

Cardiac CT/MR Imaging of Pericardium

Nice 2015

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Hopitaux de Paris

Pericardium CT/MR

Pericardial Anatomy & function CT/MR

Pericardial lesions

Acute Pericarditis

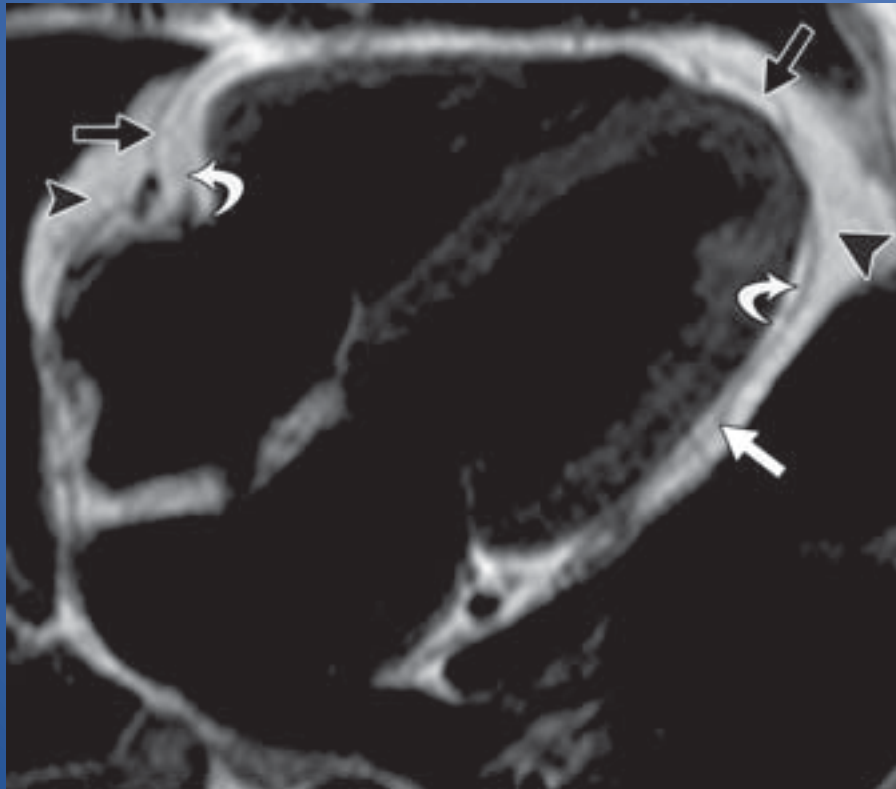
Pericardial Constriction

Pericardial malignant lesions

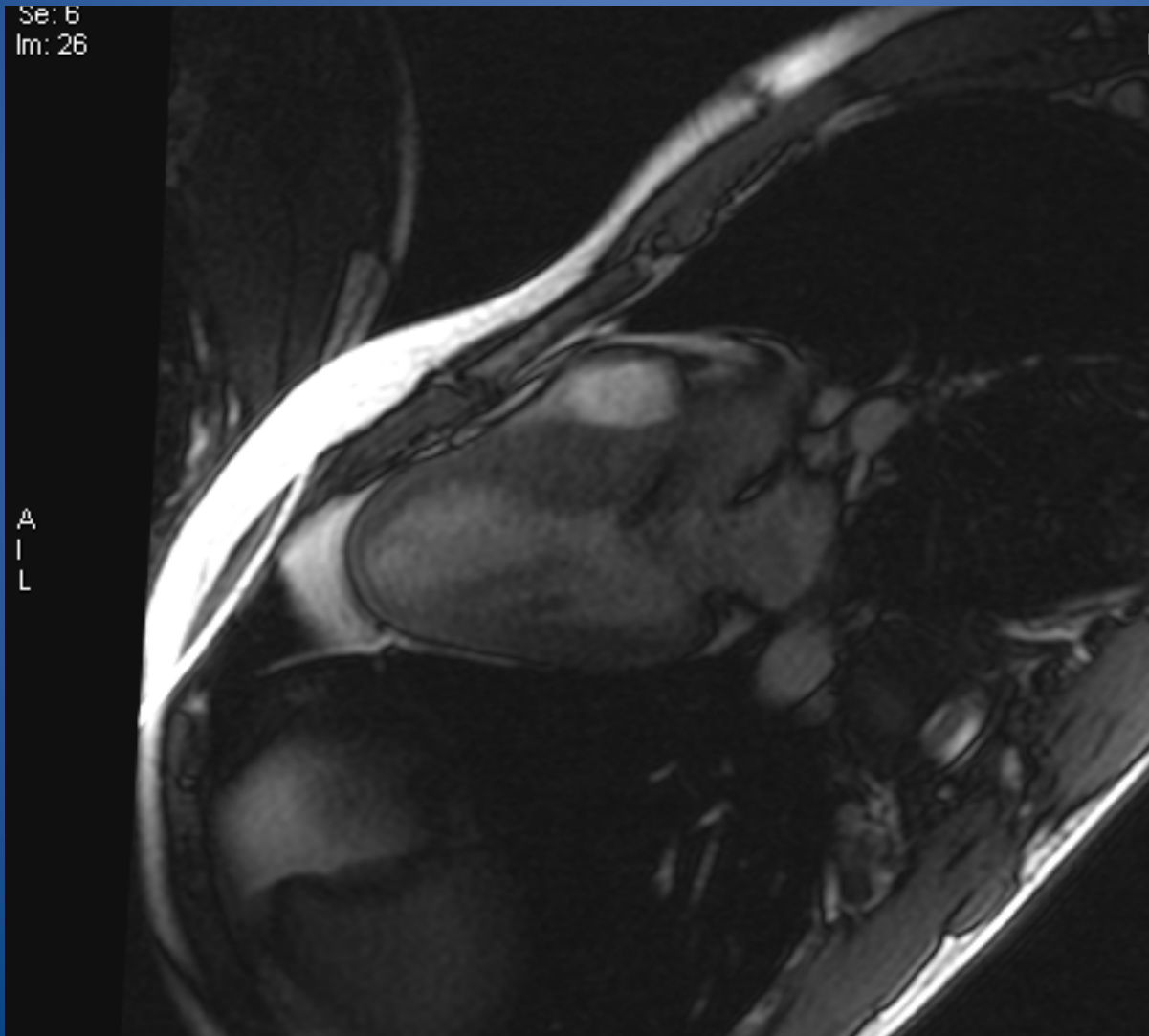
Congenital disease

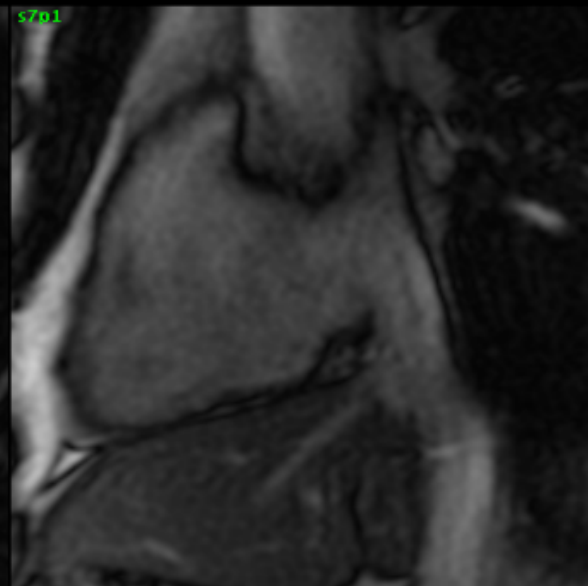
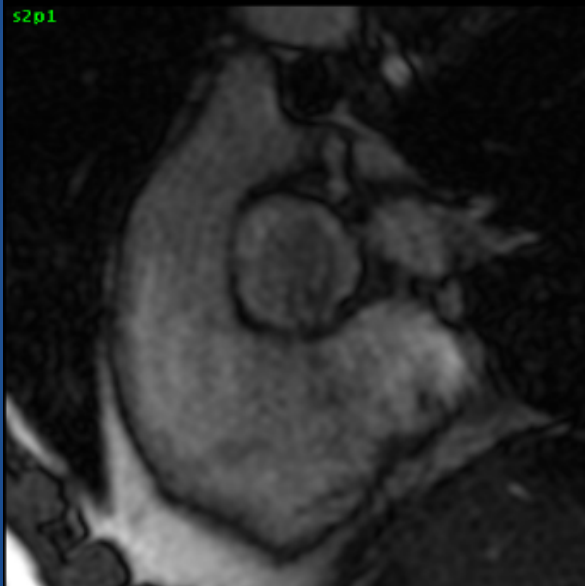
Cases

Pericardium in MRI



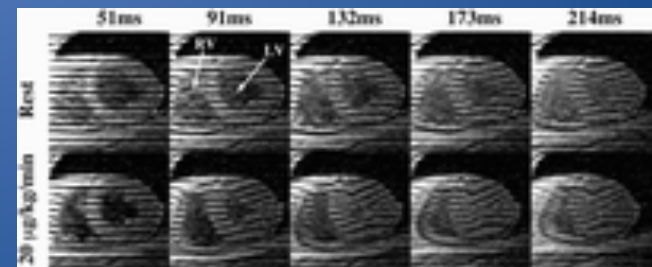
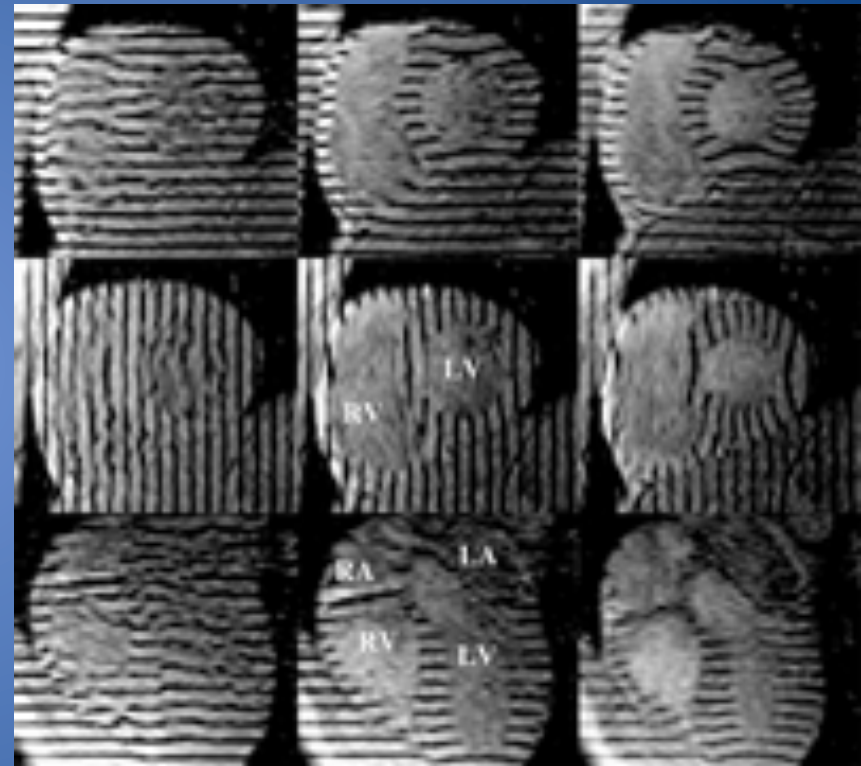
Pericardial kinetic





Tagging

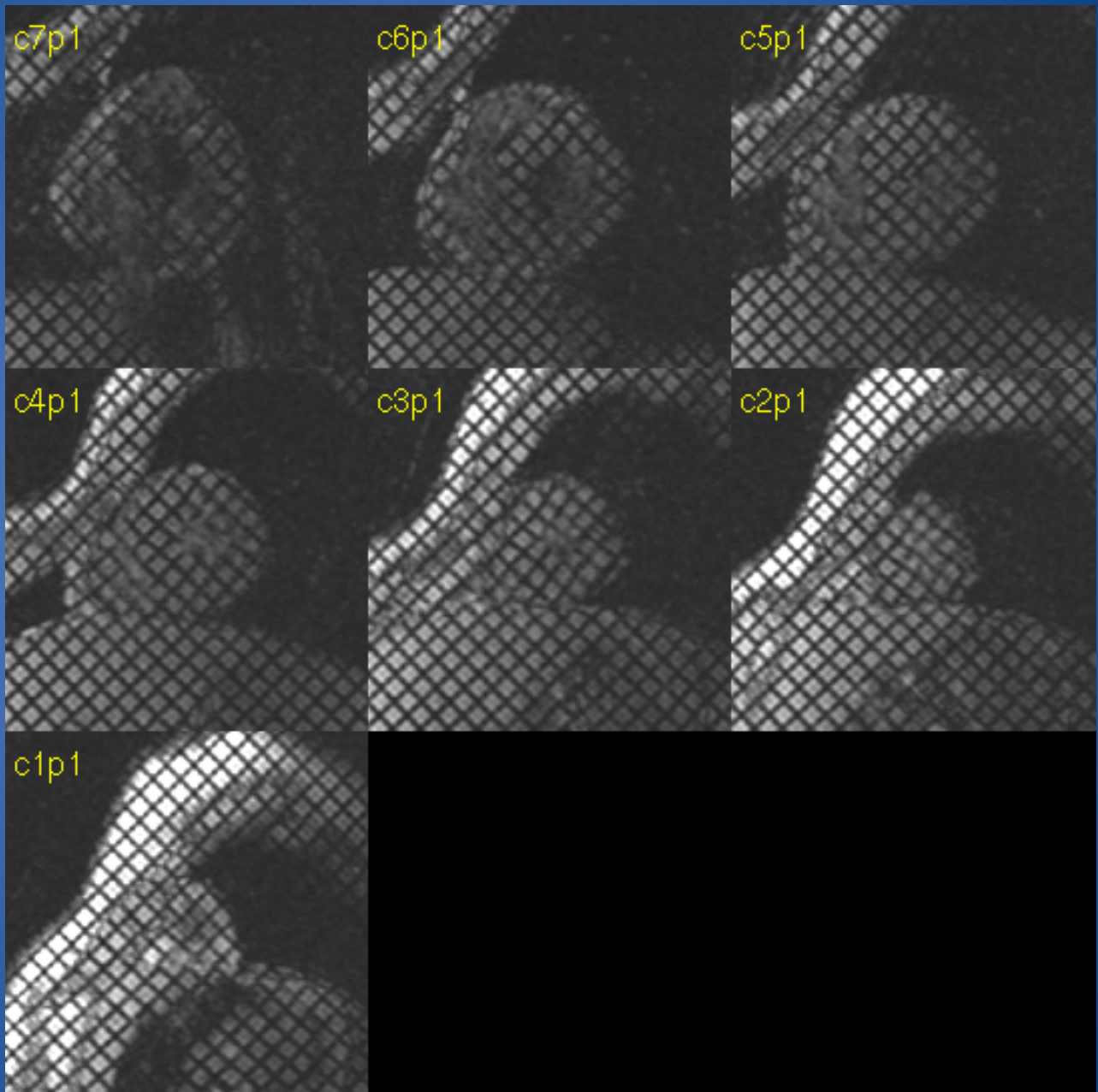
- Presaturation stripes in proto systole
- Perpendicular to the acquisition plan
- Allows to follow the myocardial motion
- Disappears with time
- Objective measures of segmental cinetic and strain
- Complexe softwares
 - evaluation is time consuming++
 - Visual estimation



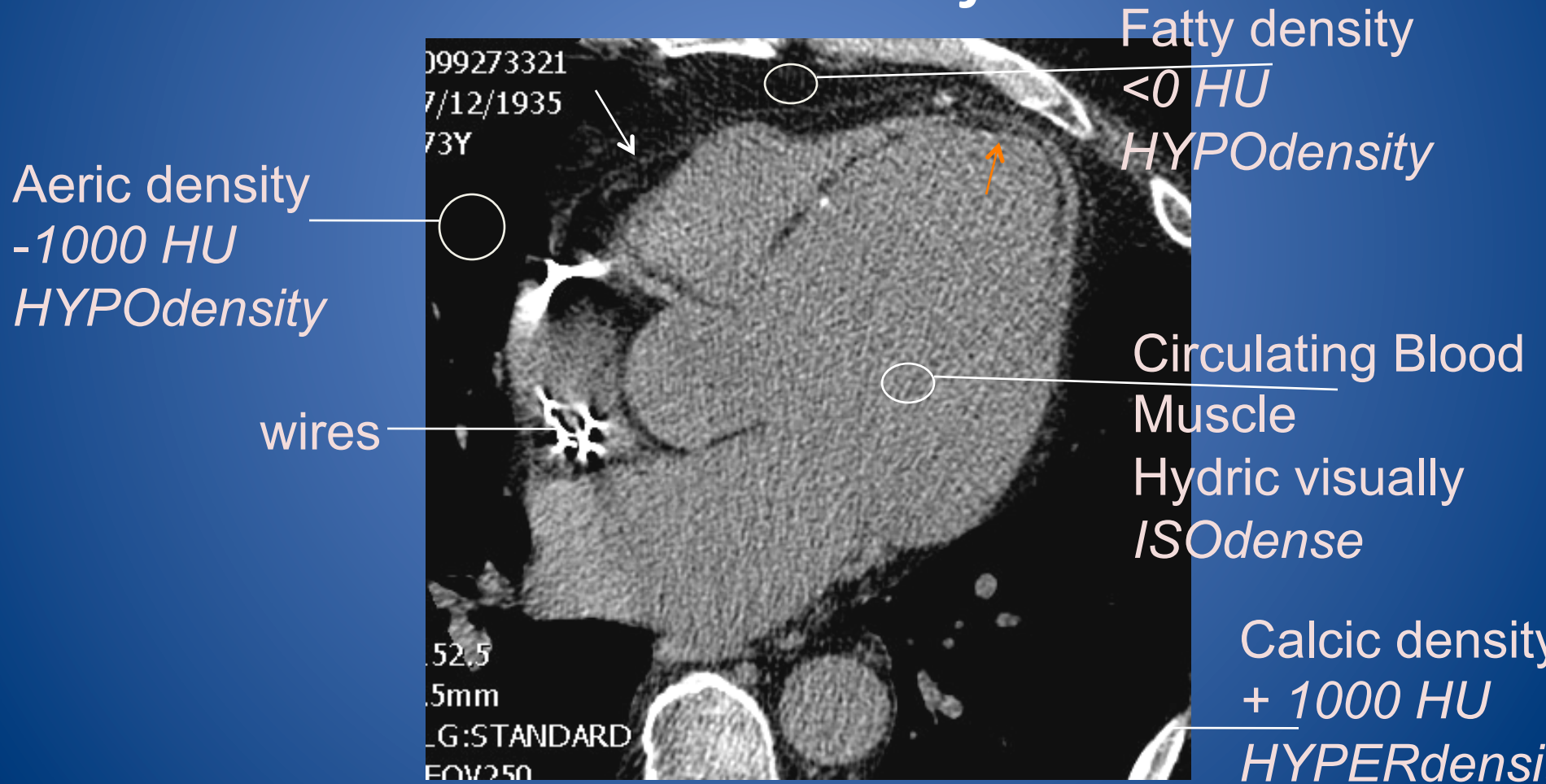


(a)

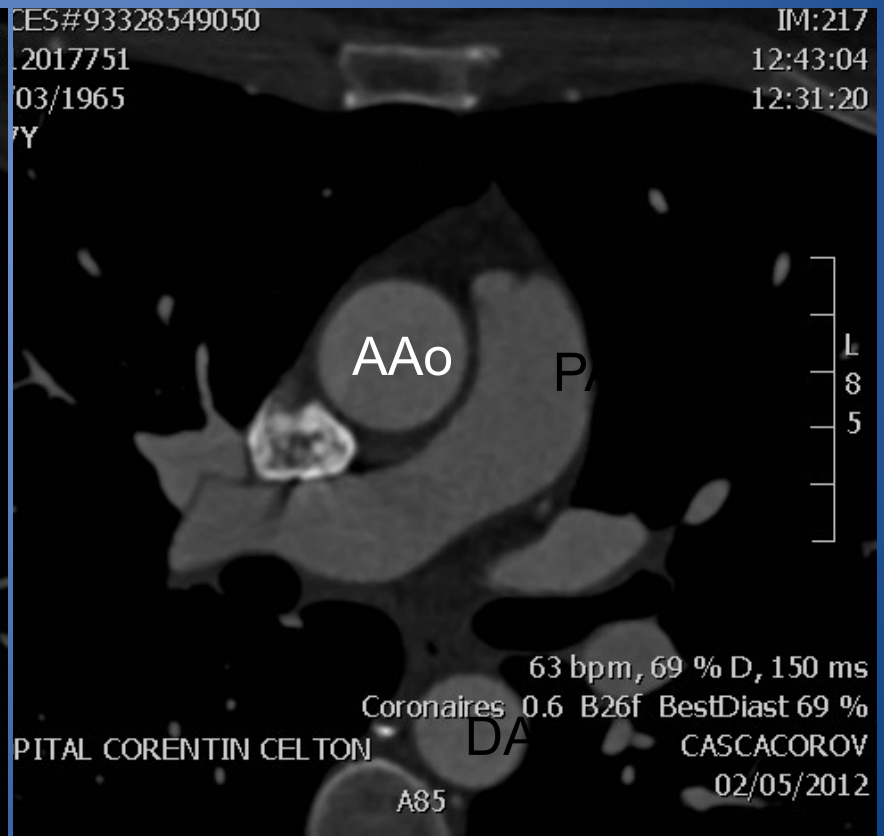
APICAL LOOP



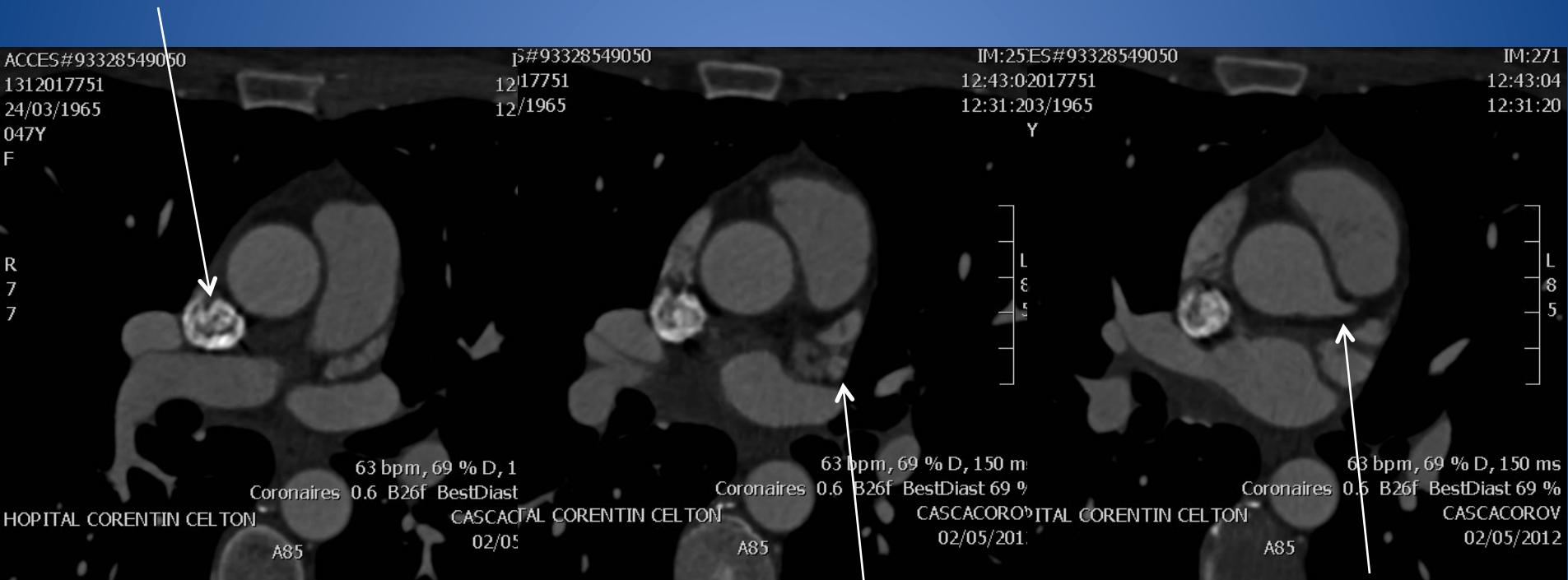
Cardiac CT : different spontaneous densities = without contrast media injection



CT: axial slices



CT: axial slices



LA appendage

Left Main

Pericardium : protocol

Cine	Function
tagging	constriction
Real time inspiratory apnea	Paradoxal septum
Delayed enhancement	inflammation
Special sequences	caracterization

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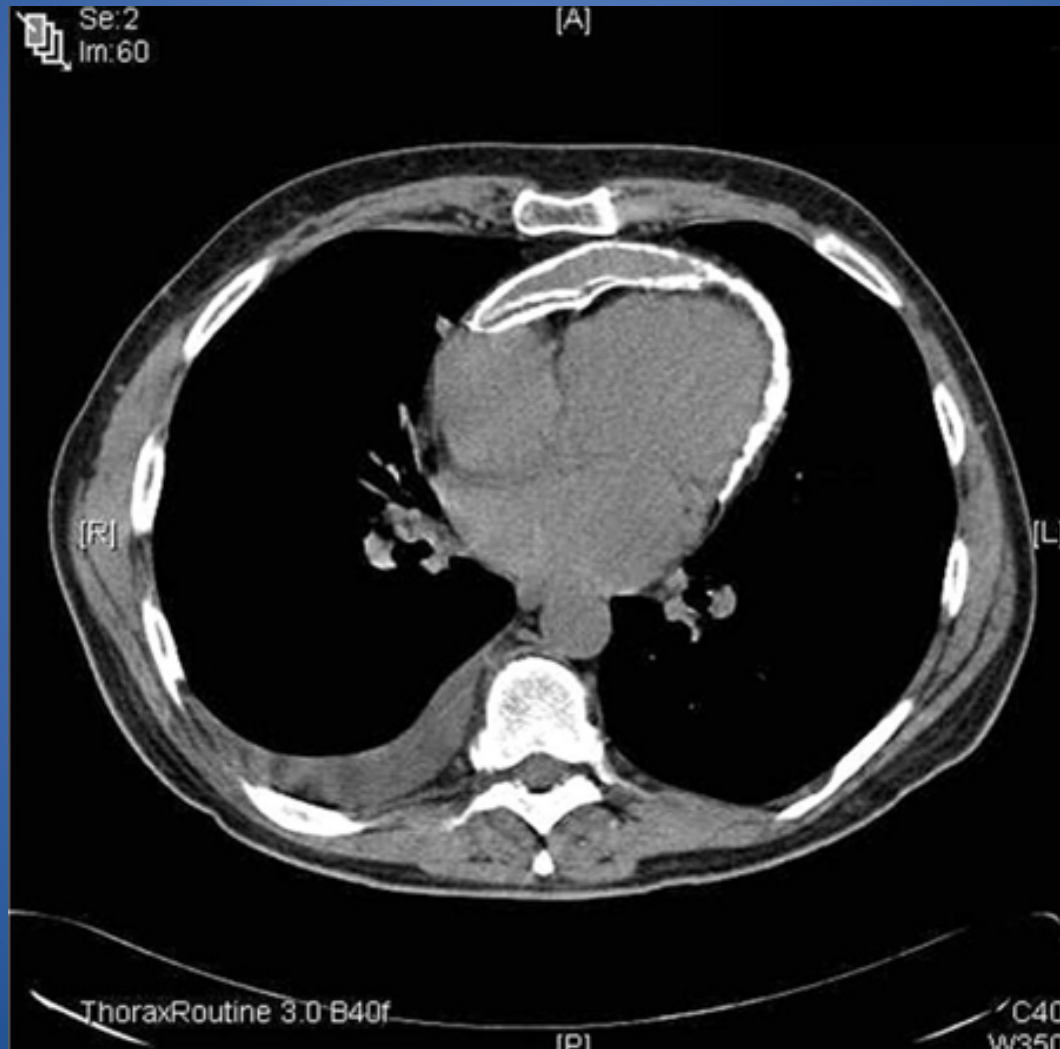
Pericardial Constriction

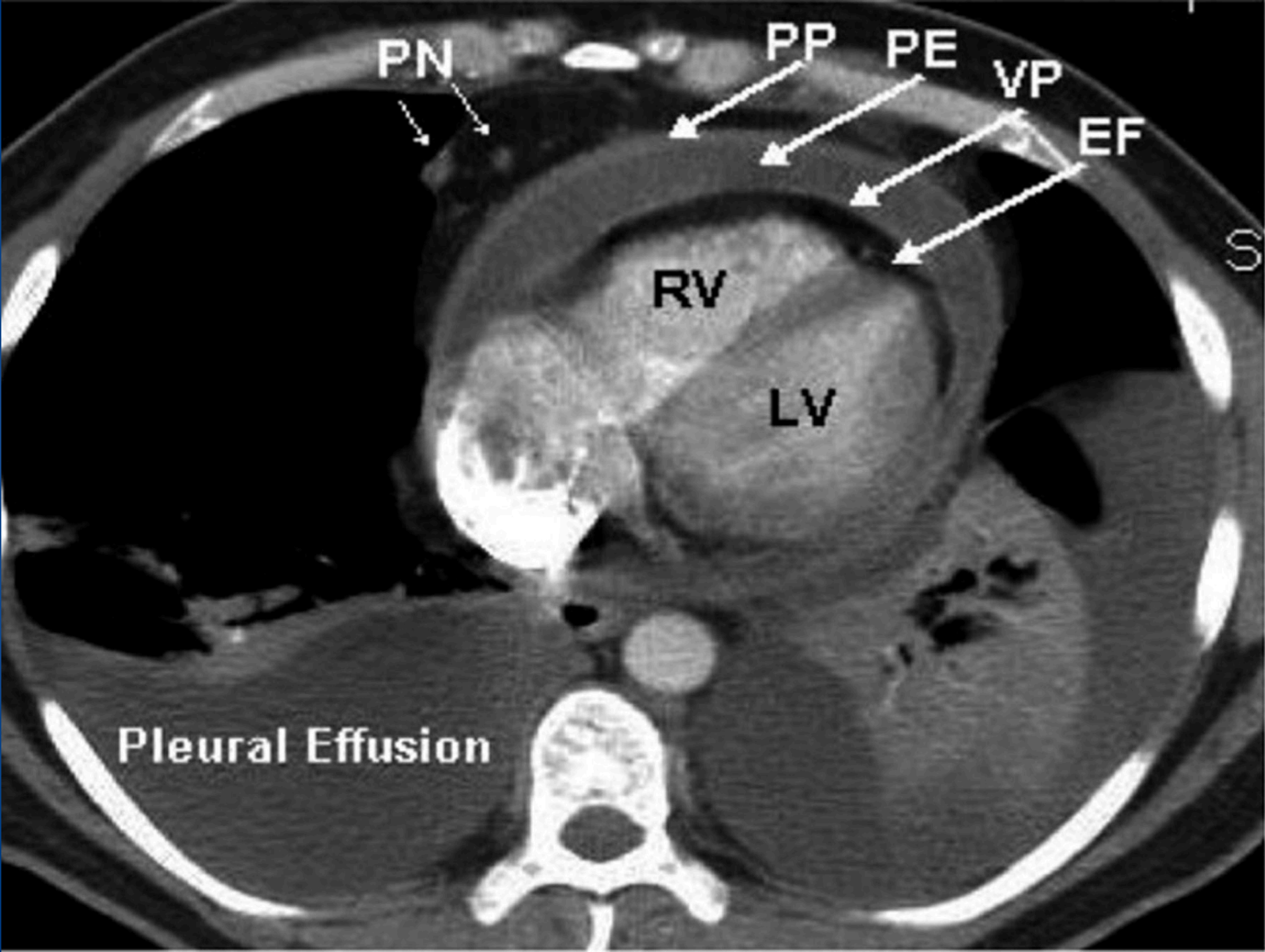
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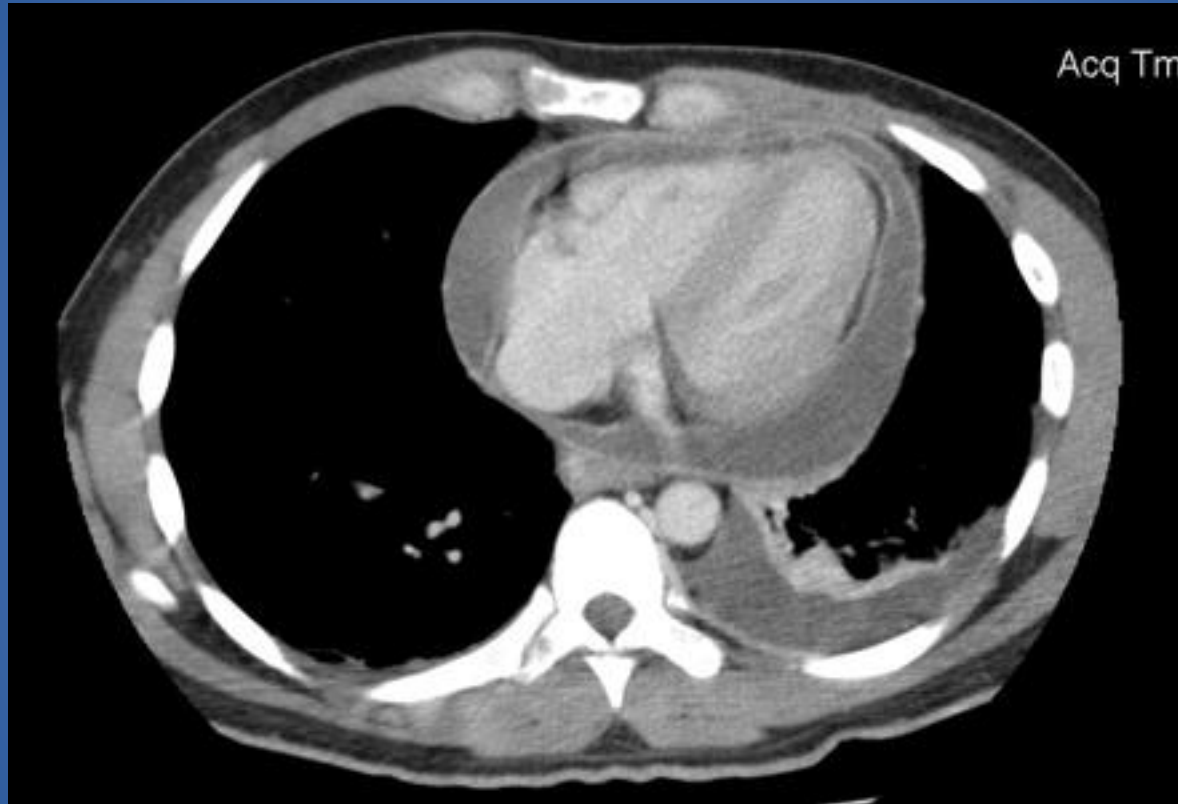
Cases

Scanner sans injection: calcifications post RT





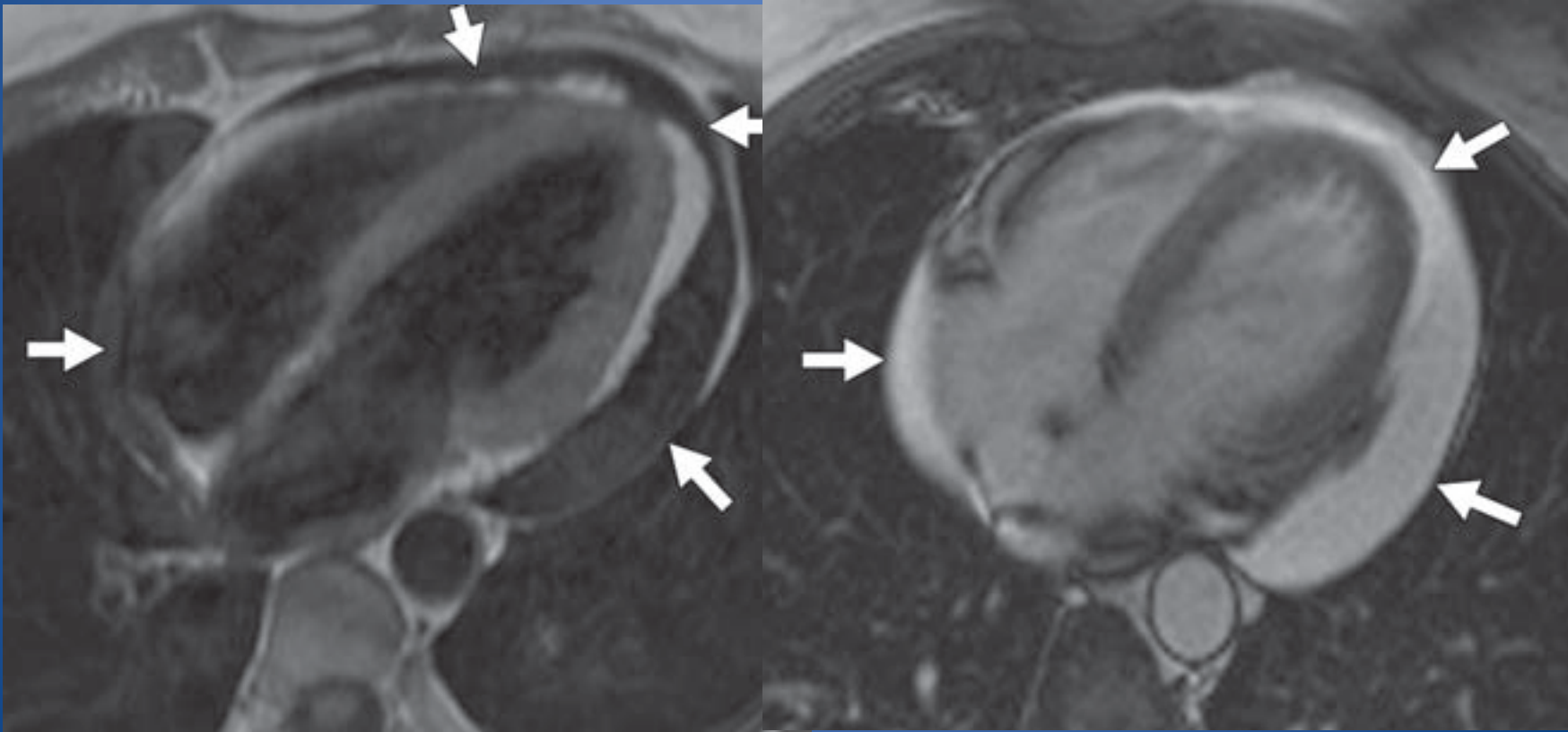
CT: pericardial effusion



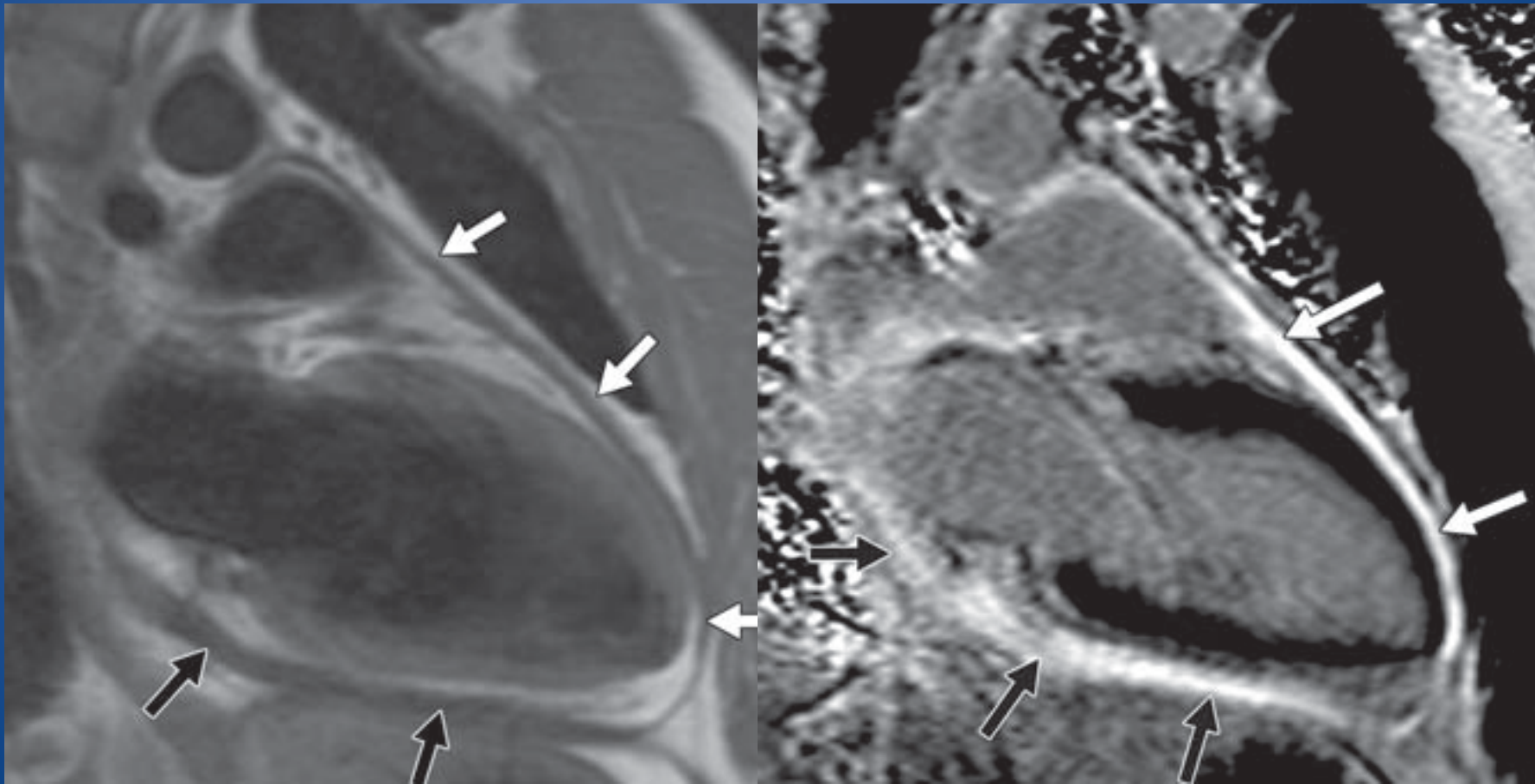
CT: pericardial effusion



CMR: pericardial effusion



MRI: thickening and inflammation



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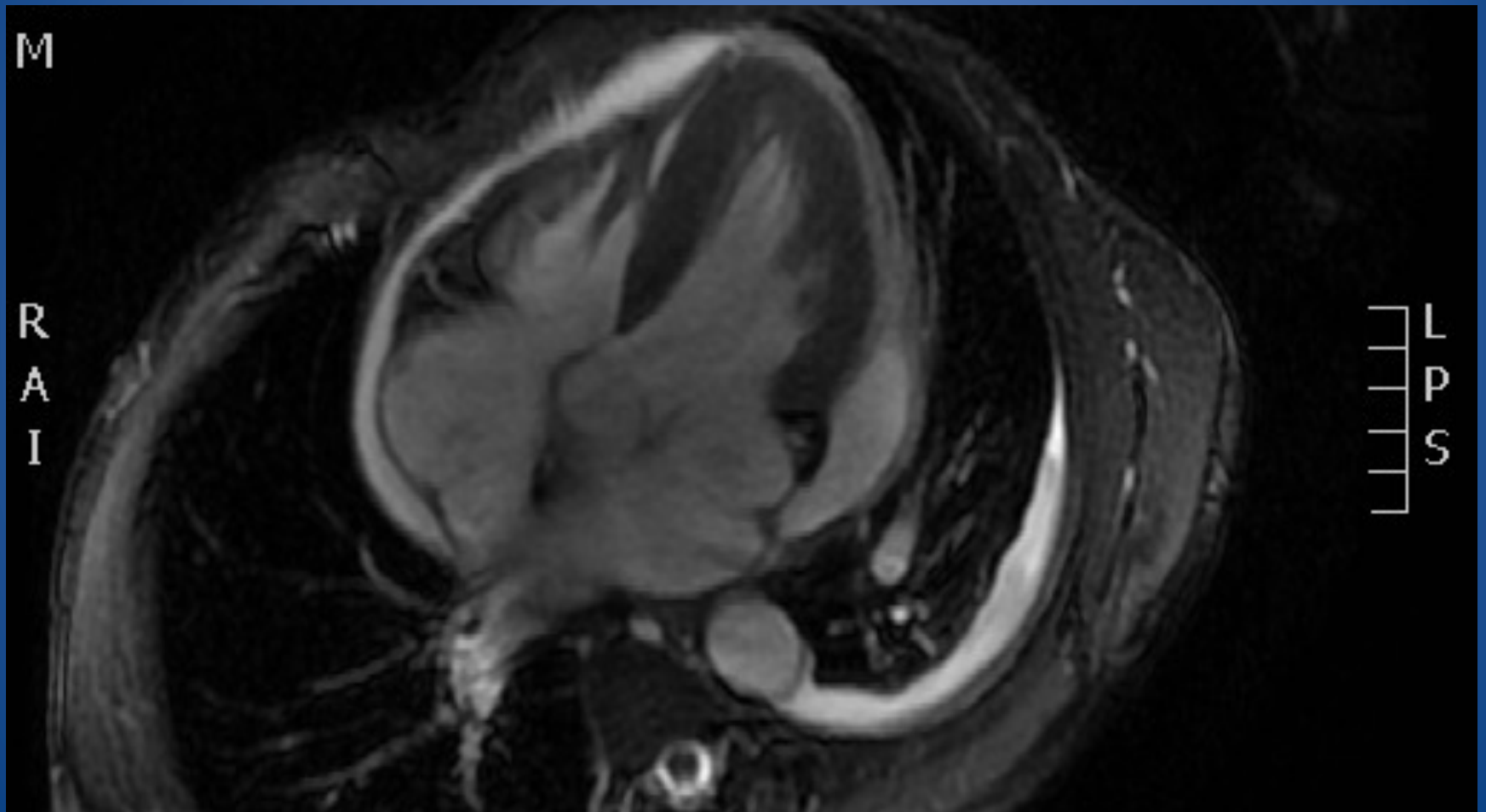
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Pericardial malignant lesions

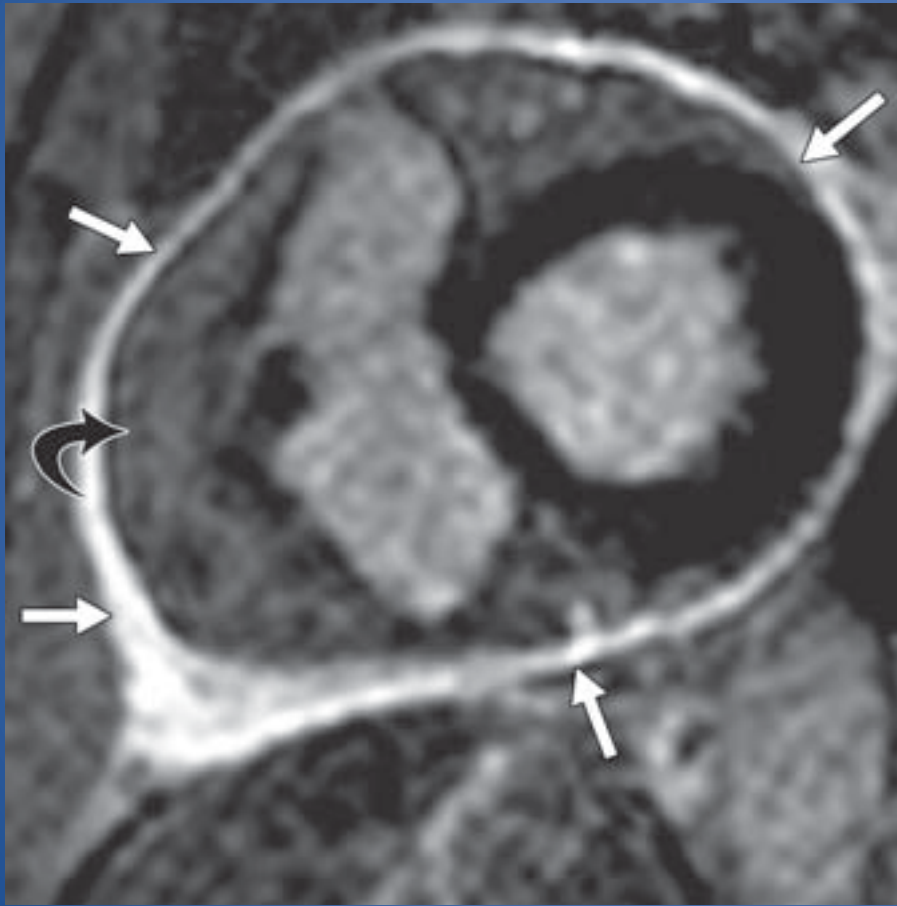
Congenital disease

Cases

Acute pericarditis



LGE: Inflammation pericardique



Chest pain in a young 42 year-old-man

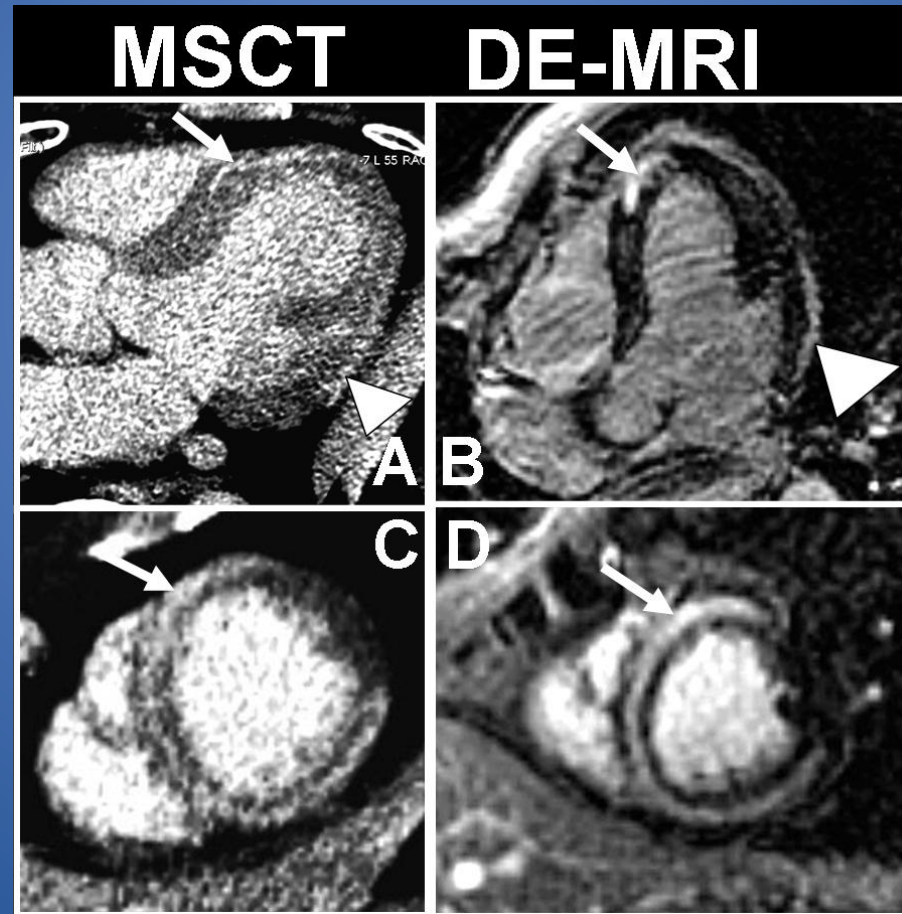
5 days after acute enteritis

ECG : incomplete left bundle-branch block

High troponin I (23 $\mu\text{g/L}$) and C-reactive protein (104 mg/L).



Normal
coronary arteries



Pericardium CT/MR

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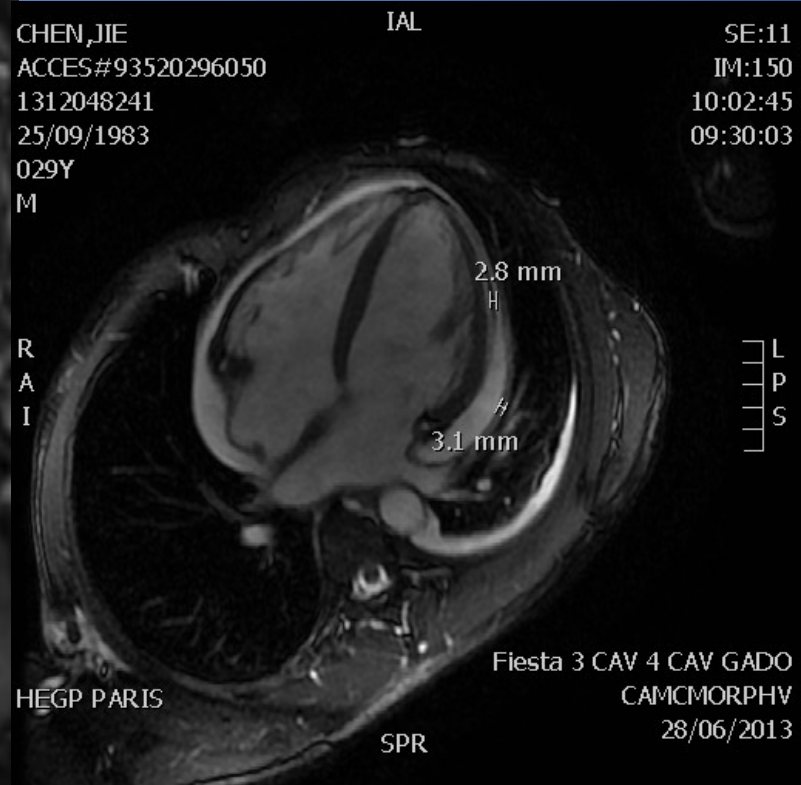
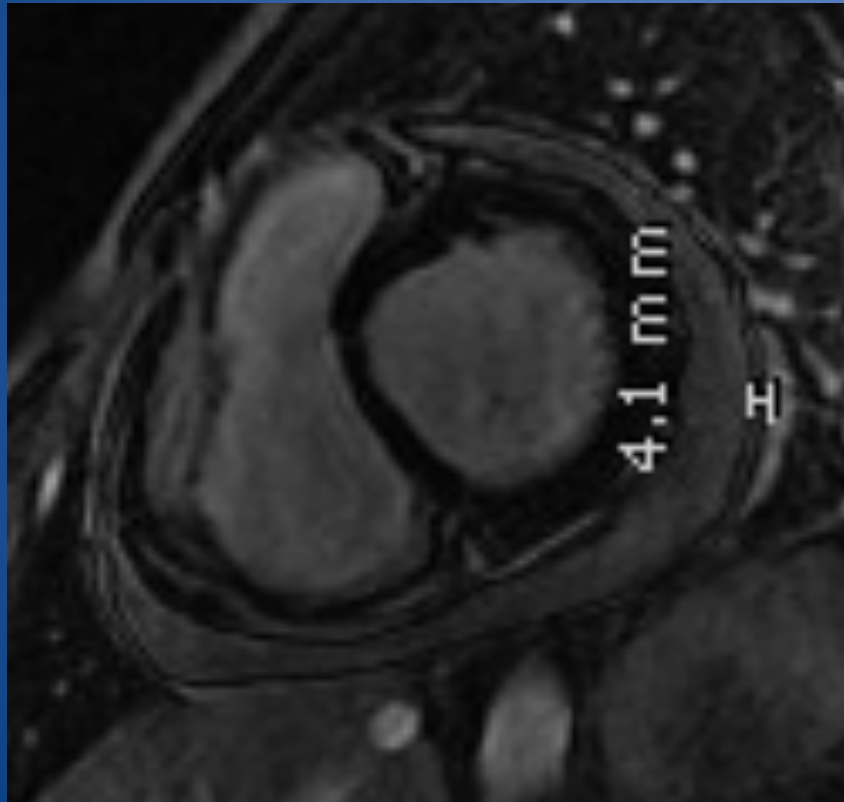
Pericardial Constriction

Pericardial malignant lesions

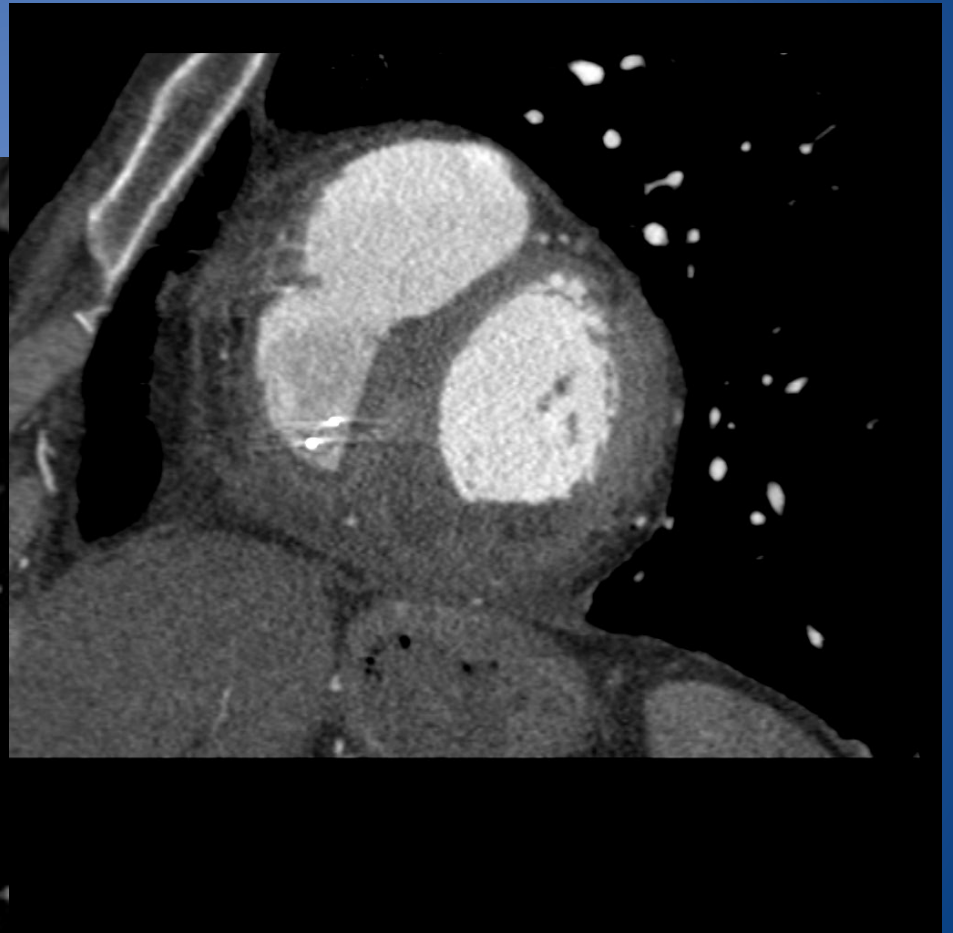
Congenital disease

Cases

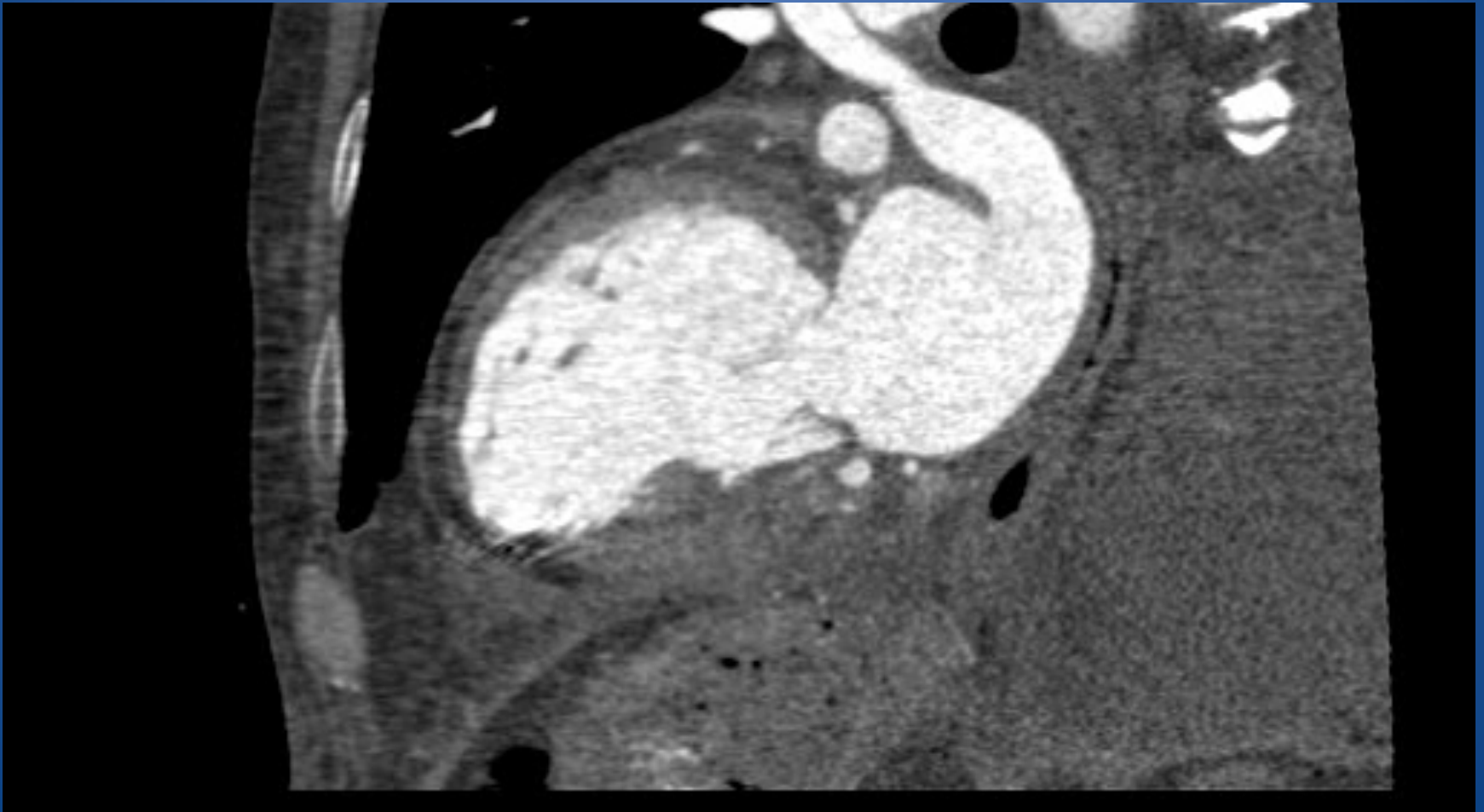
F32 ans, chine tuberculose



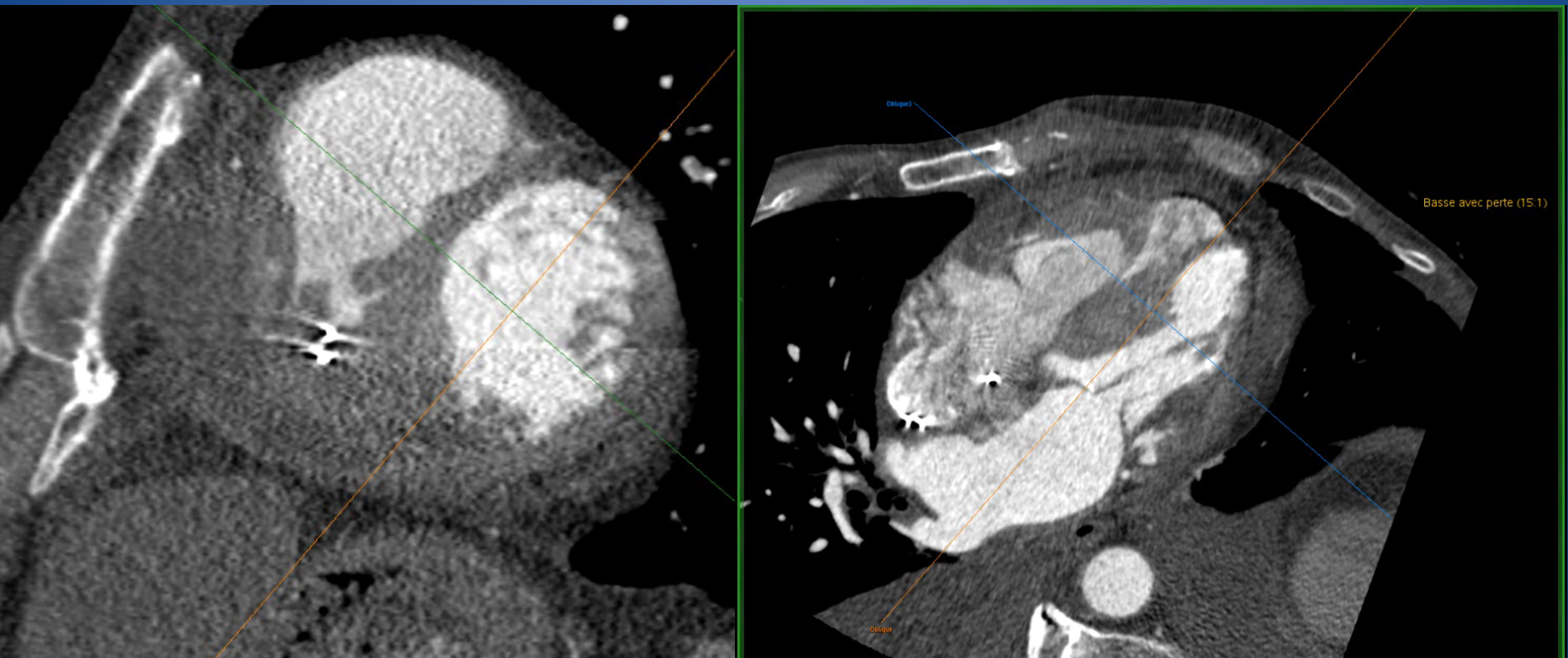
M 71y, atcd pericardite virale



Pericardial thickening



constriction



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Pericardial tumoral lesions

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M 43, ventricular tachycardia, intra pericardial hemangioma

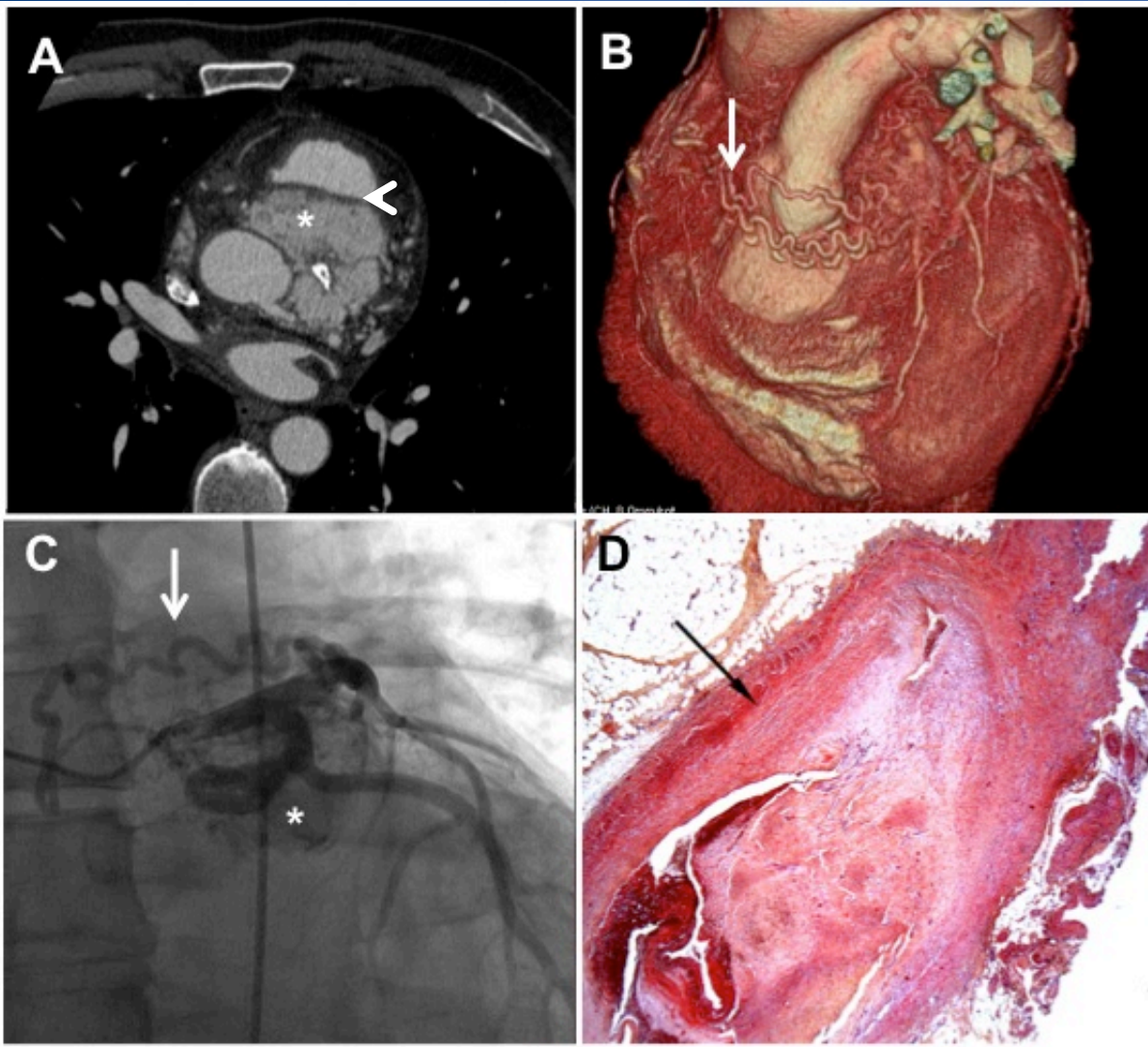


Figure 4:

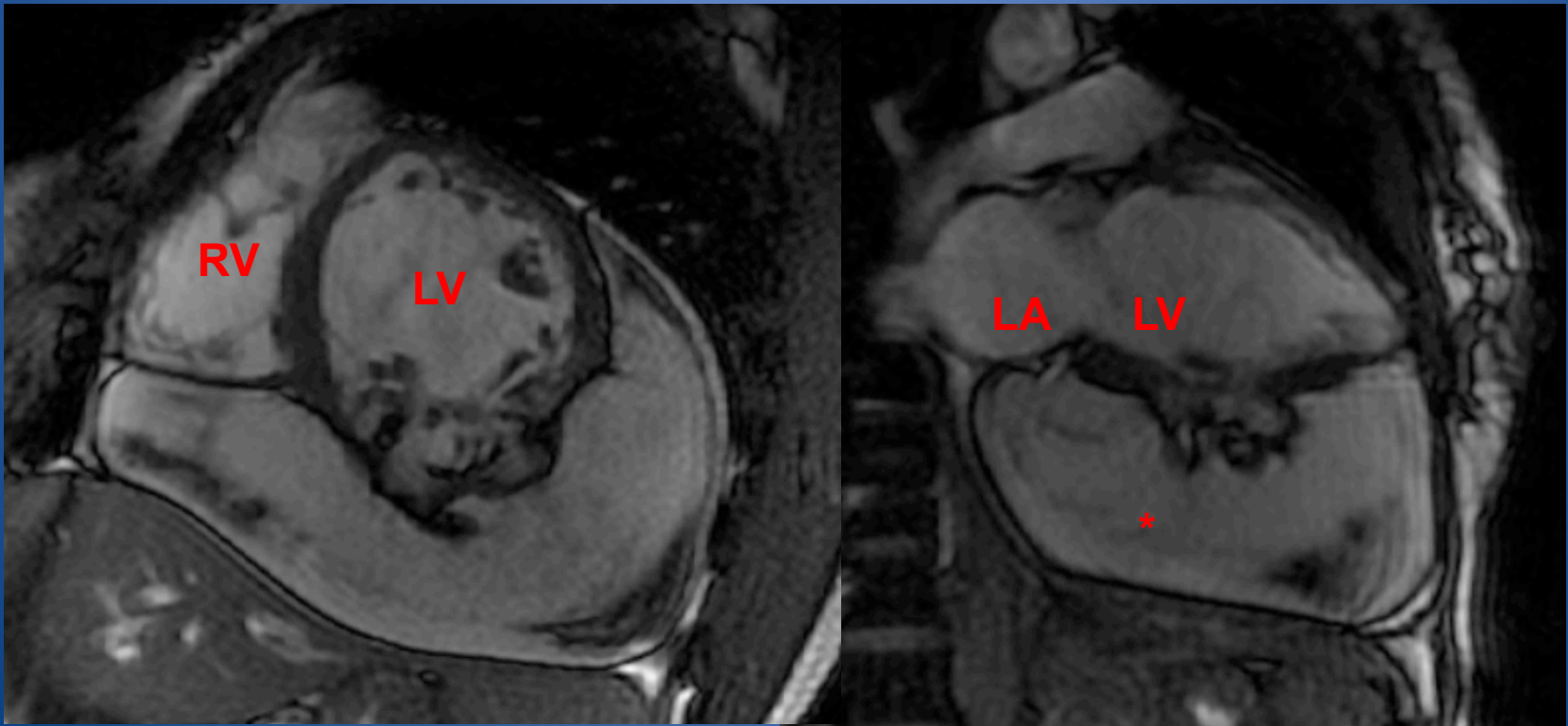
A: Cardiac contrast enhanced CT scan demonstrating calcifications within a hypervascular tumor (head of arrow).

B : 3D Rendered post processed CT scan image showing the tumor vascularized by multiple collateral branches of LAD and RCA.

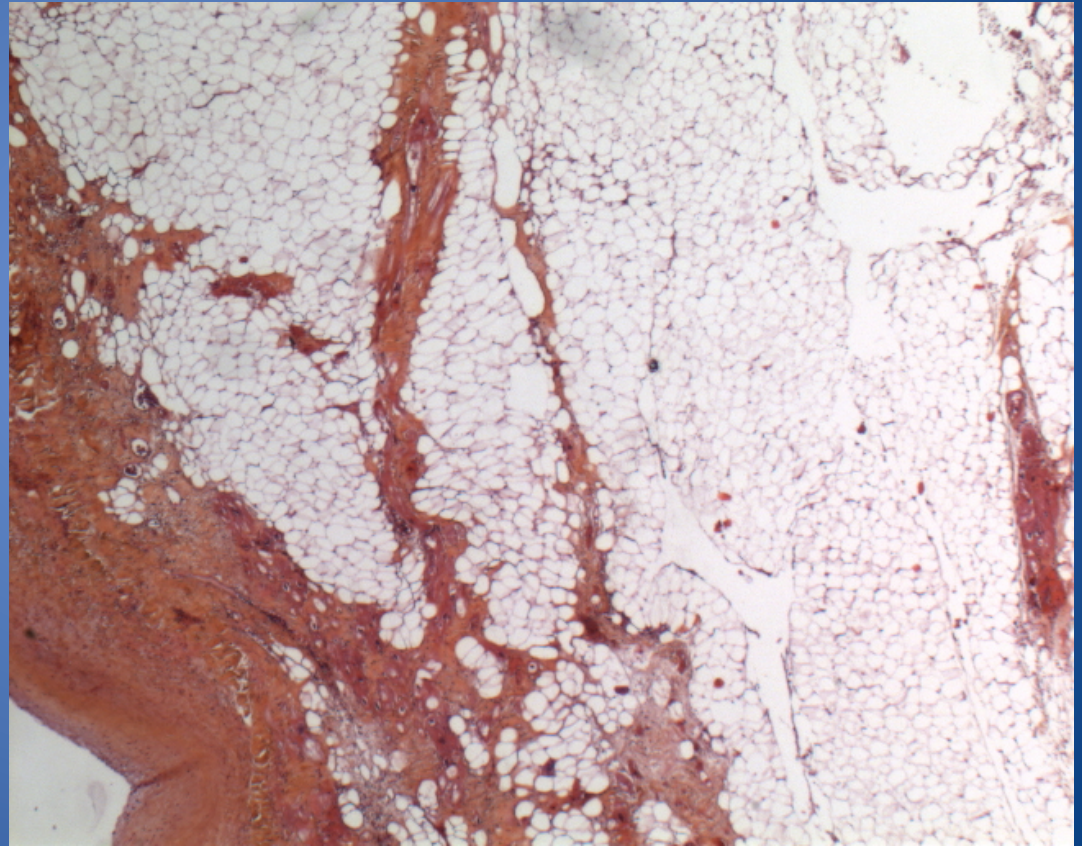
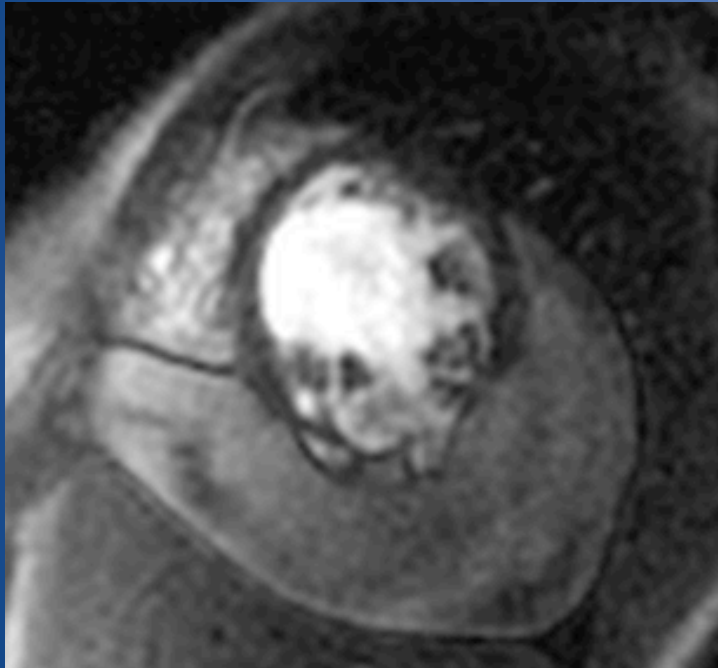
C: Coronary angiogram showing a tumor blush (*) vascularized by emerging branches of the LAD (arrow).

D: Standard histology (H&E stain ; original magnification X2.5) revealing inside an adipous mass, a blood vascular malformation consisting of large-size cavities, some being thrombosed. These cavities were limited by vascular venous structures (arrow). No malignant cells were noted.

32 y W, chest pain after RF ablation for VT
TTE : inferior hyper echoic image



Lipome pericardique geant



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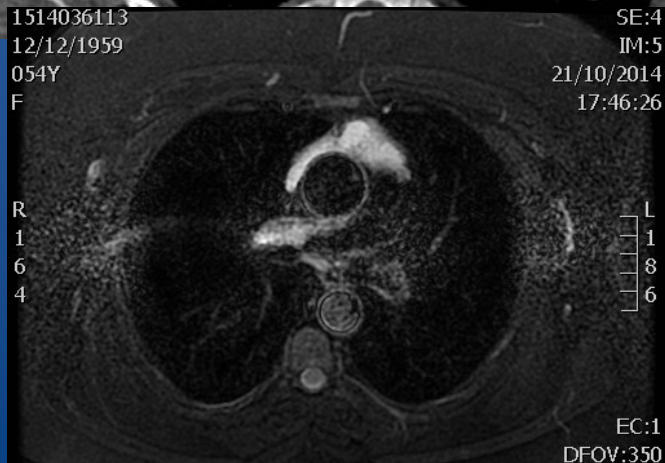
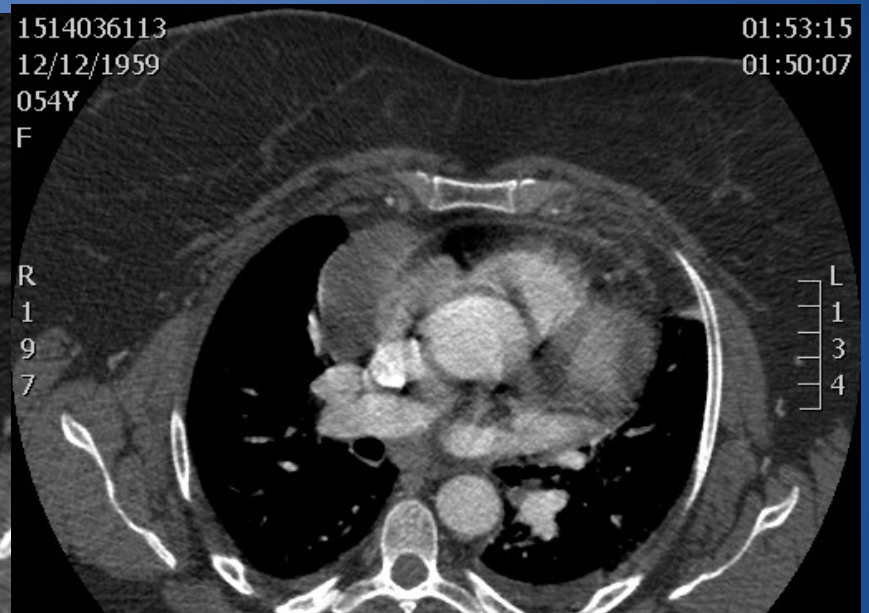
Pericardial Constriction

Pericardial malignant lesions

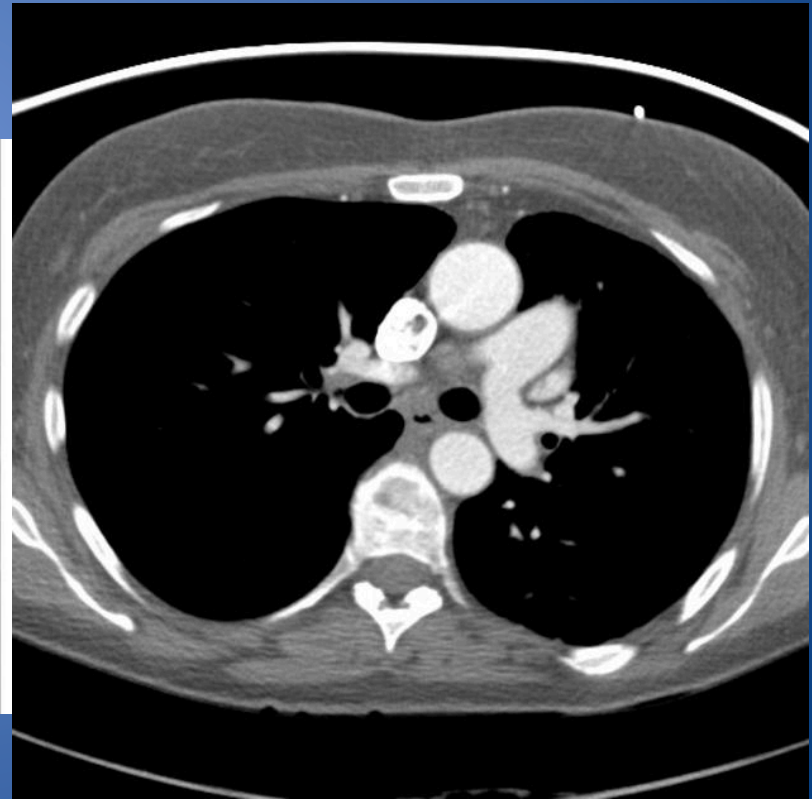
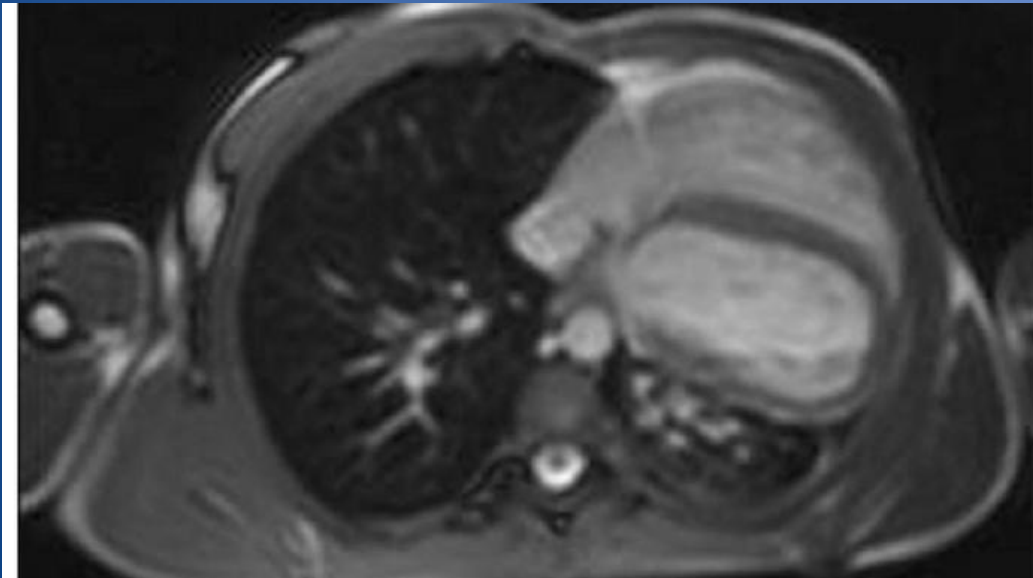
Congenital disease

Cases

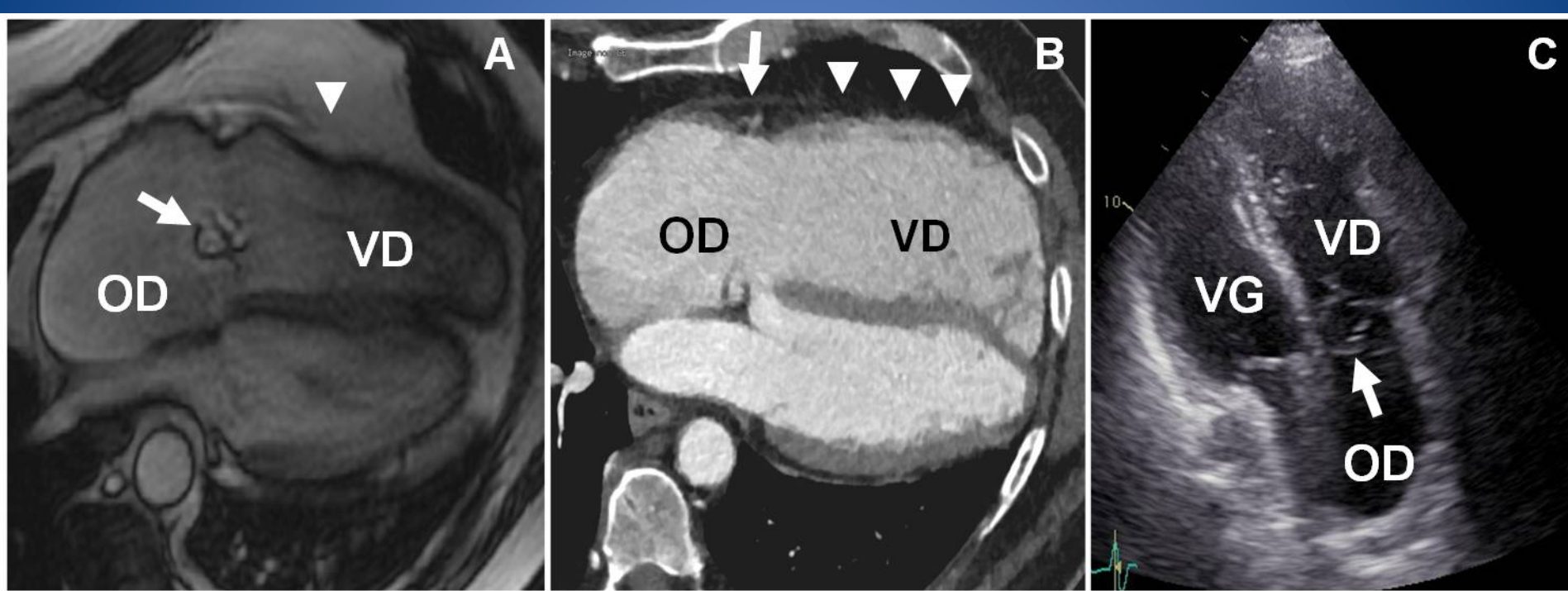
Pleuro pericardial cyst



Pericardial Aggenesis



Post trauma tricuspid prolapse due to partial pericardial agenesis



patient de 53 ans est admis dans notre
centre pour suspicion de maladie d'Ebstein
découverte lors d'un bilan de palpitations

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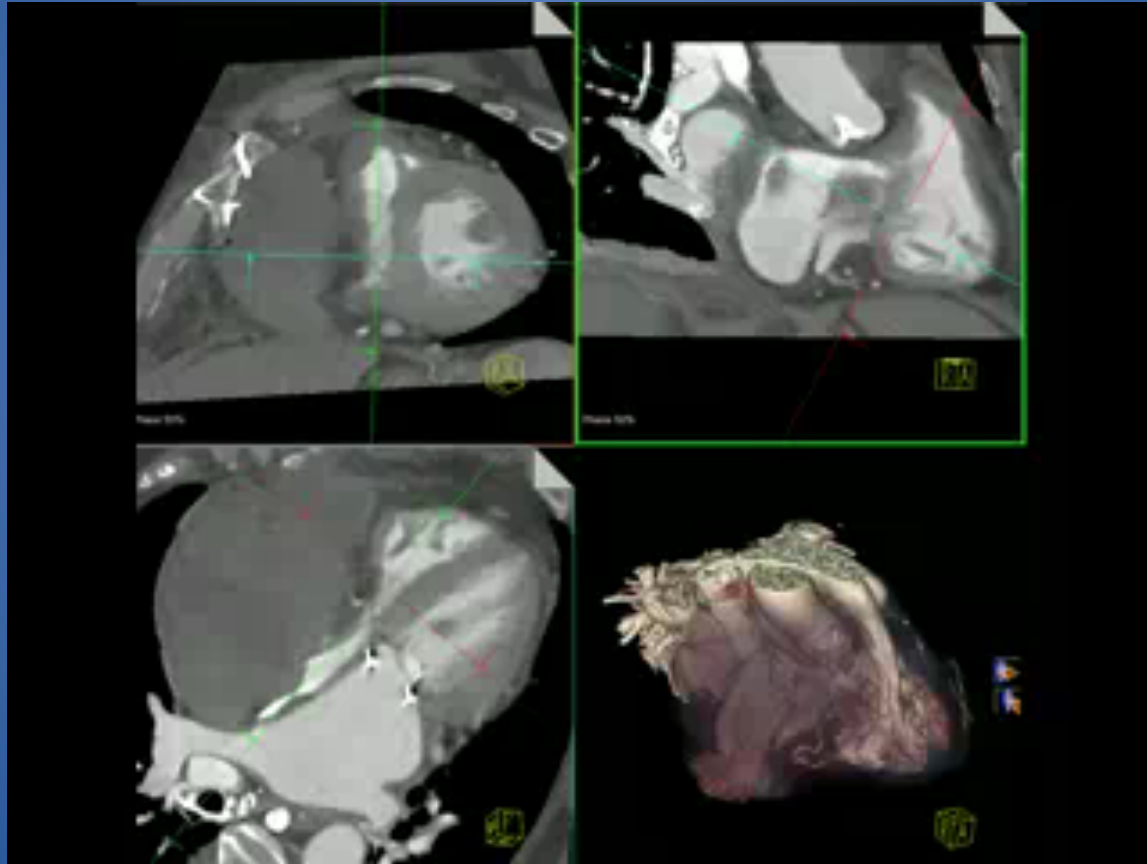
Congenital disease

Post operative cases

Post operative pericardial calcification



Hemopericarde contractif



Conclusion

- Scanner sans injection = calcifications
- IRM
 - Fonction: constriction?
 - Rehaussement tardif: inflammation
 - Tagging: adhérence péricardique aux tissus avoisinants?