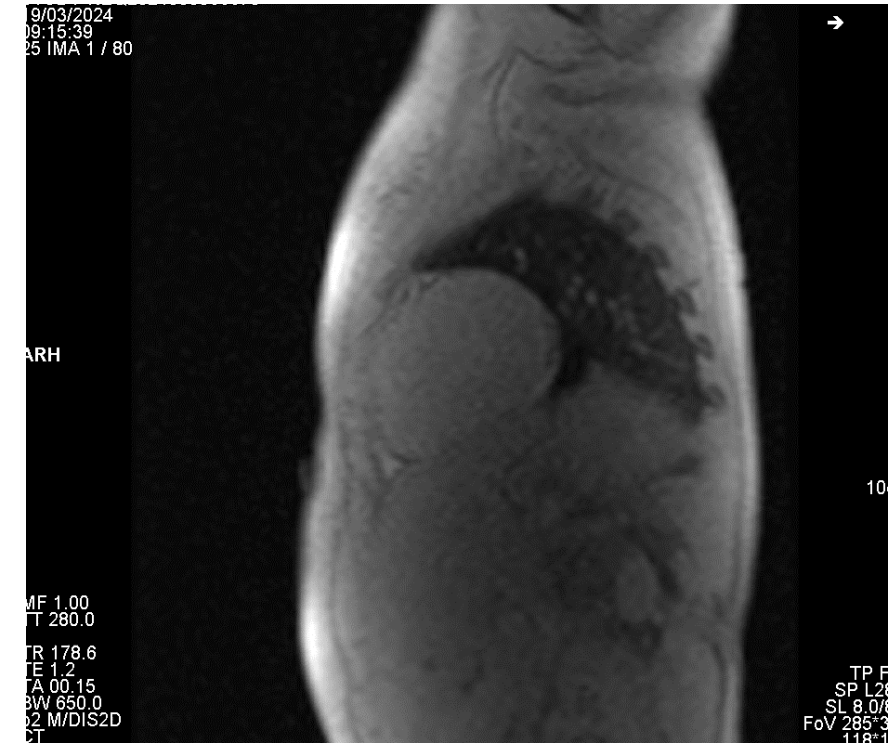
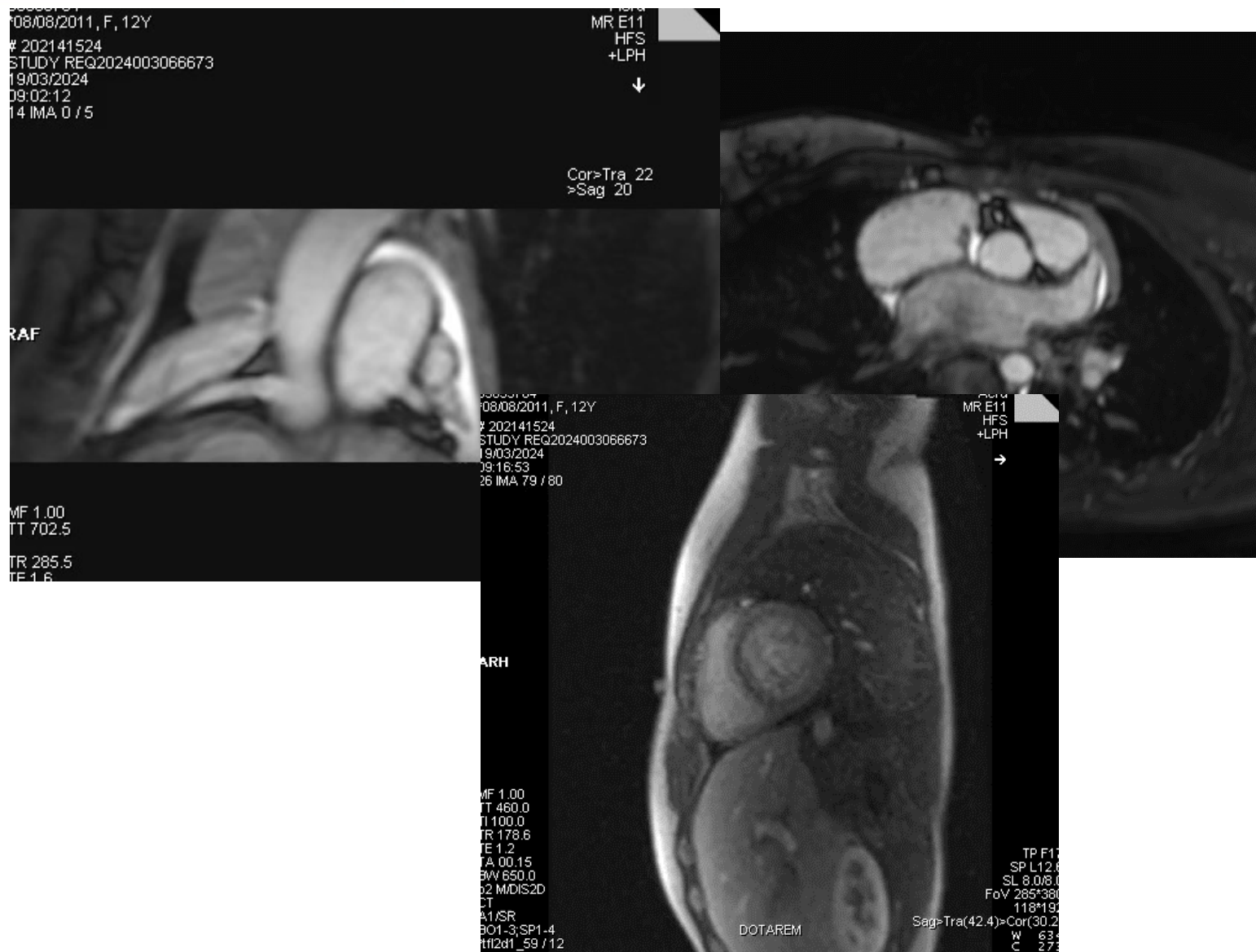
SSFP



TSE T1 BB



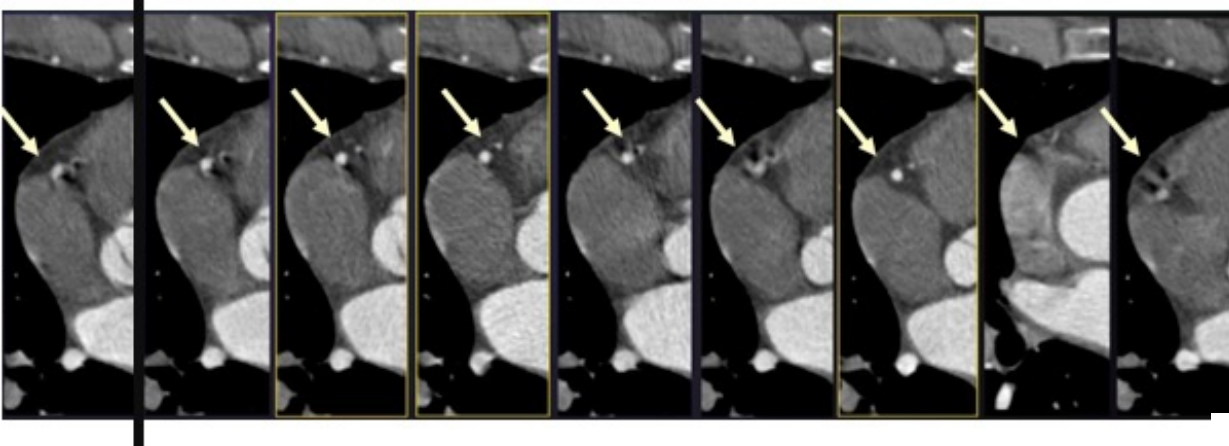
Tecnica Whole Heart
Eco Navigatore 4,00
Finestra di accettazione
Voxel Size 0,8-0,8-0,8



Le Cardiopatie congenite: Tecniche di studio

La finestra di acquisizione ideale dove c'è il momento di 'pausa' del ciclo generalmente è la diastole.

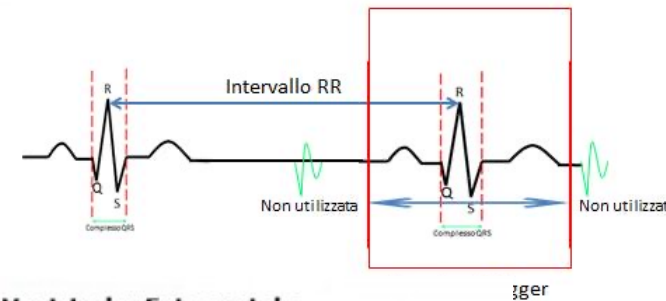
Nei bambini piccoli con una frequenza 120bpm e in altri casi si utilizza anche la sistole.



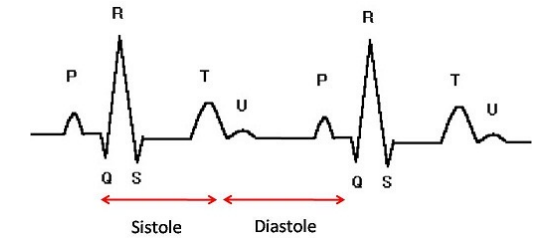
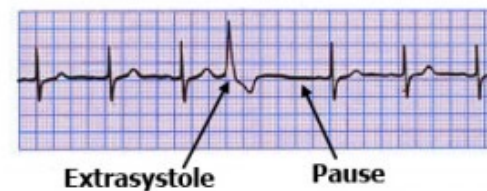
End-systole

End-diastole/Distasis

Acquisizione in Sistole
(Trigger Delay 150)
Cine Free Breath
Non Eseguire L'esame



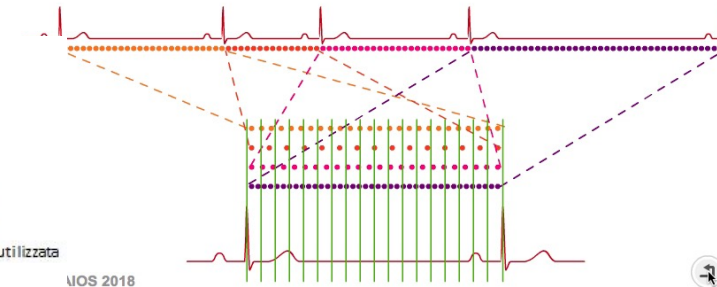
Ventricular Extrasystole



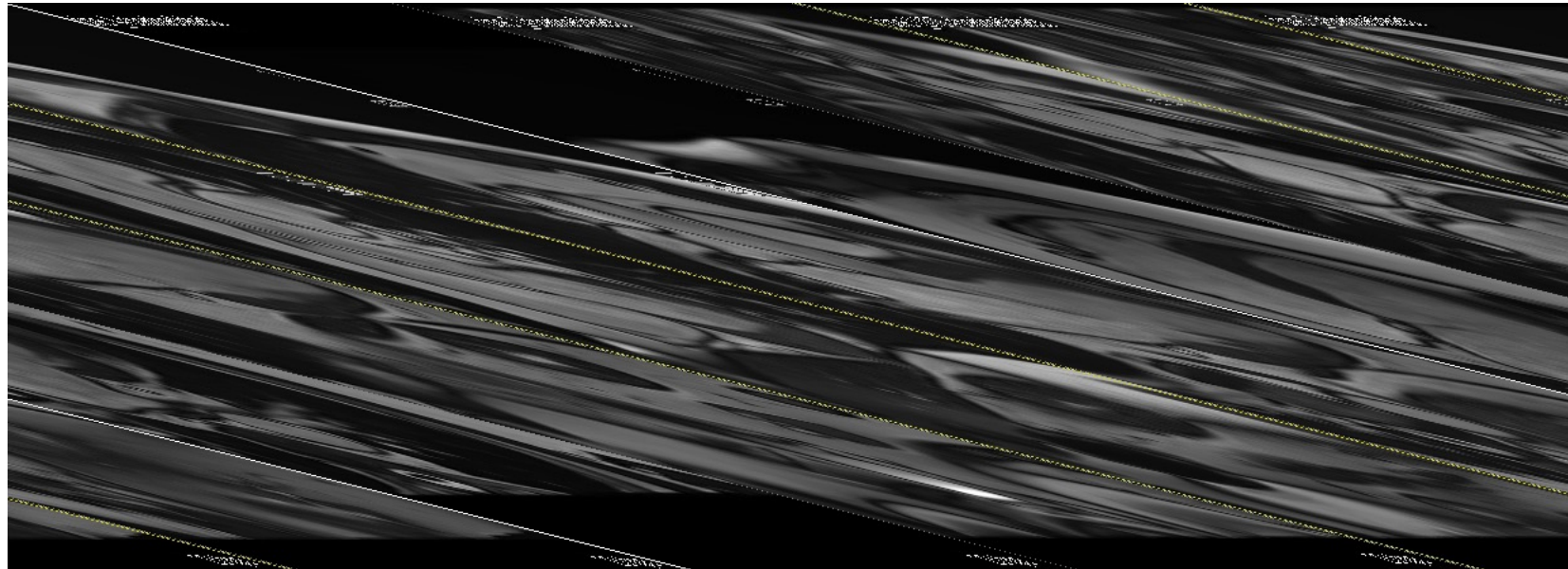
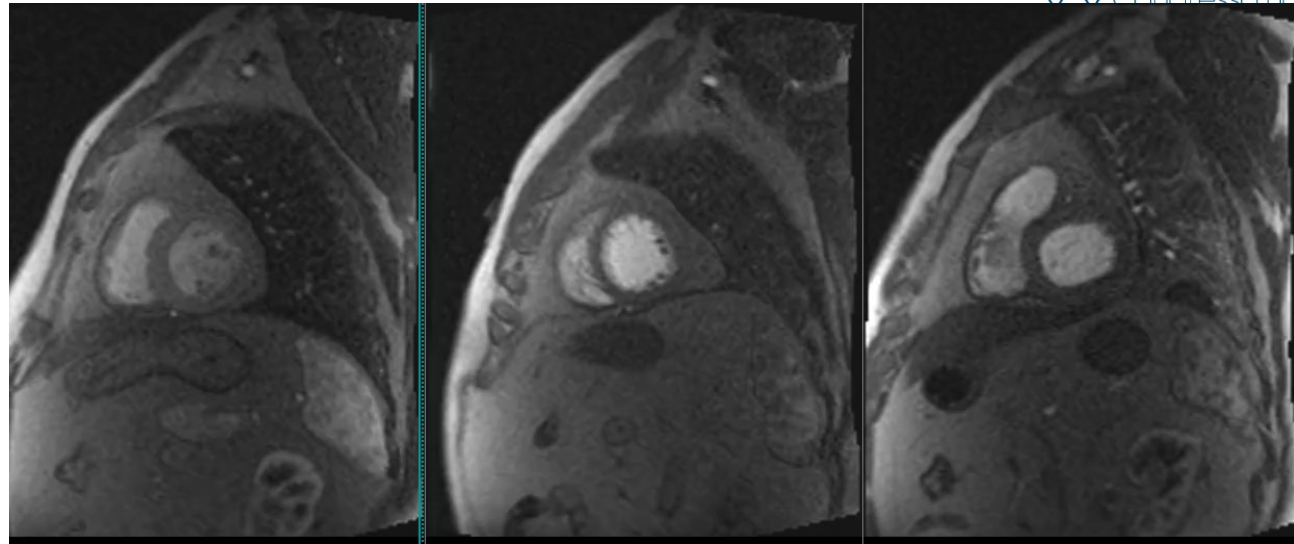
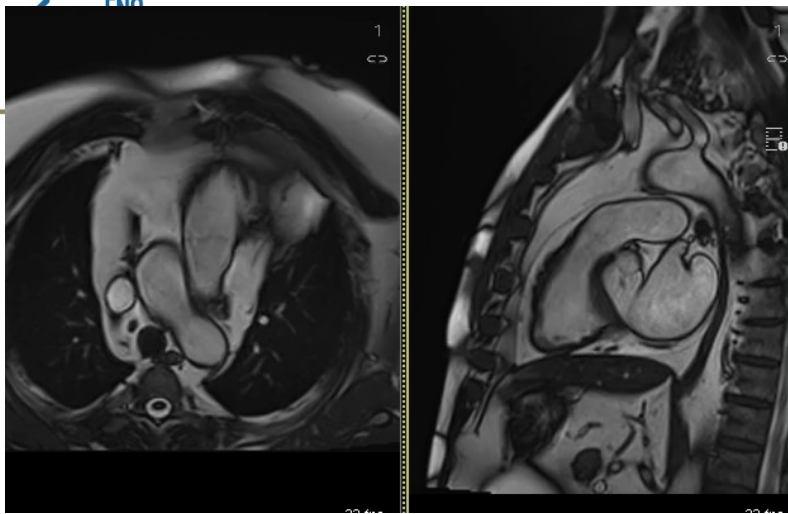
Prospective ECG gating



Restrospective ECG gating



Ridurre Finestra di trigger
Trigger Prospettico
70% RR
Valutazione non completa funzione

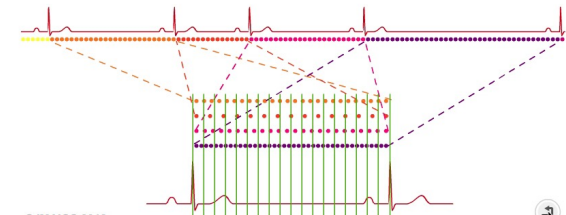


Aritmia ventricolare complessa
Cine Prospettica
Segment 9
Base resolution 198
Partial Fourier 6/8

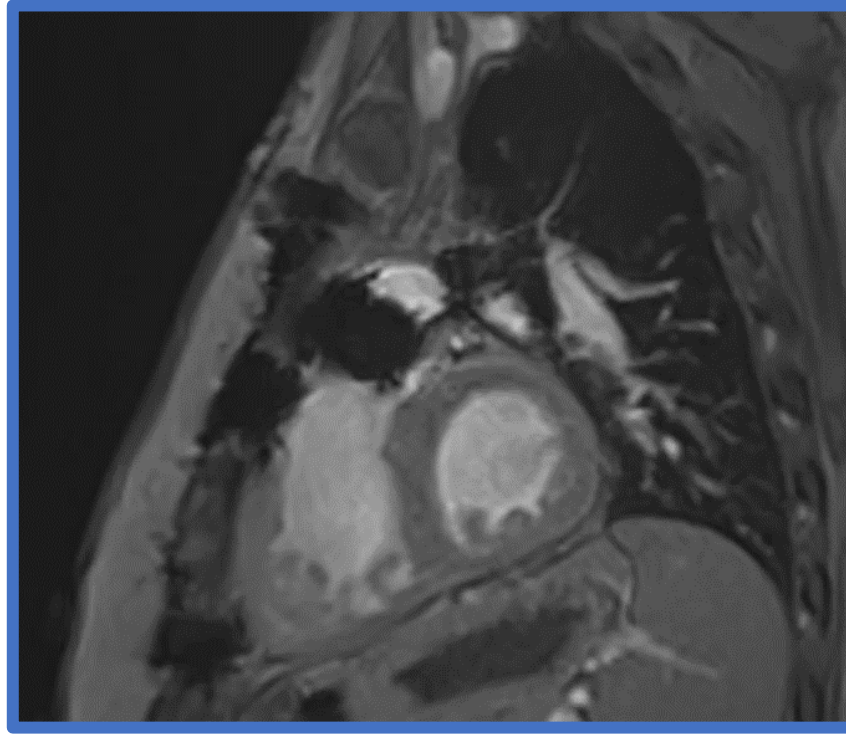
Prospective ECG gating



Restrospective ECG gating



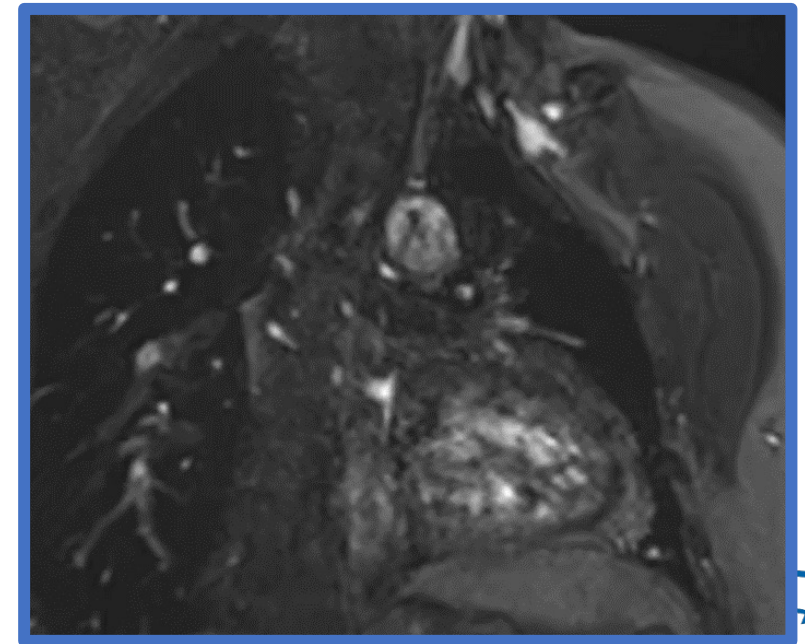
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**Presenza di artefatti
Da stent.**

Valutazione pervietà stent Polmonare sx

Tecnica Flash Cine High FA



Le Cardiopatie congenite: Tecniche di studio

