

Cardiac CT Atlas

Kohichiro Iwasaki
Takeshi Matsumoto

Contents

- A. Significant Stenosis
- B. High-Risk Plaque
- C. Plaque Rupture
- D. Plaque Progression and Regression
- E. Coronary Artery Calcification
- F. Coronary Artery Aneurysm and Ectasia
- G. Coronary Stent

Contents

H. Coronary Artery Bypass Surgery

I. Anomalous Coronary Artery

J. Embolic Stroke

K. Myocardial Infarction

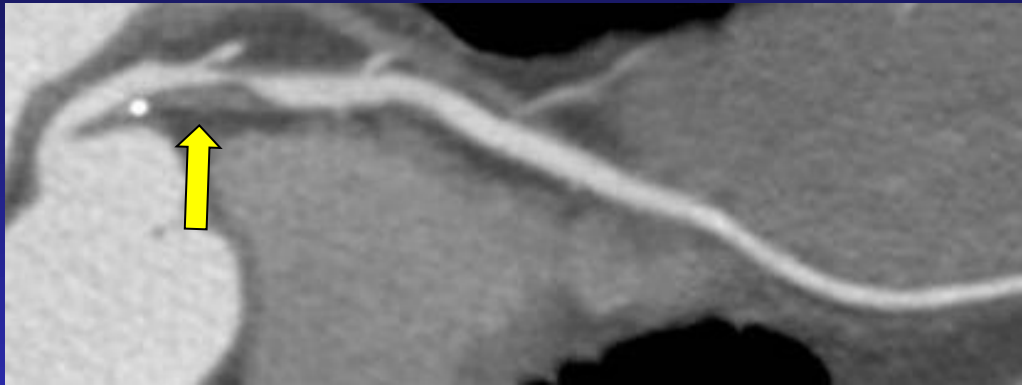
L. Cardiac Valve

M. Congenital Heart Disease

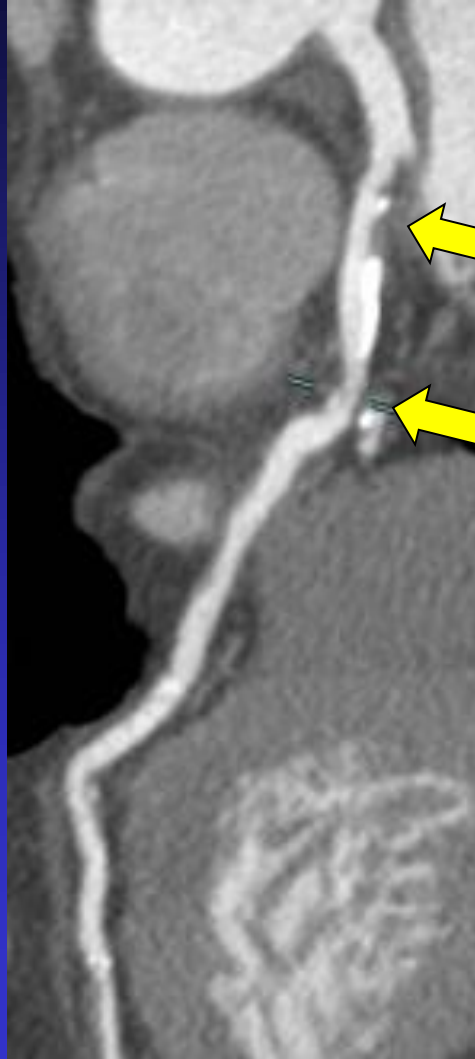
N. Epicardial Fat

A. Significant Stenosis

1 Vessel Disease



1 Vessel Disease (Tandem Lesion)

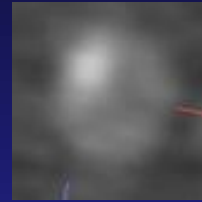
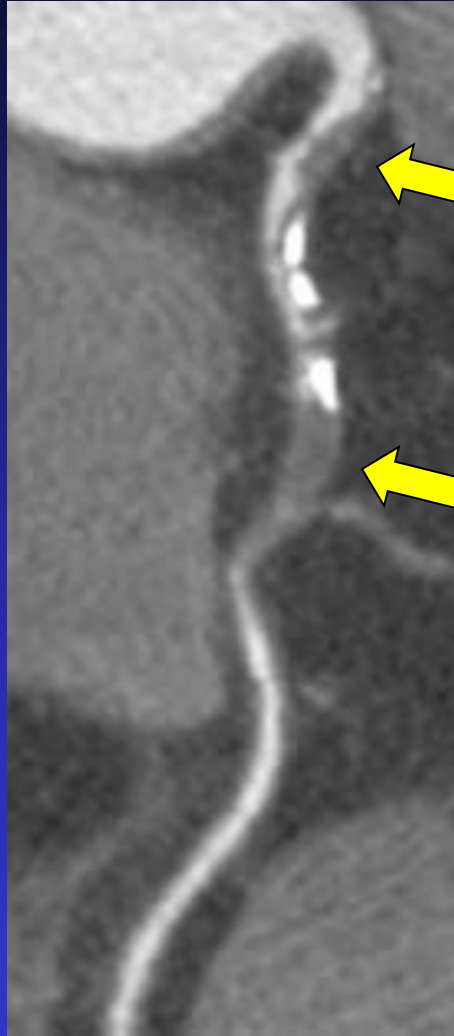


1 Vessel Disease

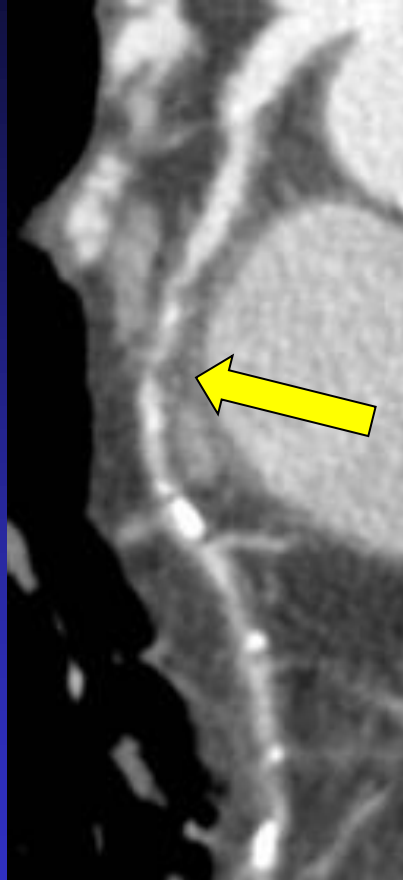


2 Vessel Disease

RCA

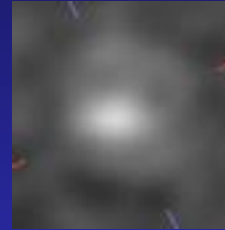
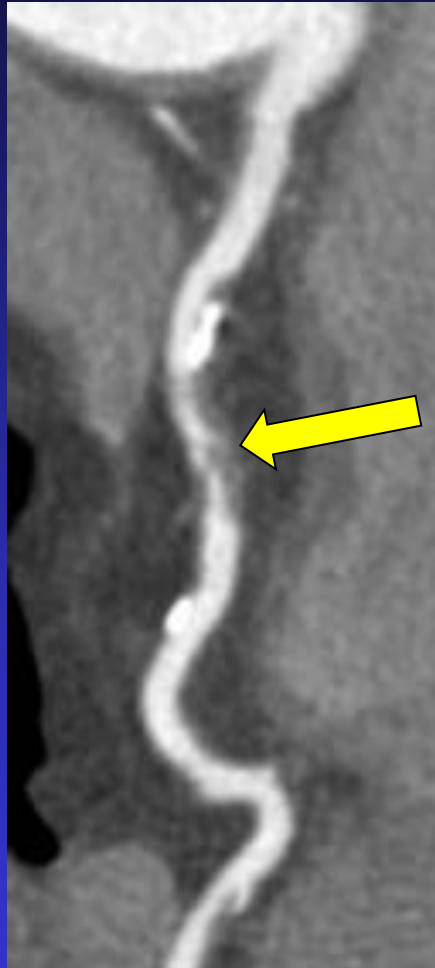


LCX

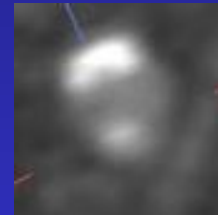
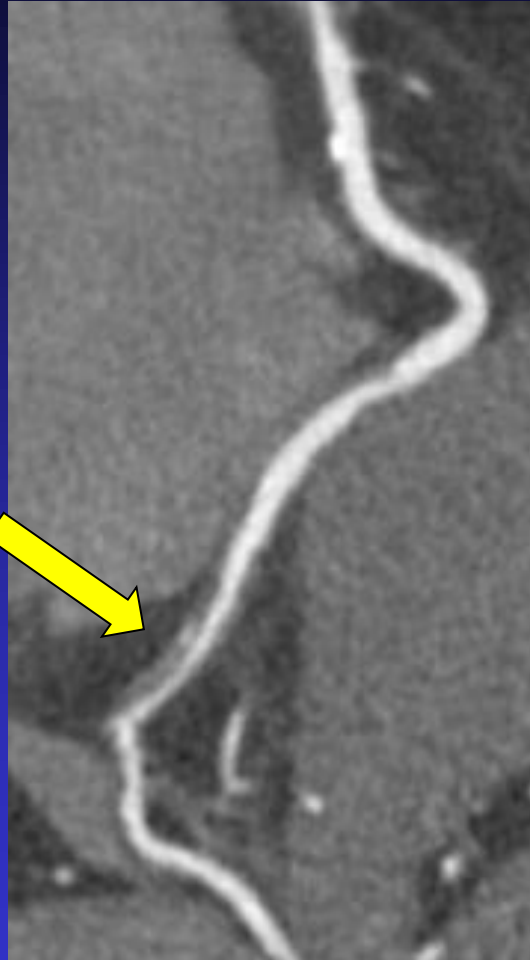


3 Vessel Disease

RCA #2



RCA #3



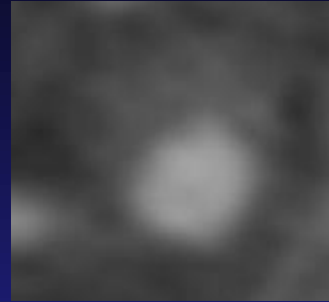
LAD



LCX

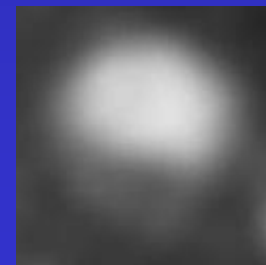
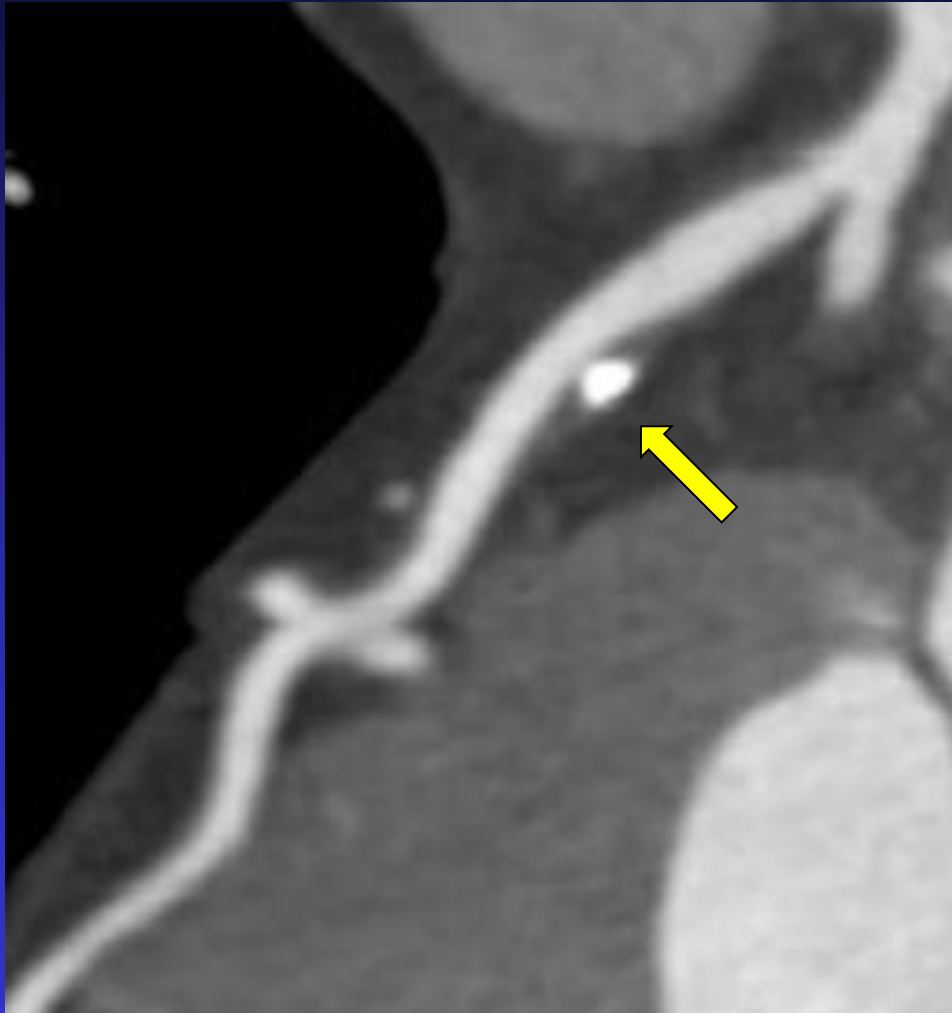


B. High-Risk Plaque

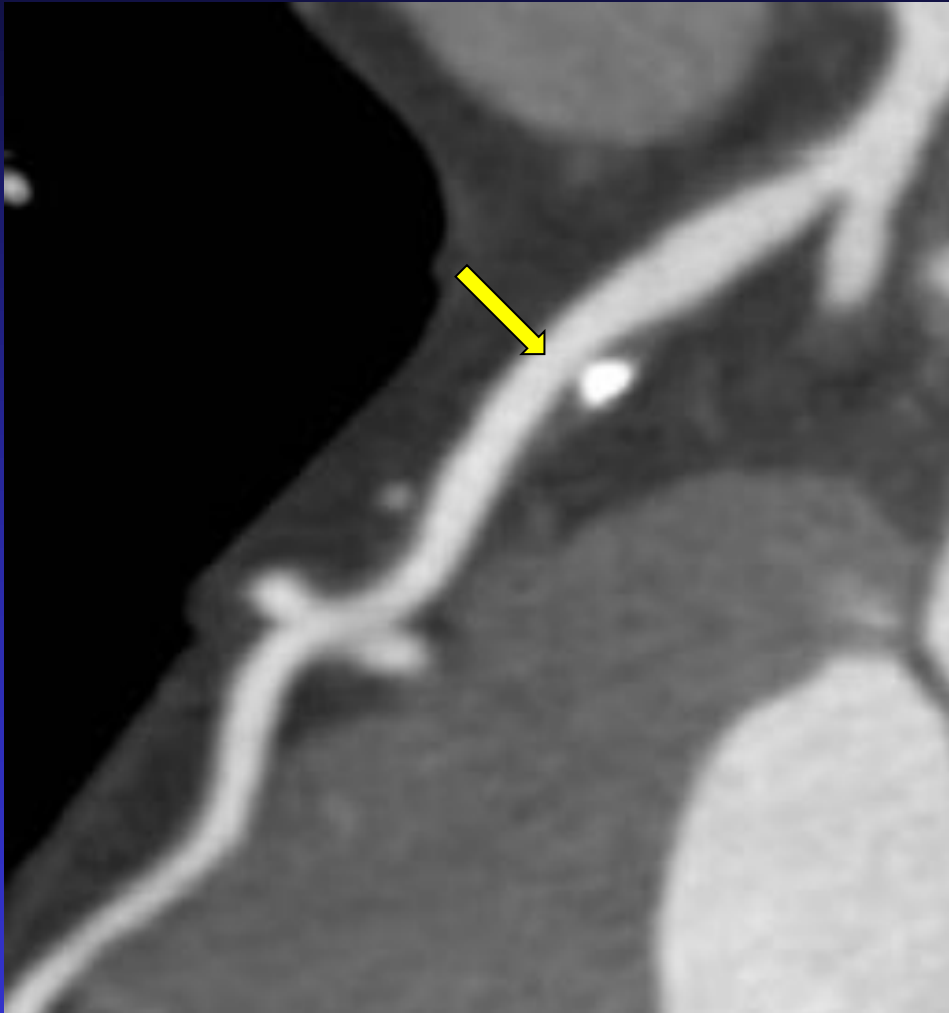


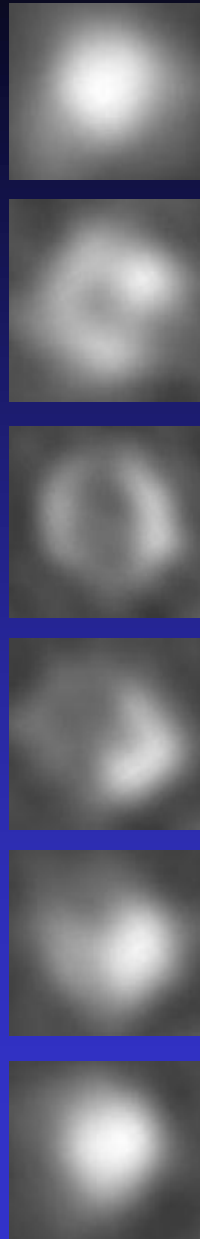
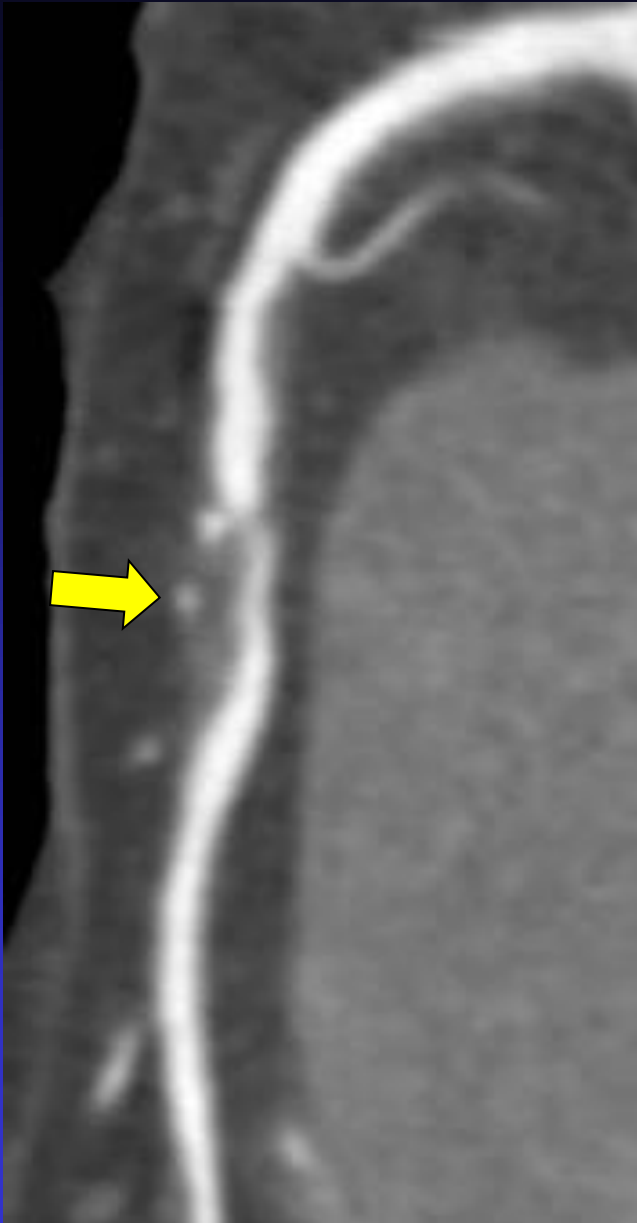
Positive Remodeling

Positive Remodeling



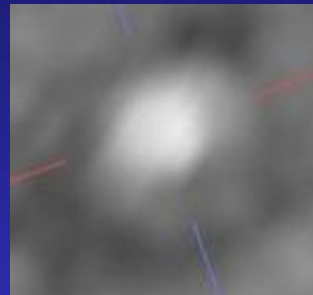
Low Attenuation Plaque



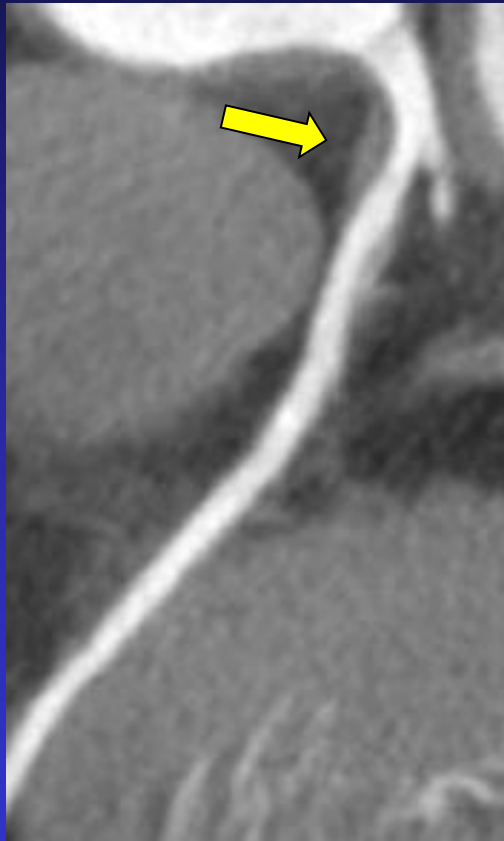


Napkin-Ring
Sign

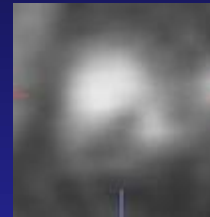
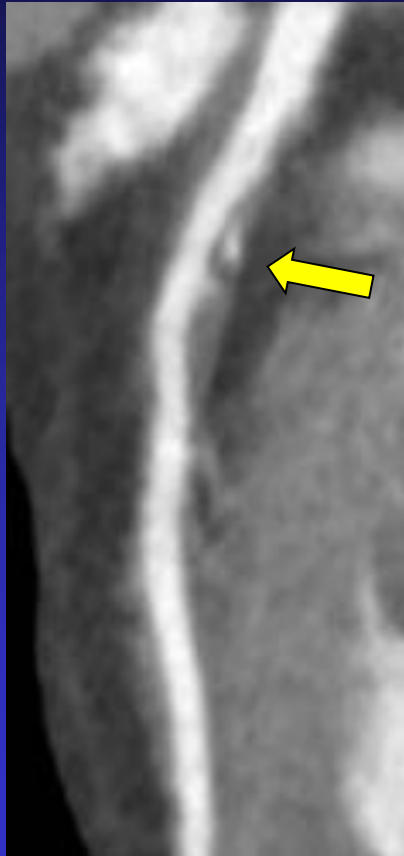
Napkin-Ring Sign



Napkin-Ring Sign



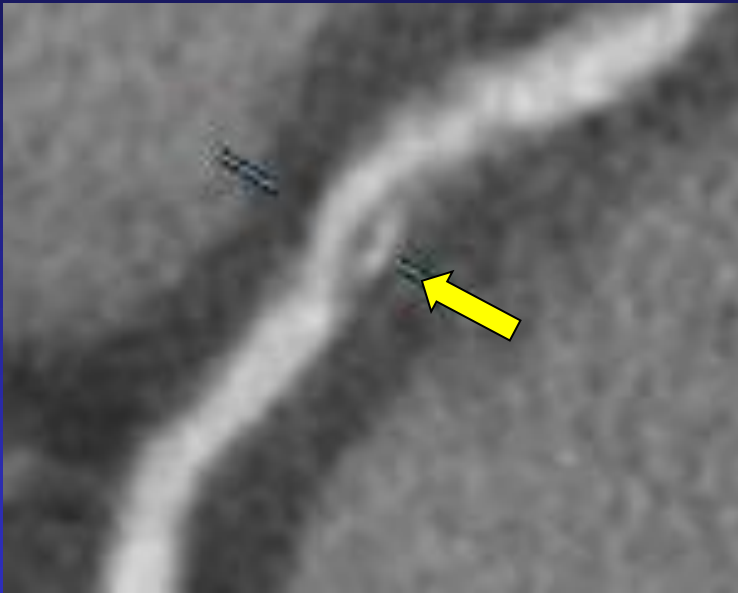
Napkin-Ring Sign



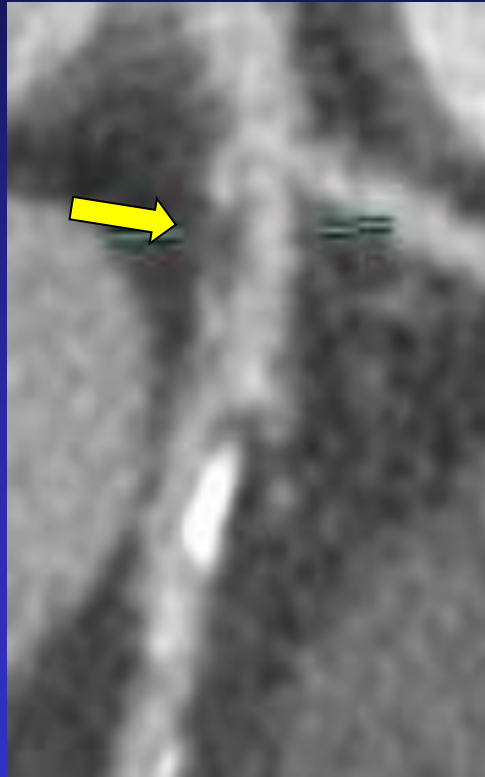
Napkin-Ring Sign



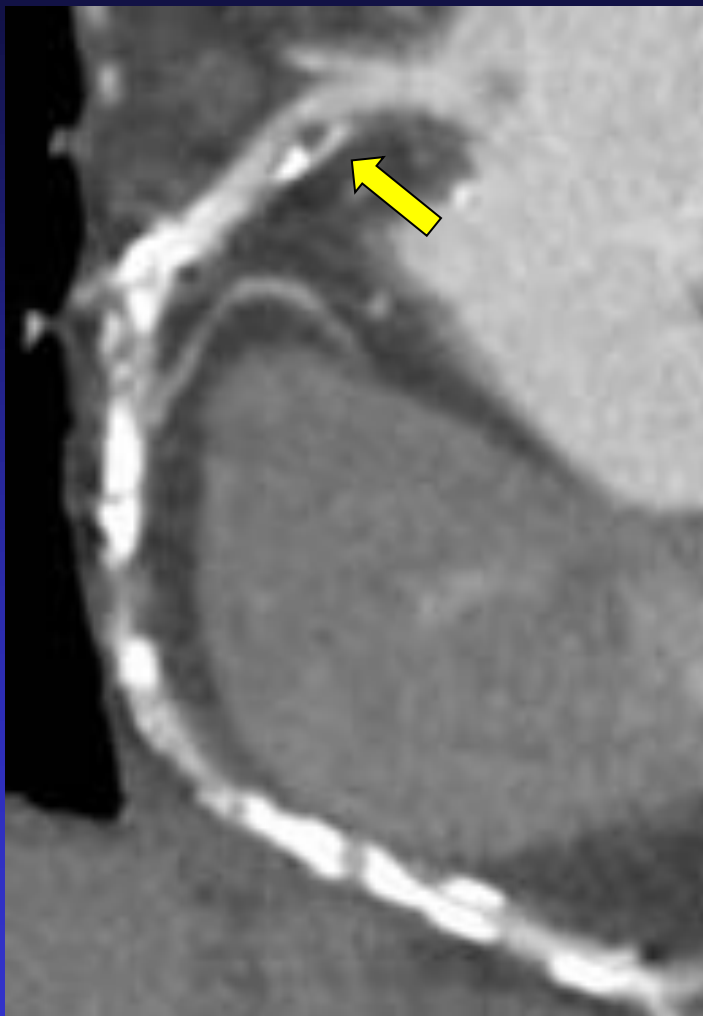
Napkin-Ring Sign



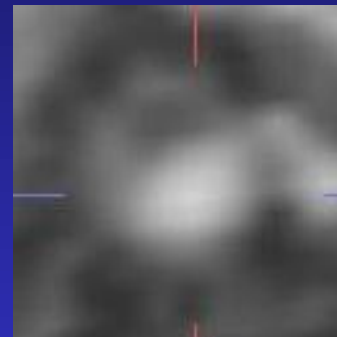
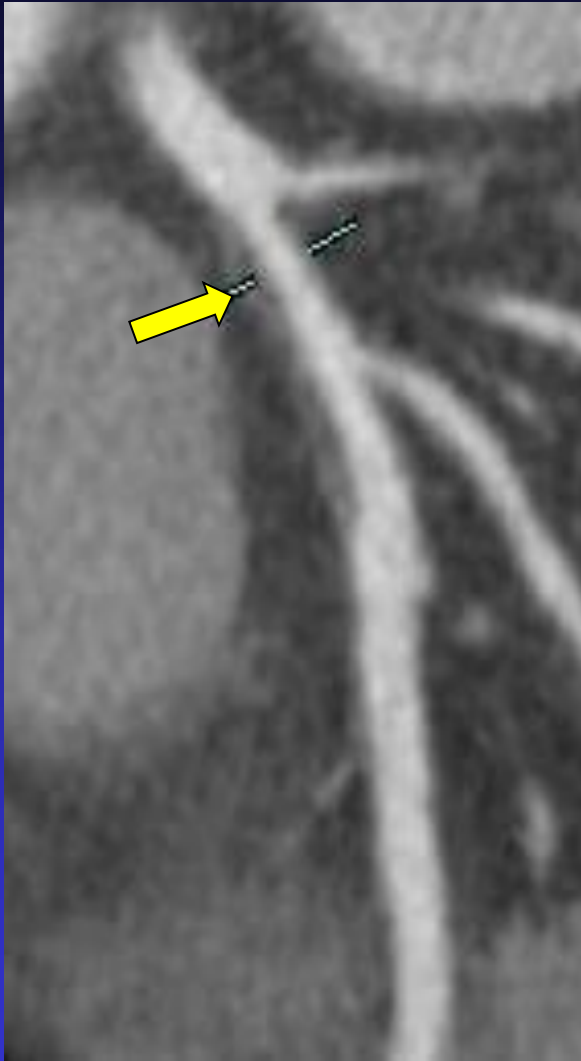
Napkin-Ring Sign

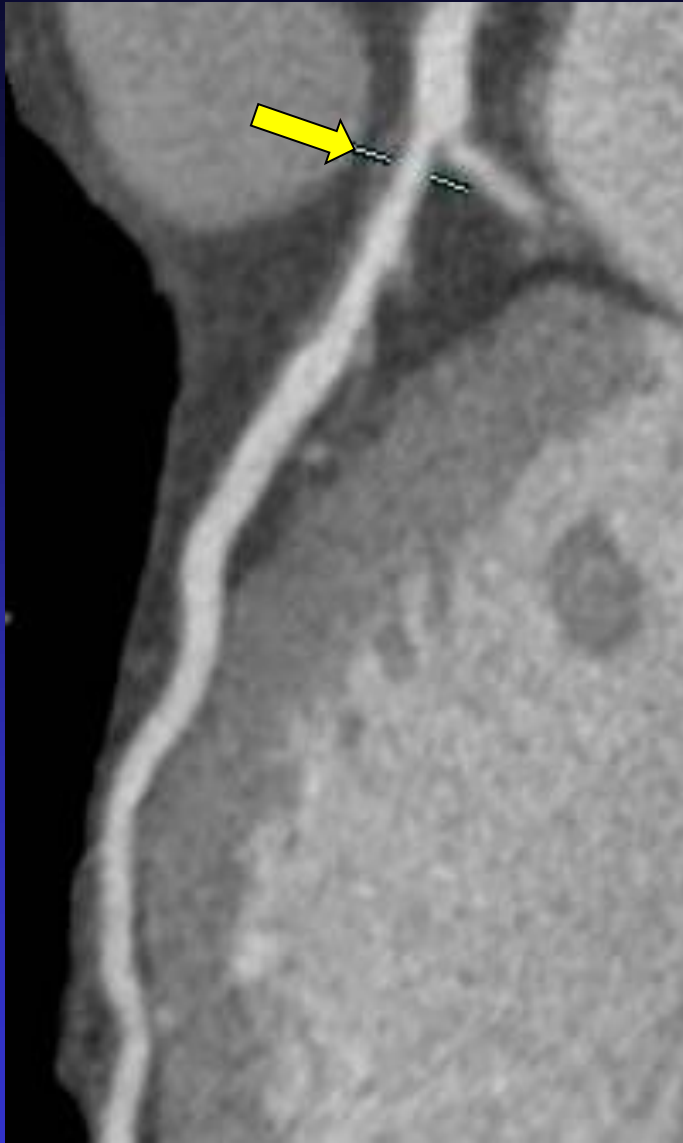


Napkin-Ring Sign



Napkin-Ring Sign

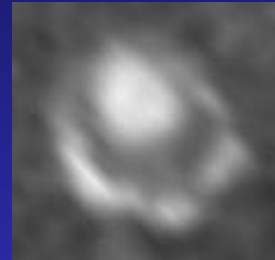
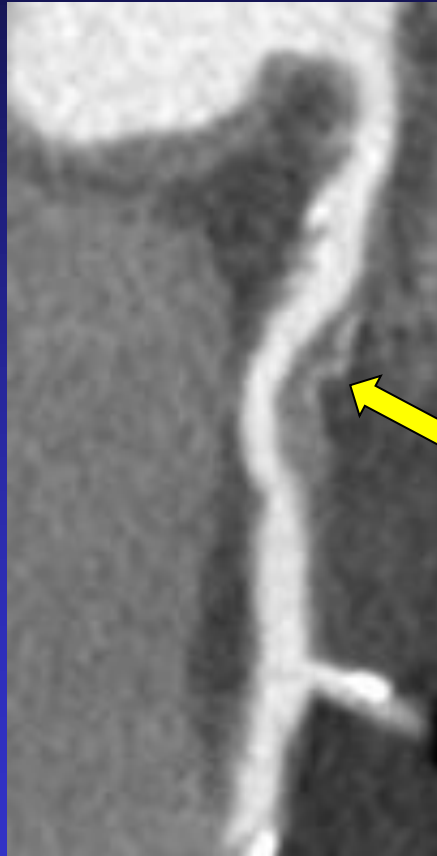




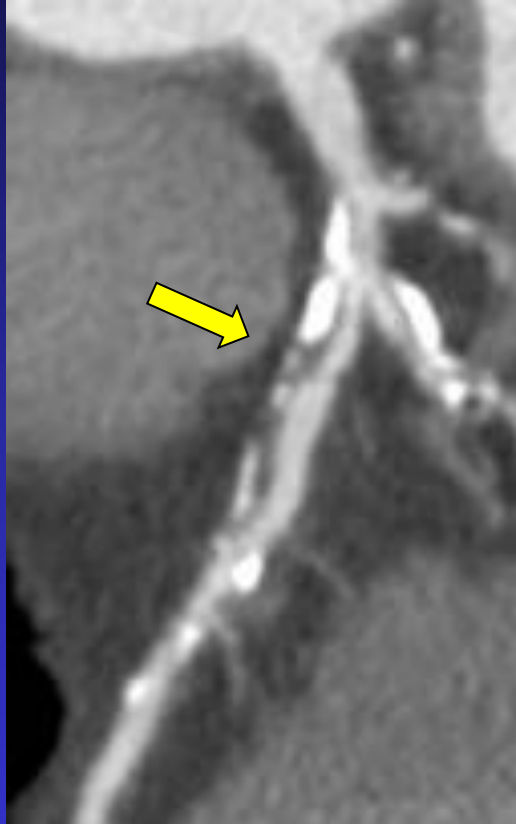
Napkin-Ring Sign



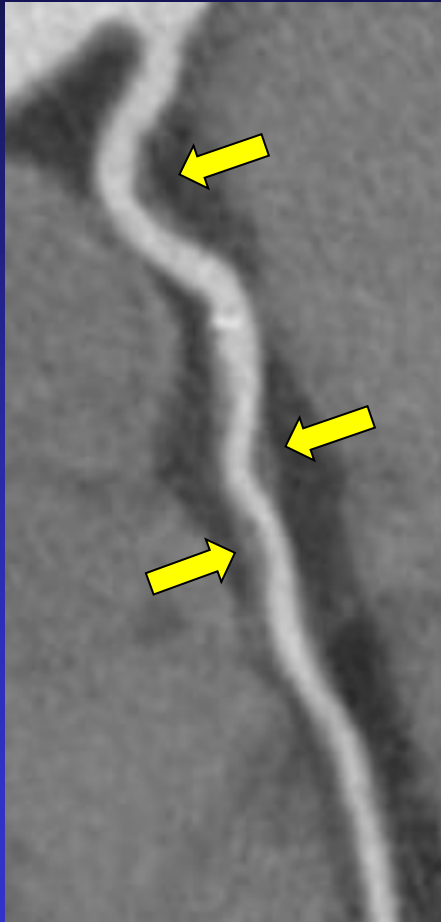
Positive Remodeling, Calcification



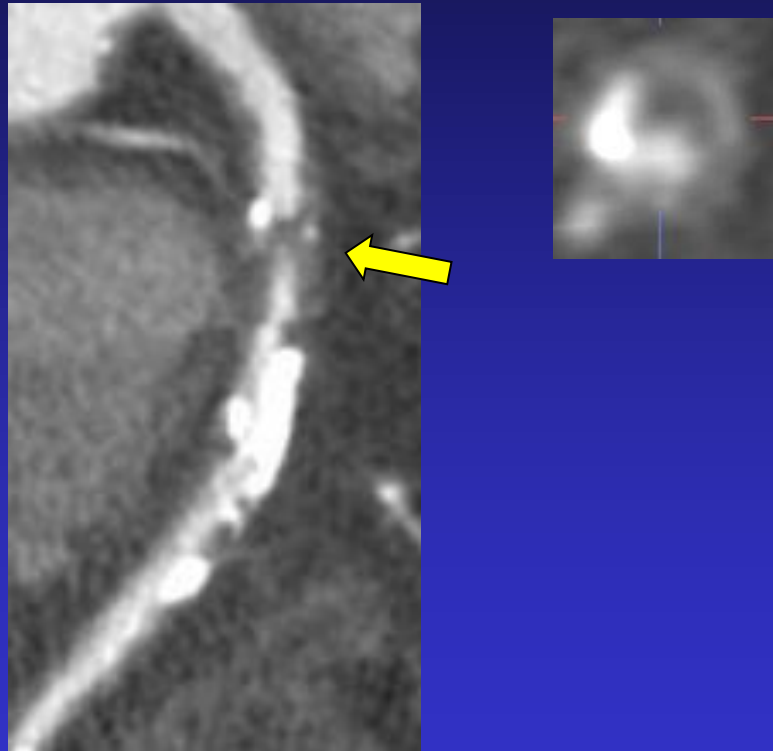
50-75% Stenosis, Positive Remodeling



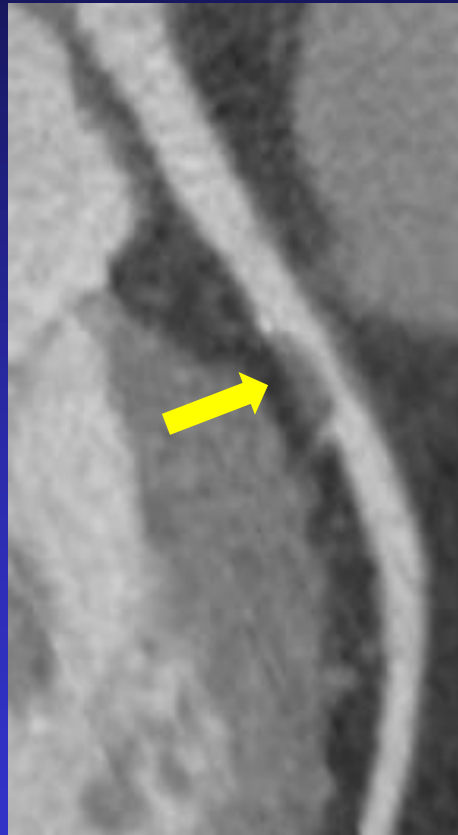
Positive Remodeling, Low Attenuation Plaque



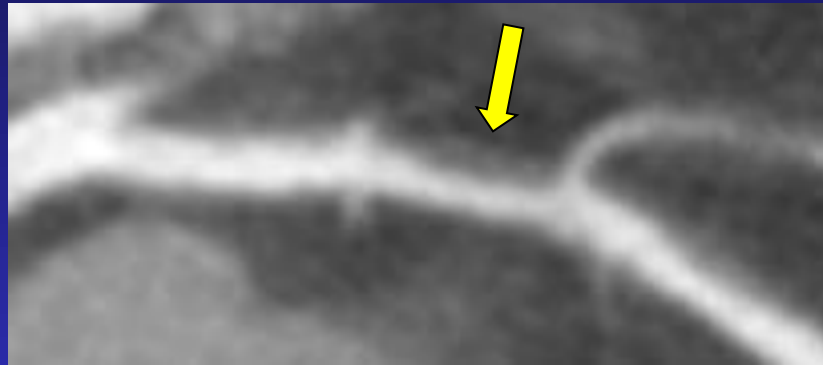
Positive Remodeling, Low Attenuation Plaque, Napkin-Ring Sign



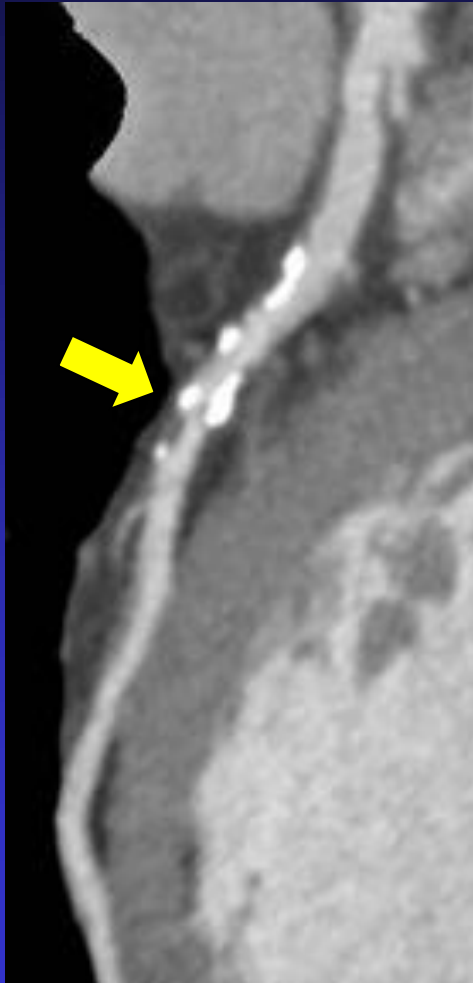
50-75% Stenosis, Positive Remodeling, Low Attenuation Plaque



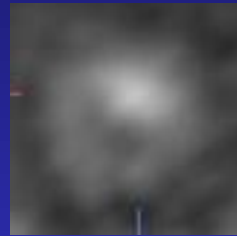
50% Stenosis, Positive Remodeling, Low Attenuation Plaque

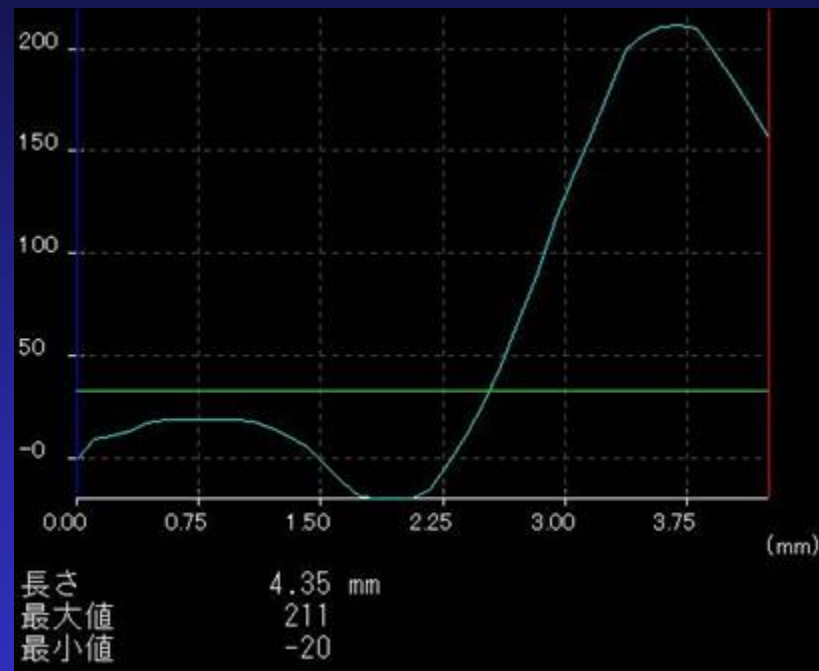
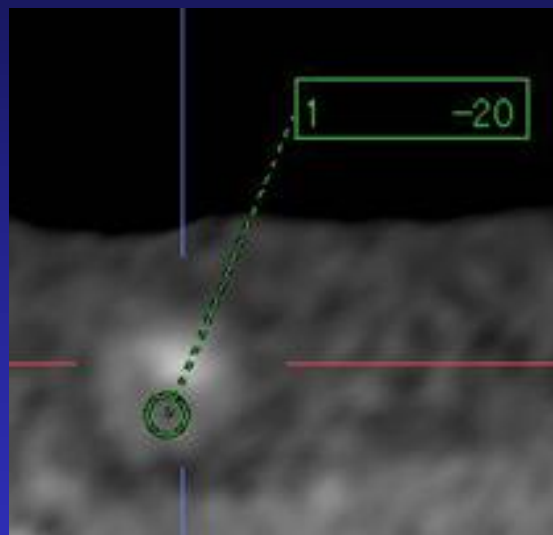


50% Stenosis, Positive Remodeling, Low Attenuation Plaque

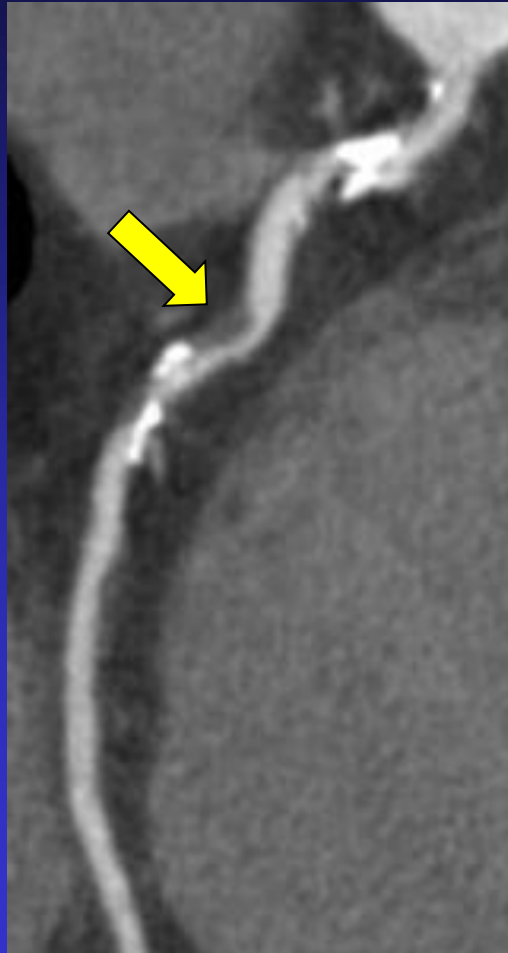


Positive Remodeling, Low Attenuation Plaque (-20HU)

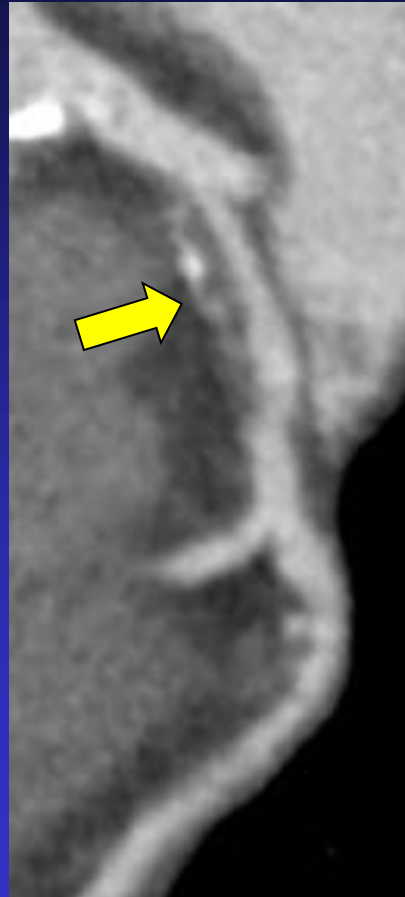




50-75% Stenosis, Positive Remodeling, Low Attenuation Plaque



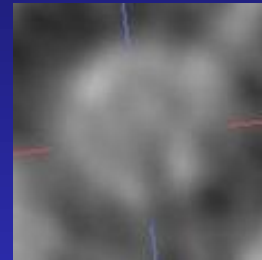
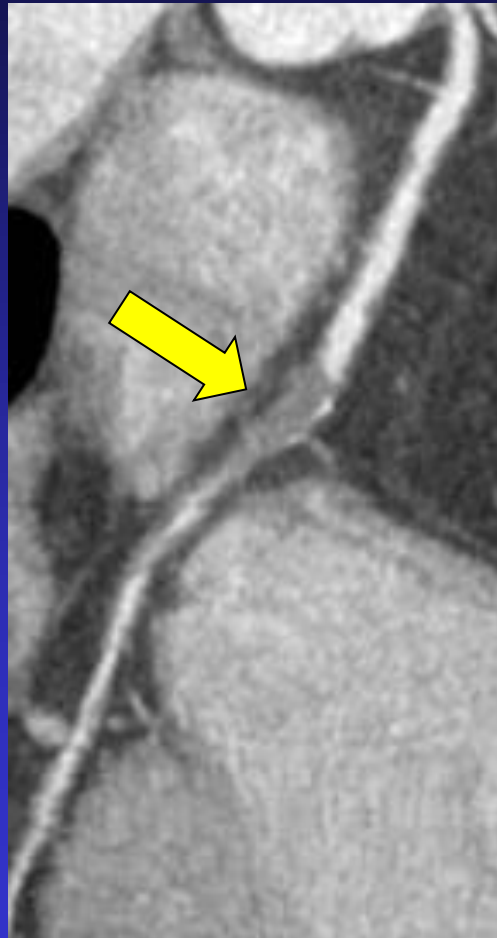
Positive Remodeling, Napkin-Ring Sign



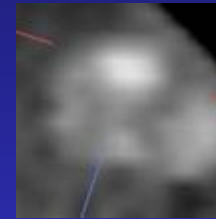
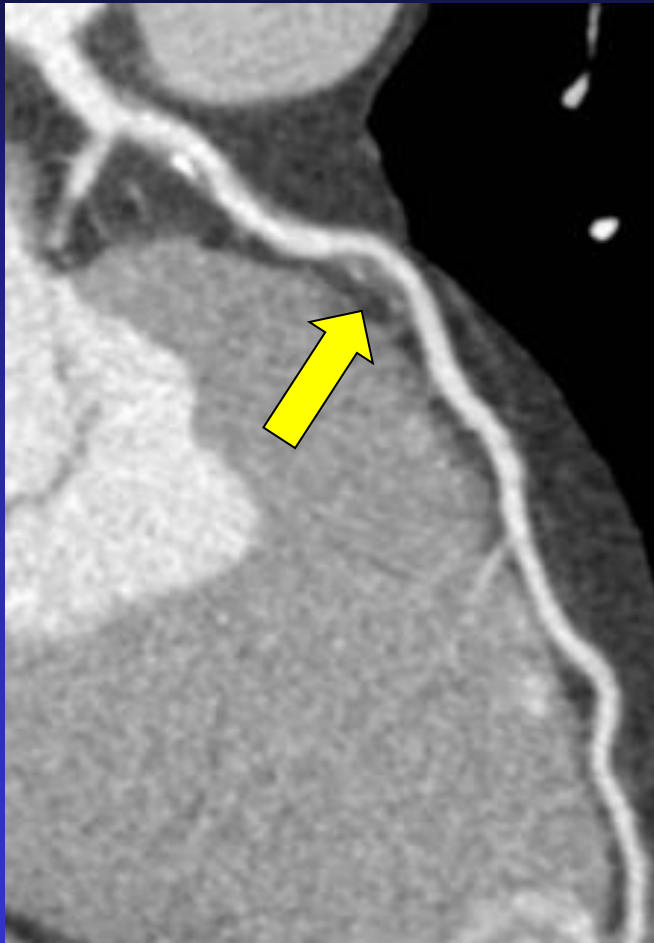
50% Stenosis, Low Attenuation Plaque



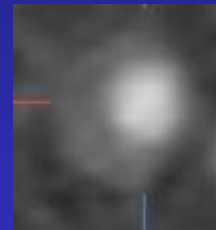
Total Occlusion, Positive Remodeling



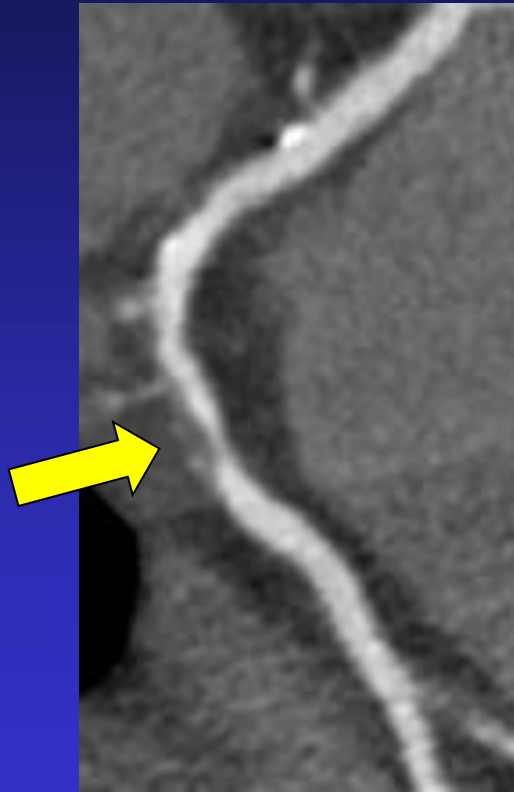
25% Stenosis, Positive Remodeling, Low Attenuation Plaque, Napkin-Ring Sign



50% Stenosis, Positive Remodeling, Low Attenuation Plaque, Napkin-Ring Sign

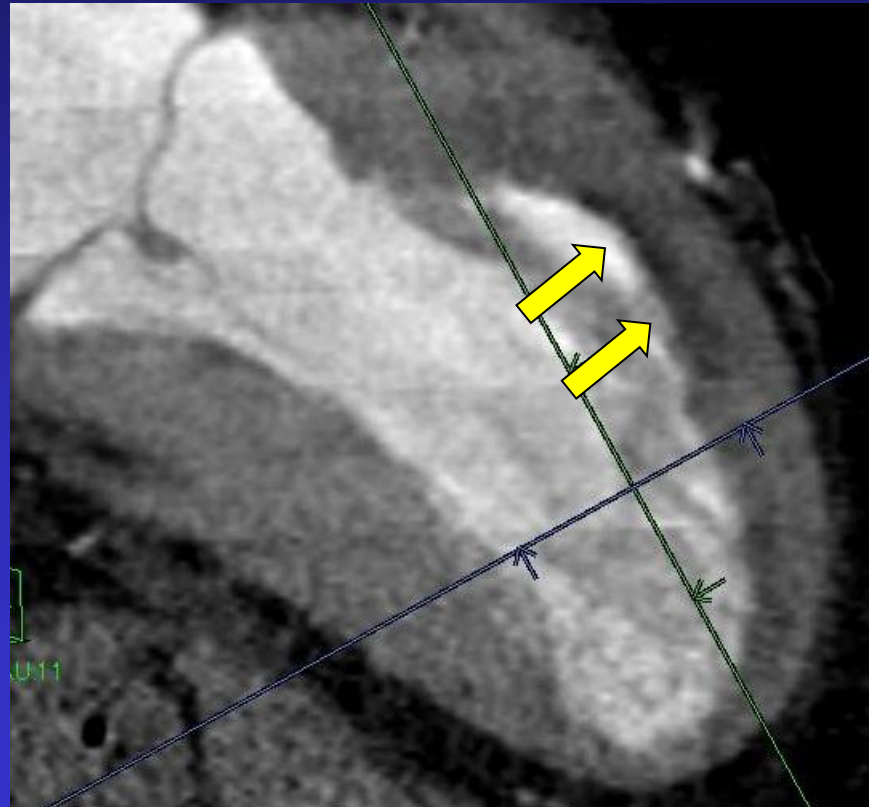
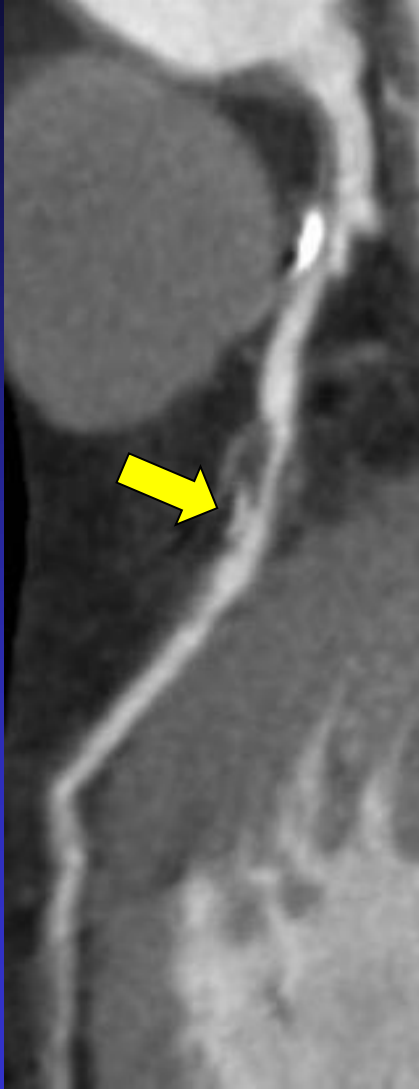


75% Stenosis, Positive Remodeling, Low Attenuation Plaque, Napkin-Ring Sign



C. Plaque Rupture

Plaque Rupture

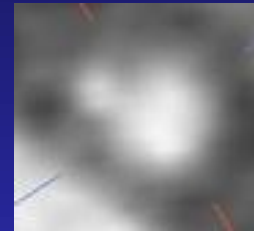
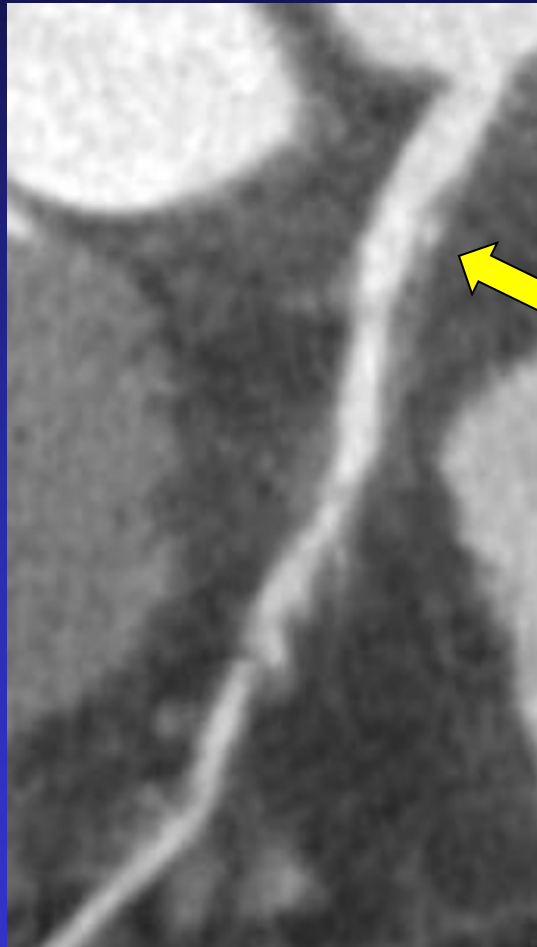


Plaque Rupture



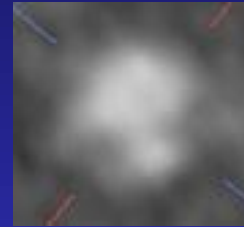
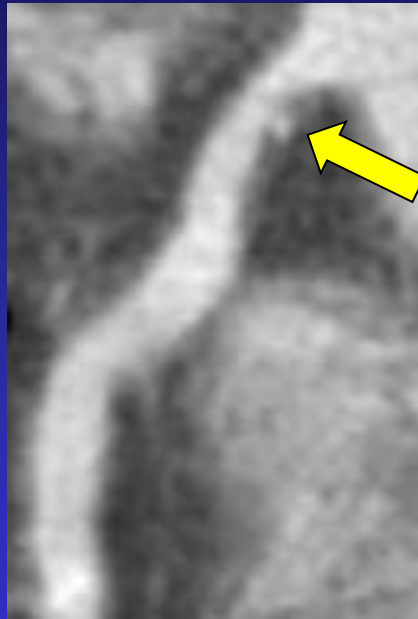
Plaque Disruption

Intra-Plaques Dye Penetration



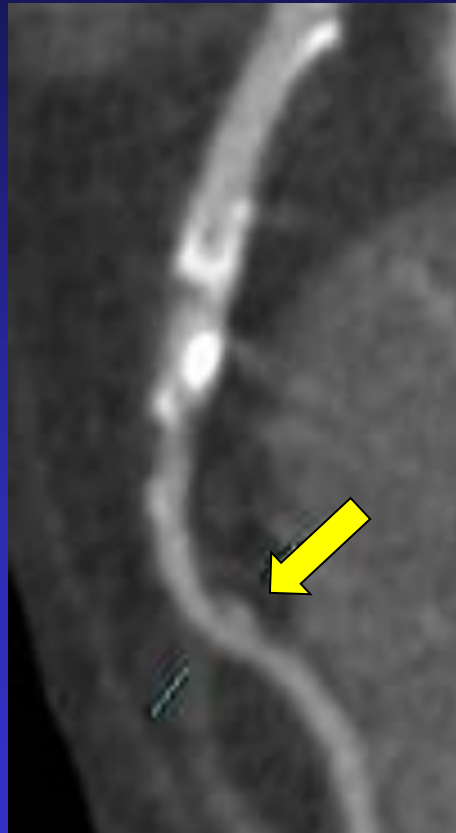
Plaque Disruption

Intra-Plaque Dye Penetration



Plaque Disruption

Intra-Plaques Dye Penetration



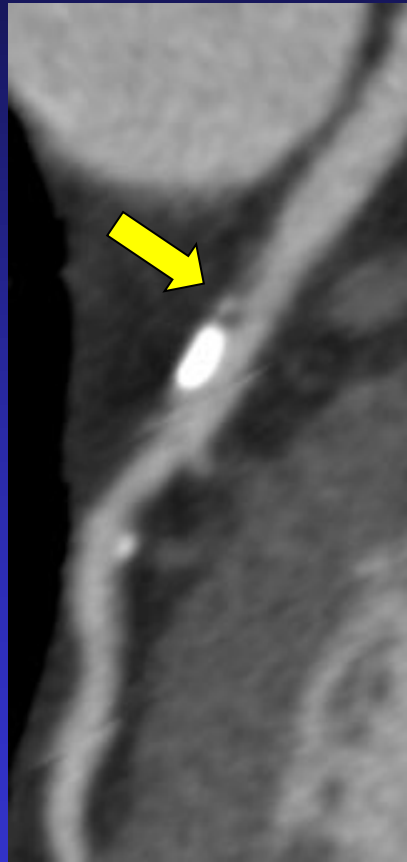
Plaque Disruption

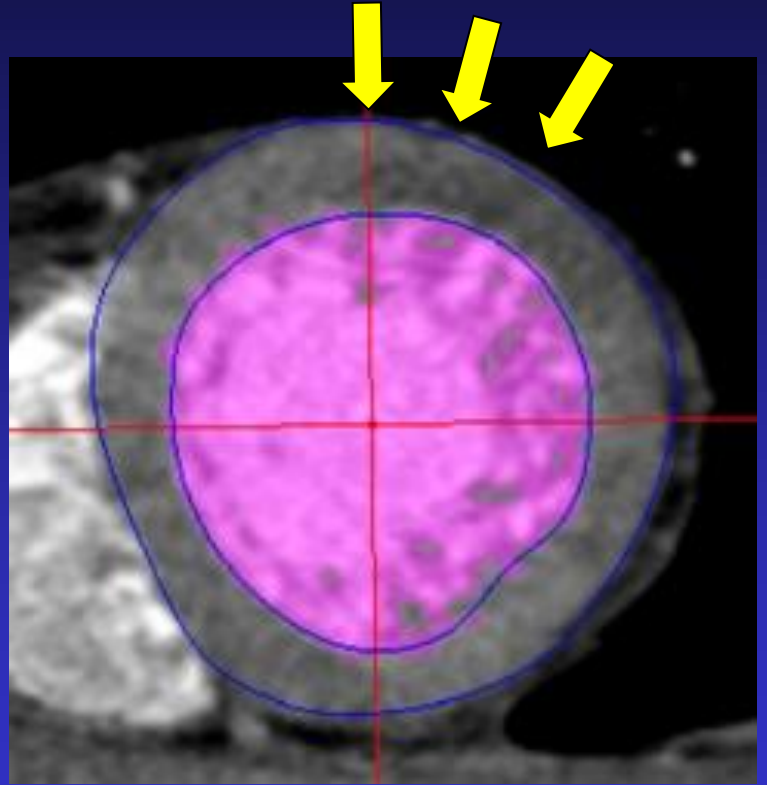
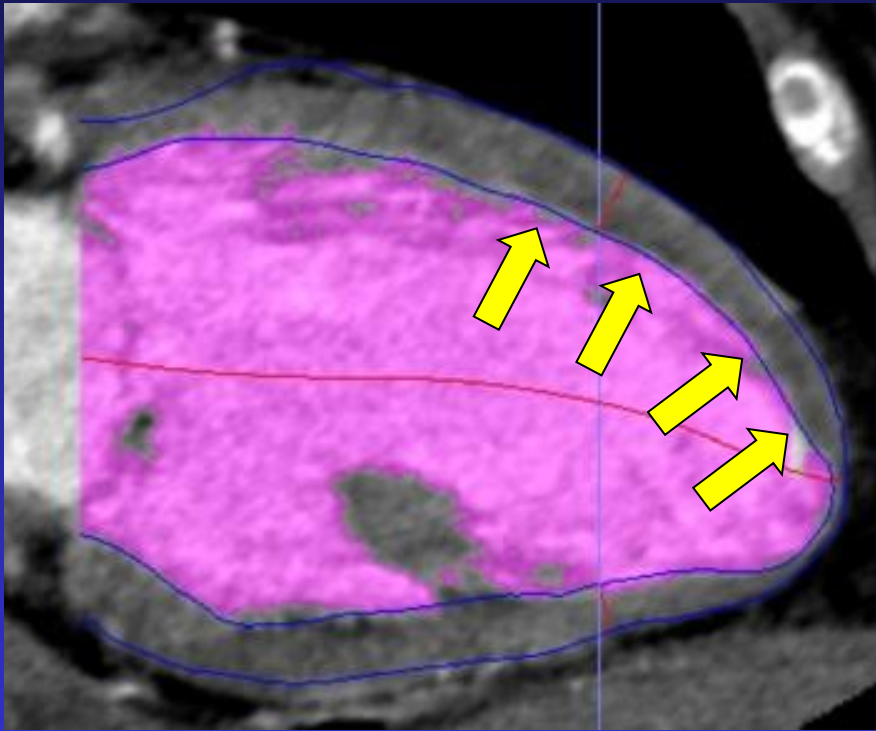
Intra-Plaque Dye Penetration

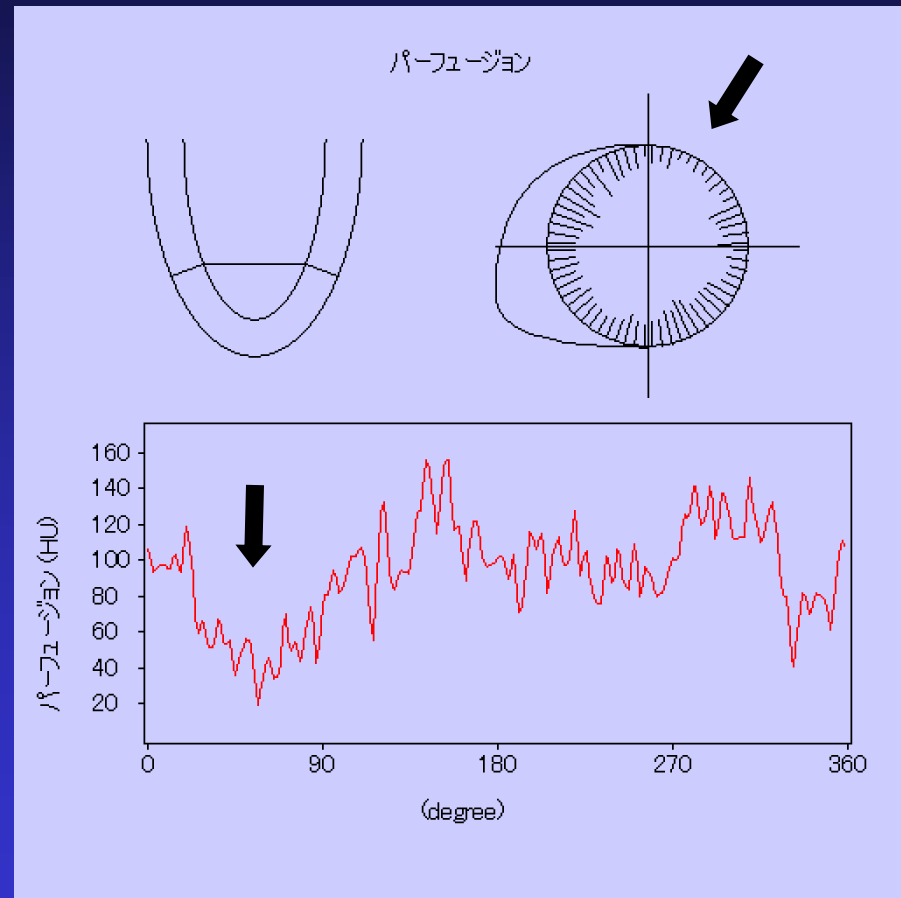
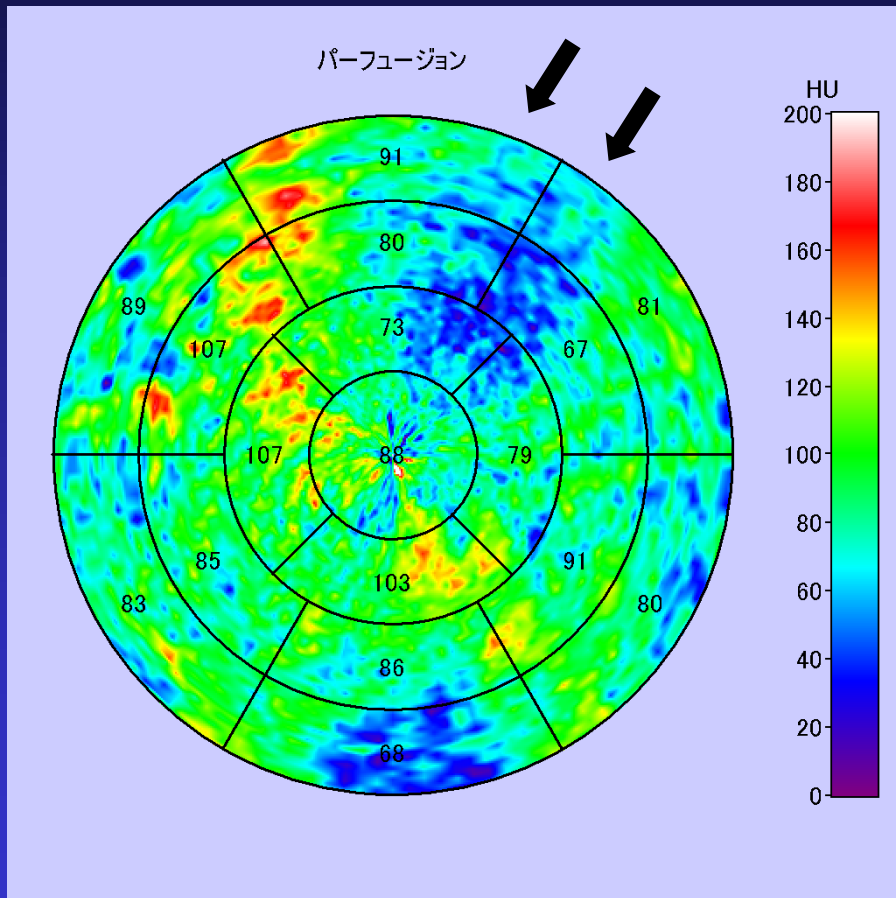


Plaque Disruption

Intra-Plaques Dye Penetration

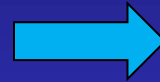
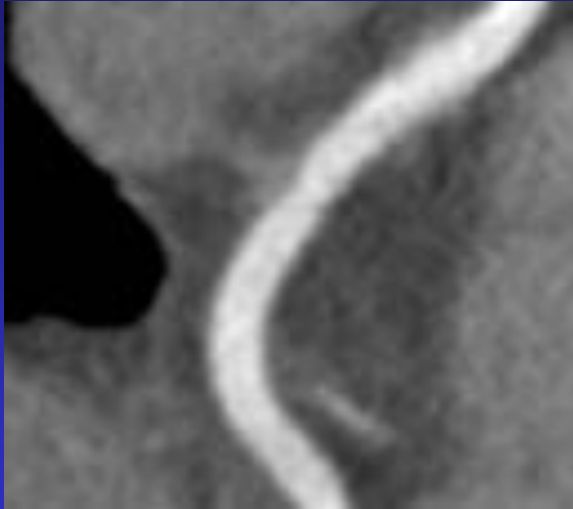




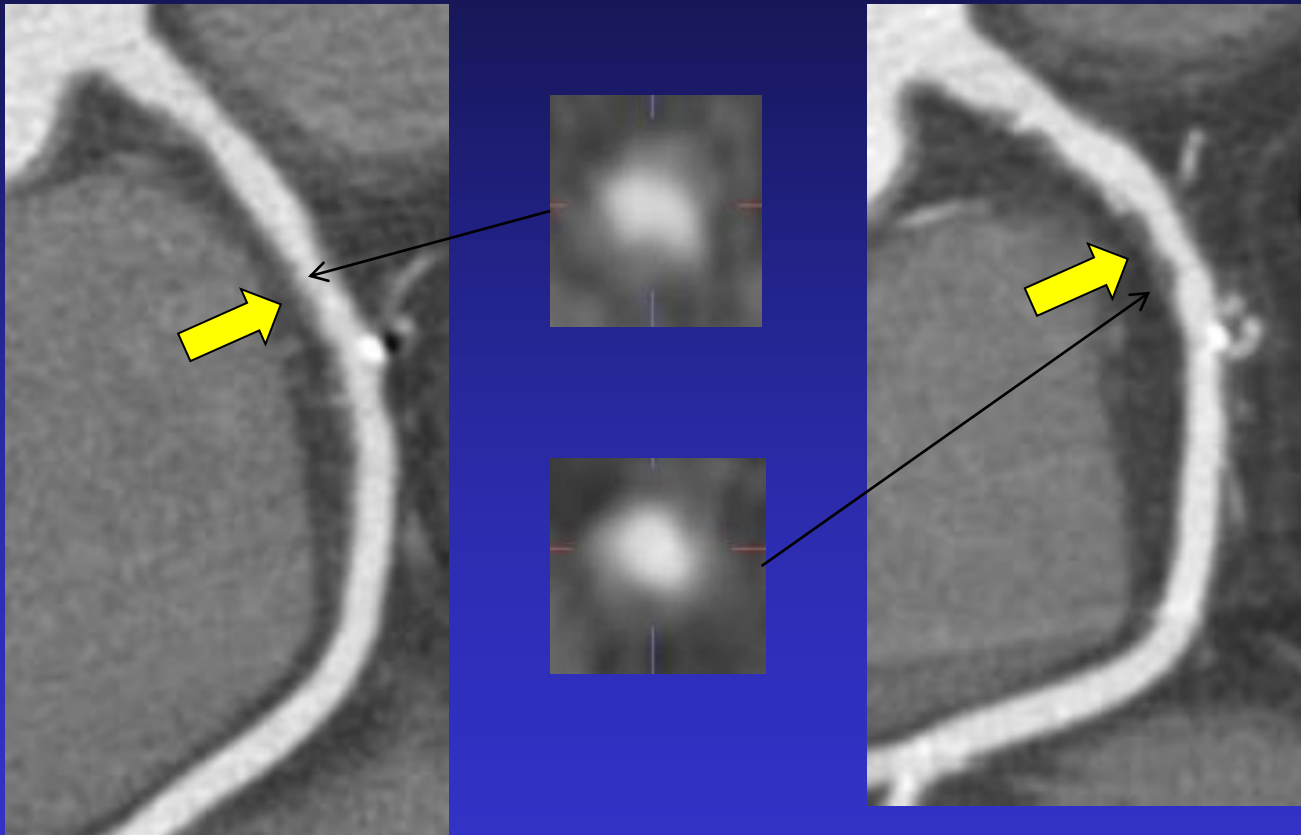


D. Plaque Progression and Regression

Plaque Progression



Plaque Progression



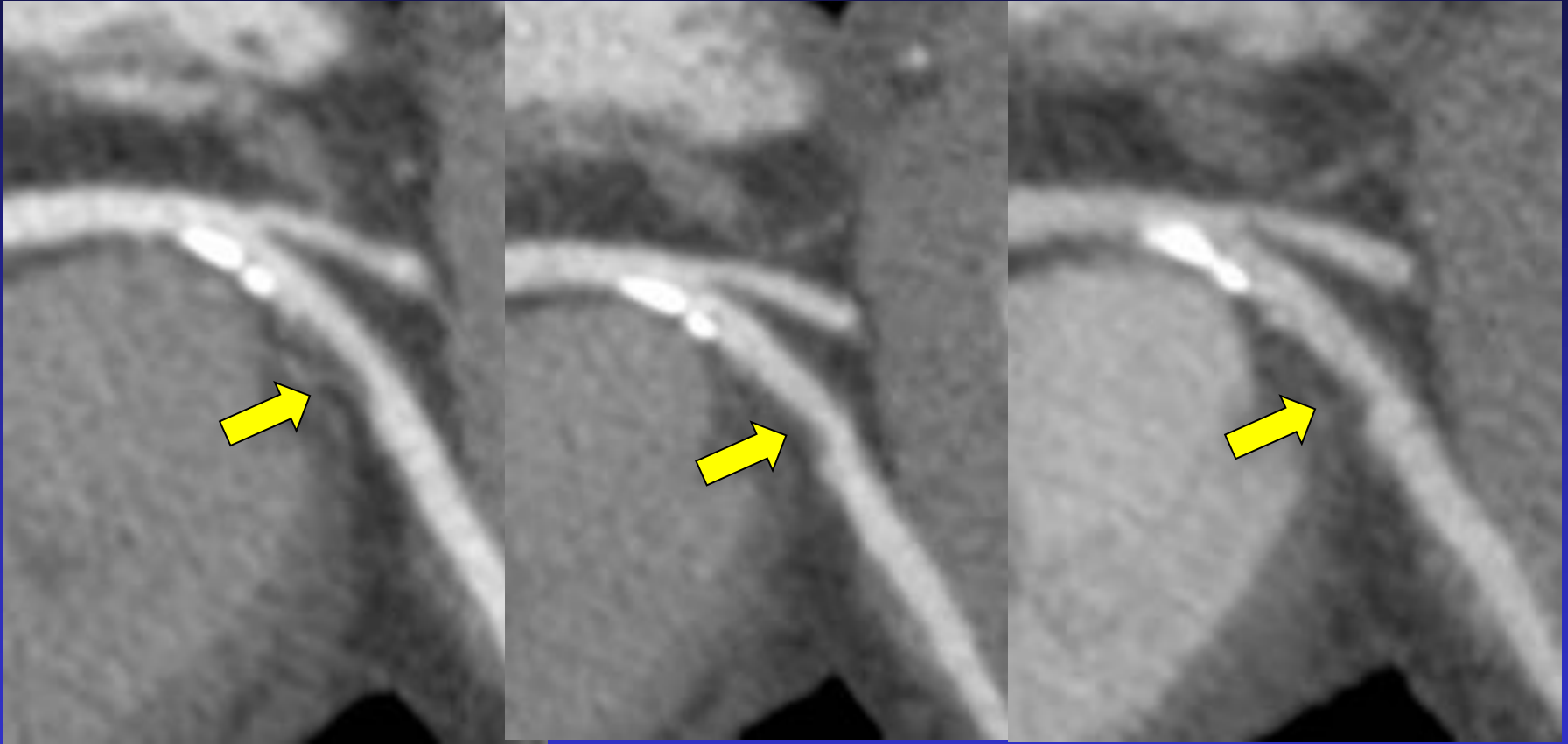
Plaque Progression



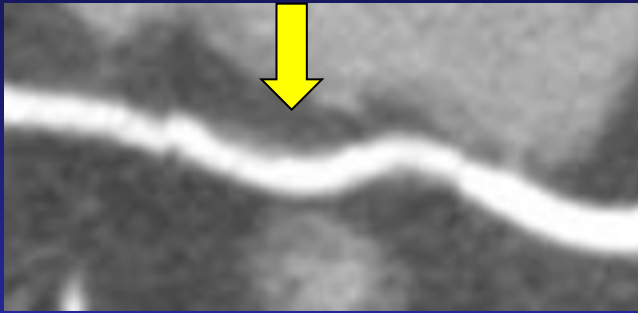
HDL-C 43
LDL-C 111
TG 105

HDL-C 39
LDL-C 59
TG 128

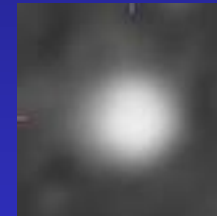
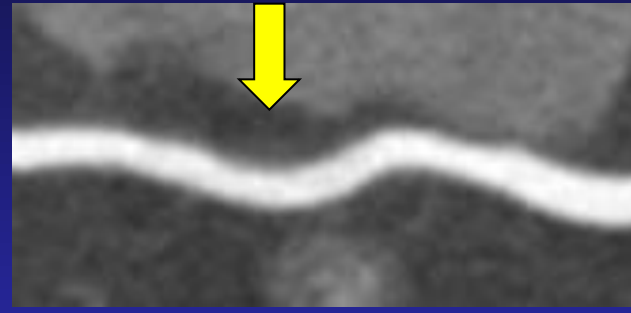
Plaque Progression



Plaque Regression

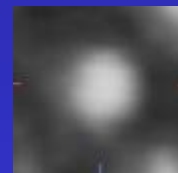
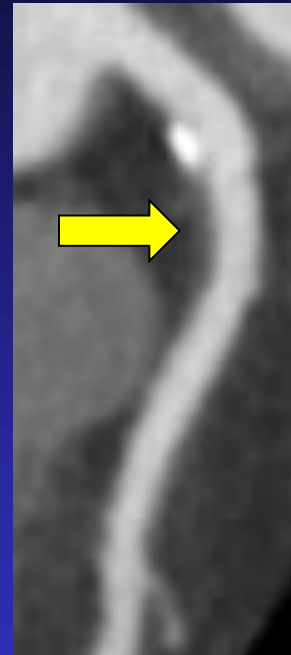


2015/1/28



2016/1/20

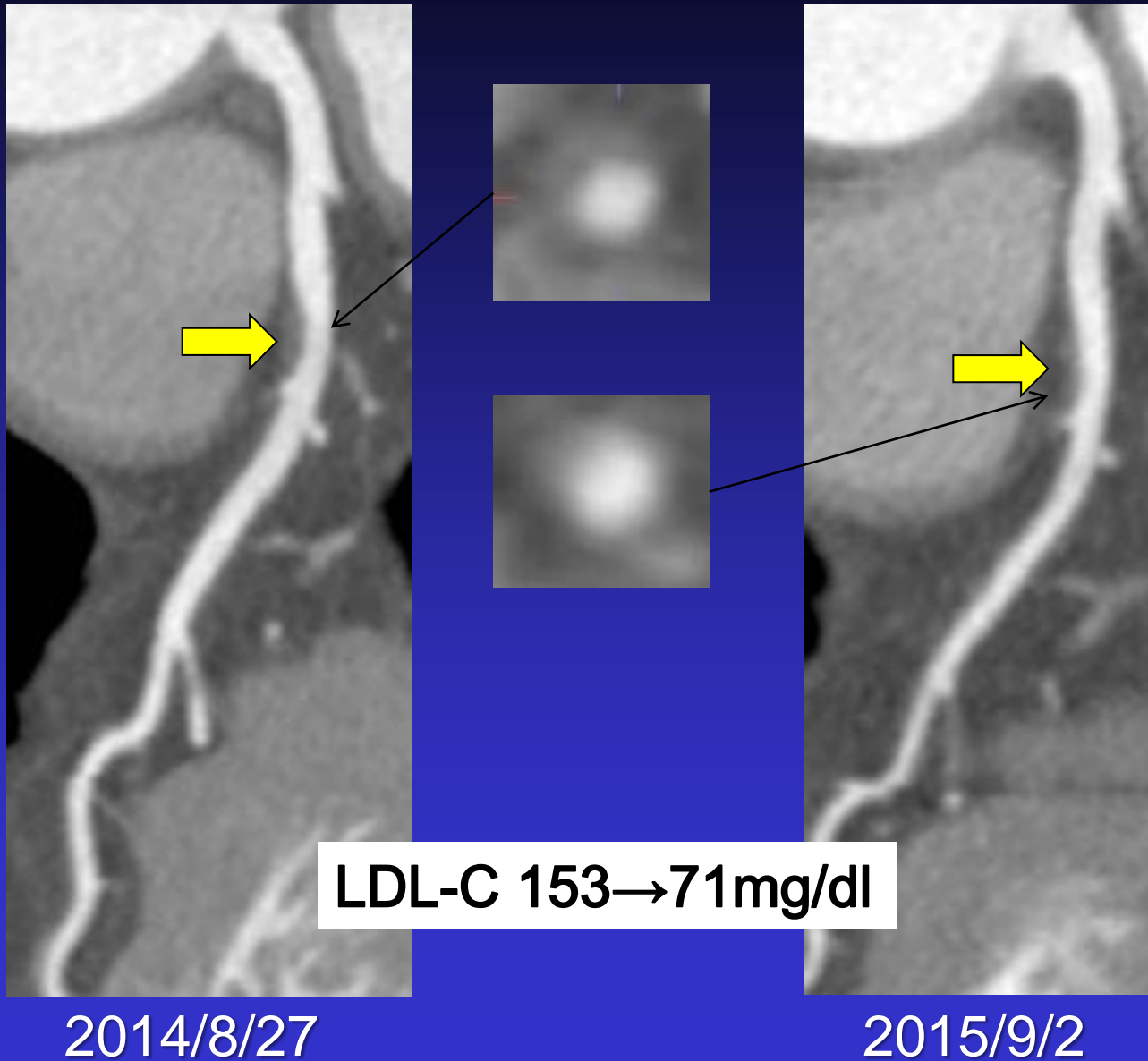
Plaque Regression



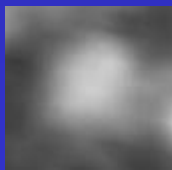
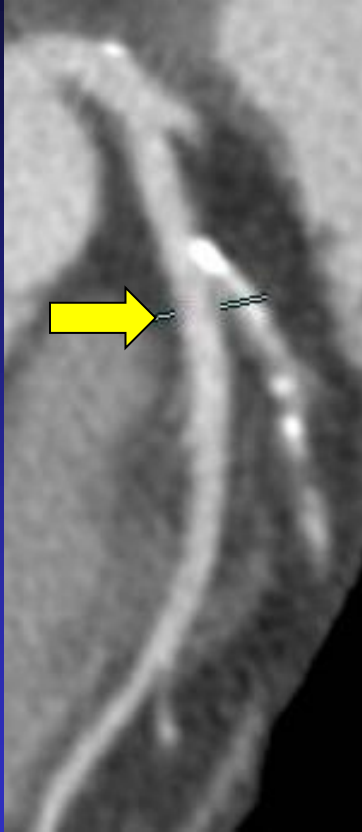
2015/1/28

2016/1/20

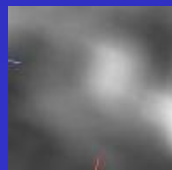
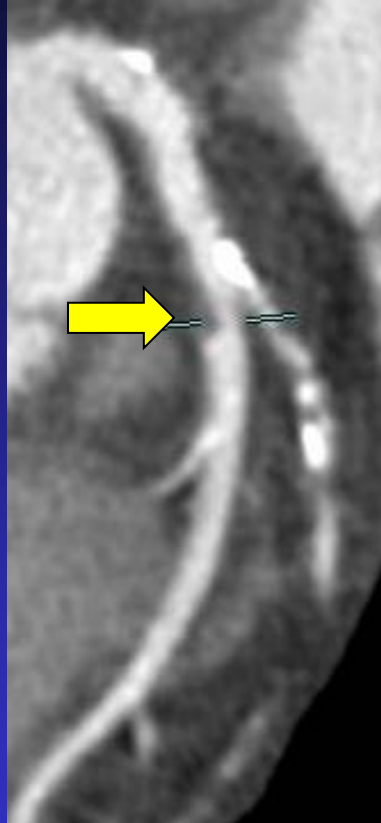
Plaque Regression



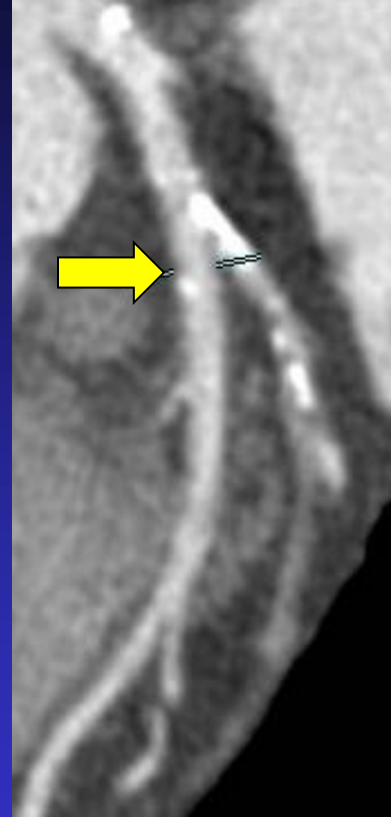
2009



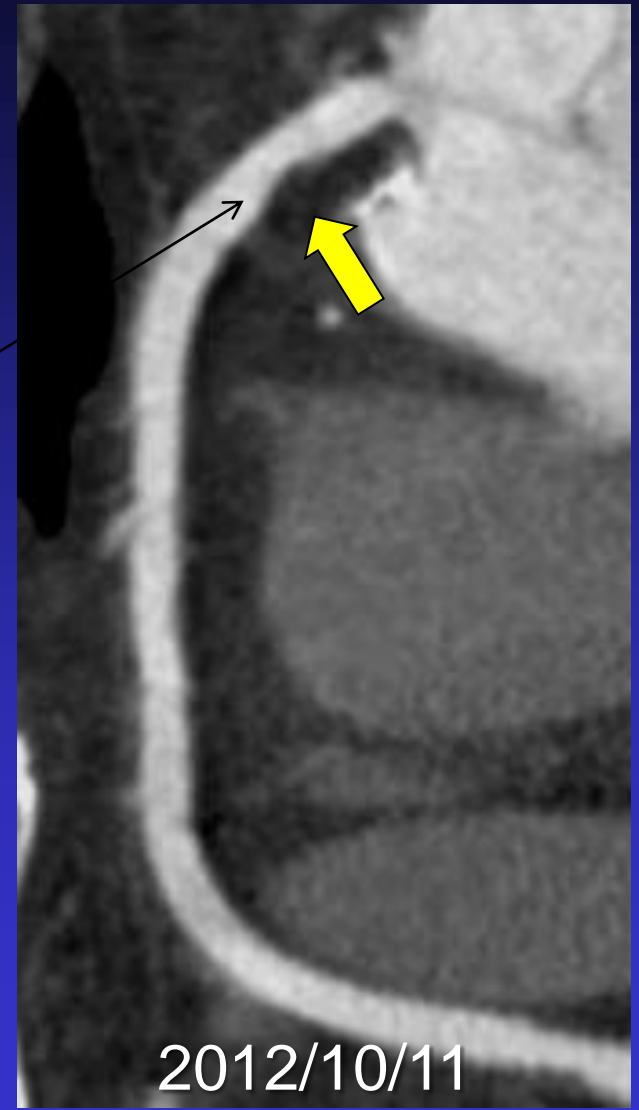
2011



2013

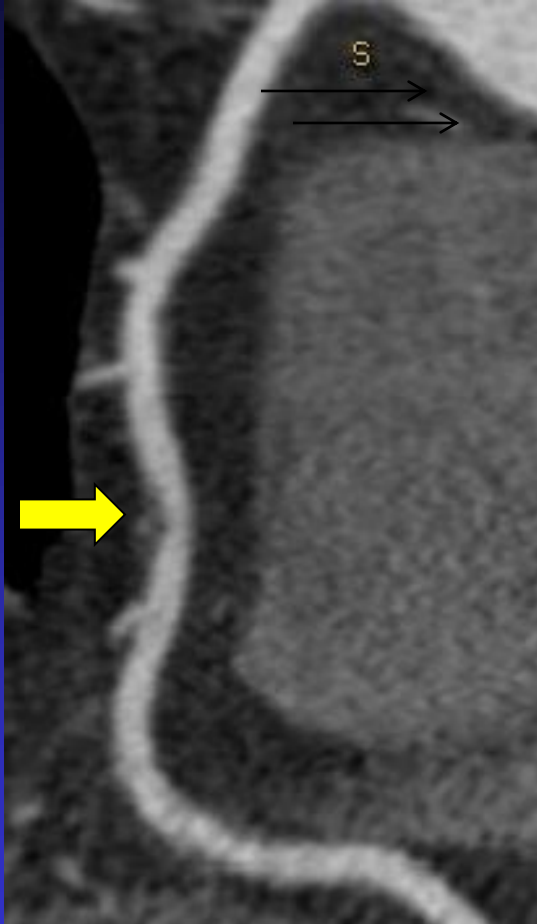


Plaque Regression

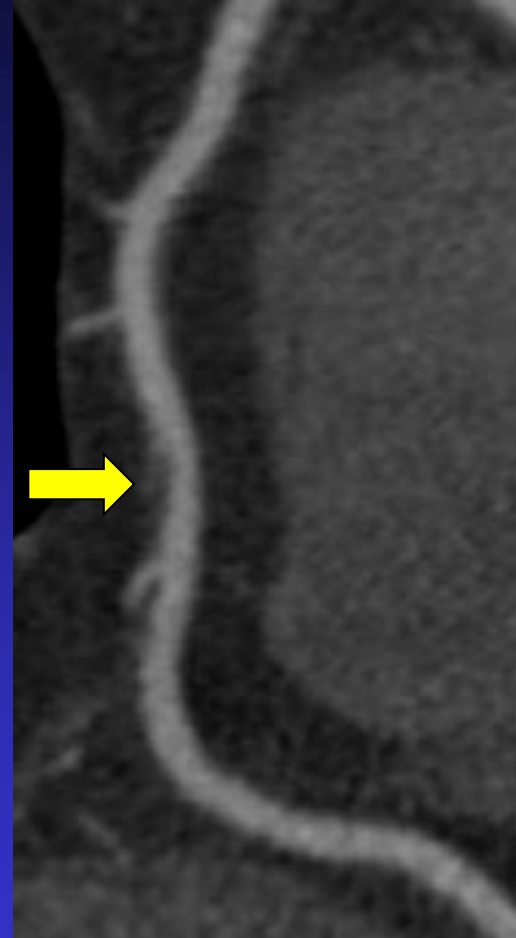


HDL-C 51mg/dl
LDL-C 80mg/dl
TG 76mg/dl

Plaque Regression



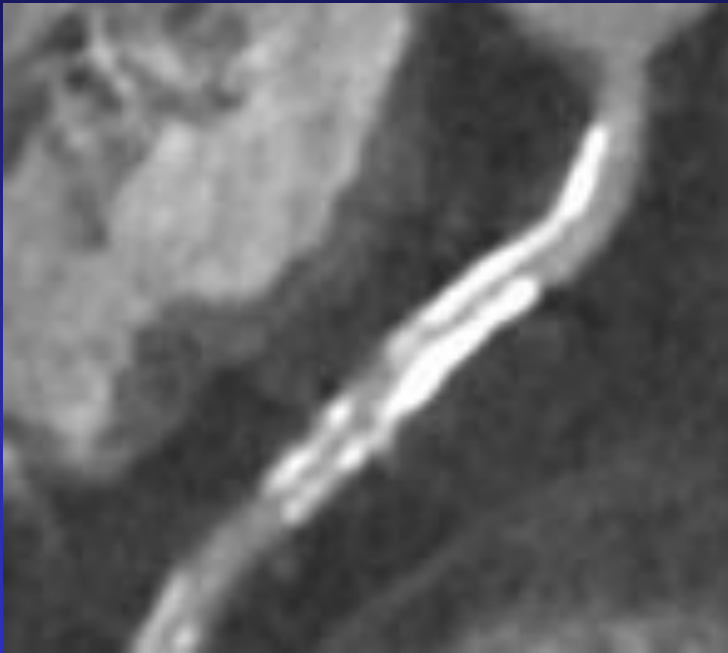
2010/12/3



2011/11/4

E. Coronary Artery Calcification

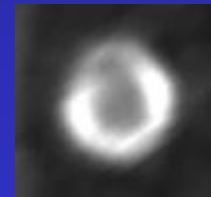
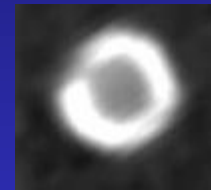
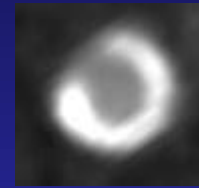
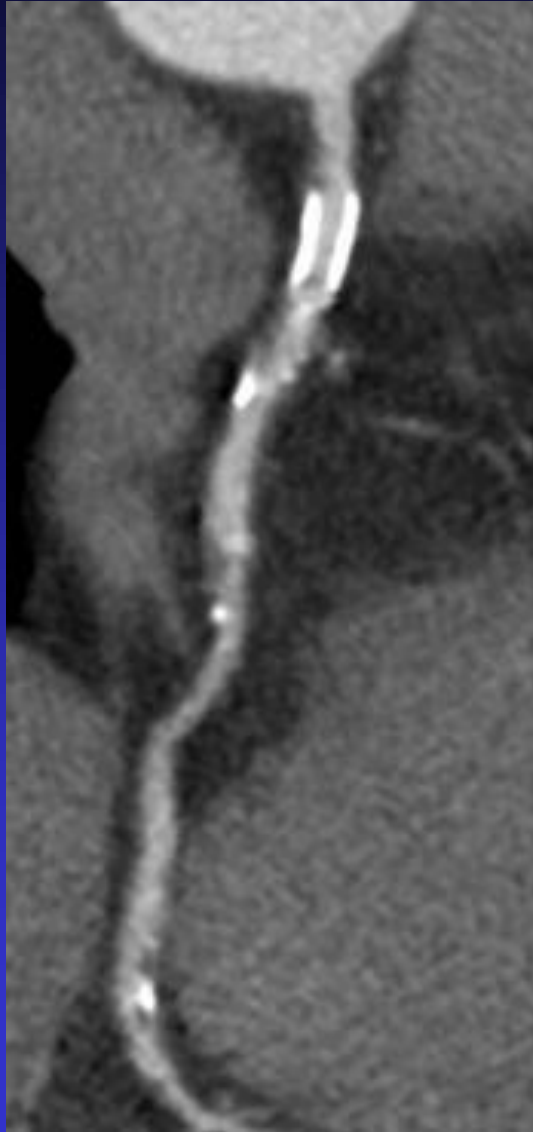
Stent-like Calcification



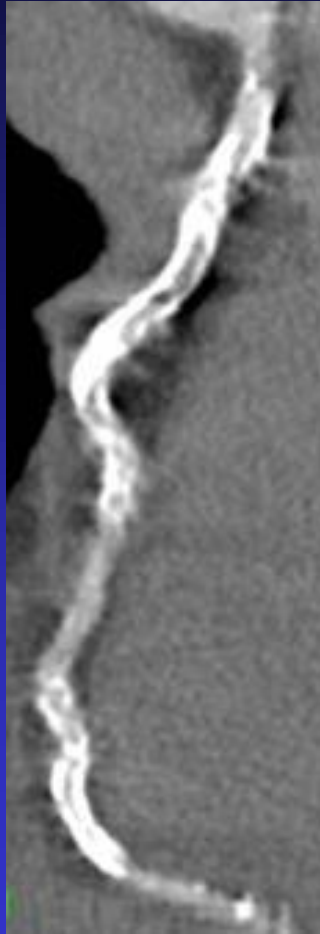
Stent-like Calcification



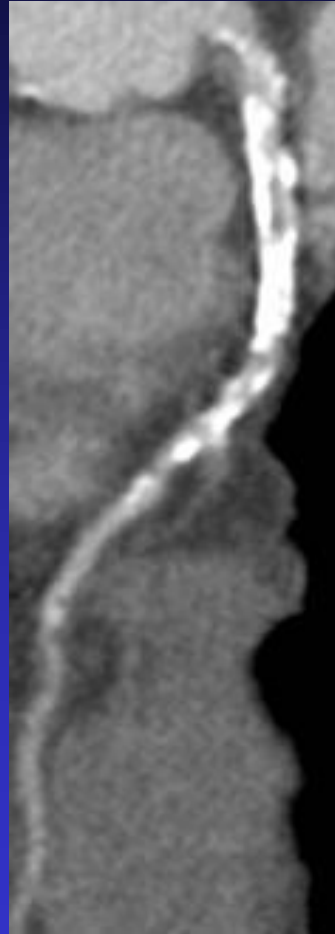
Stent-like Calcification



Severe Calcification (CCS 10,110)



RCA



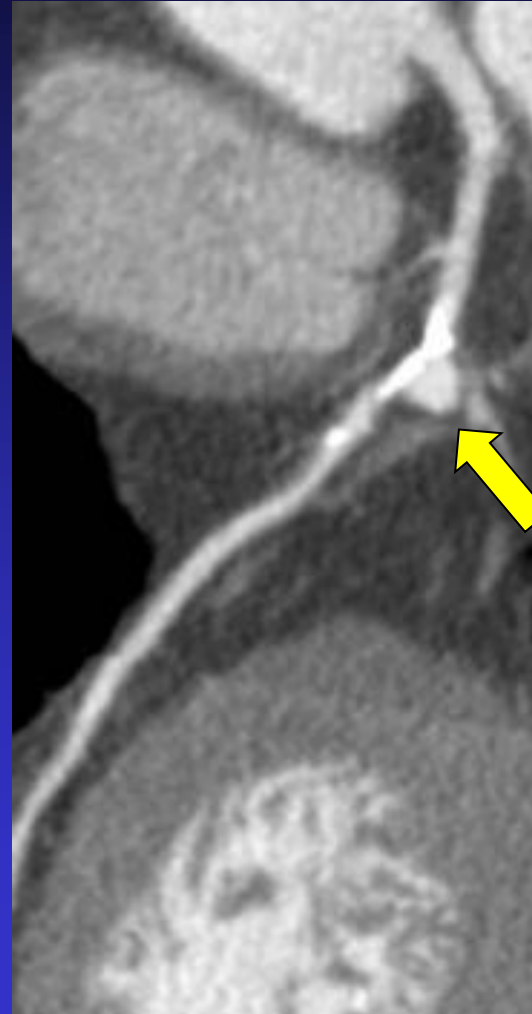
LAD

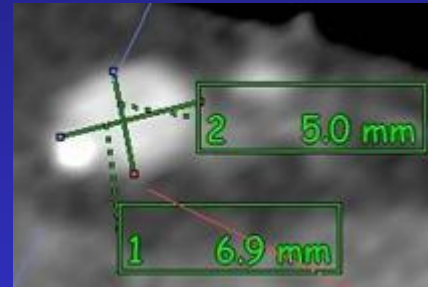
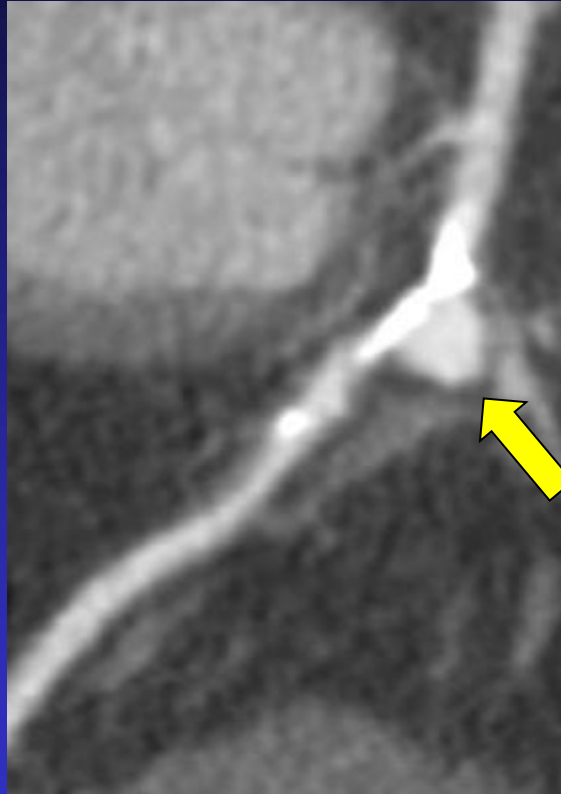


LCX

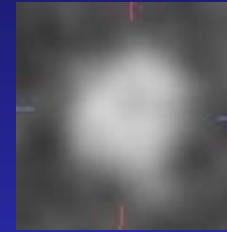
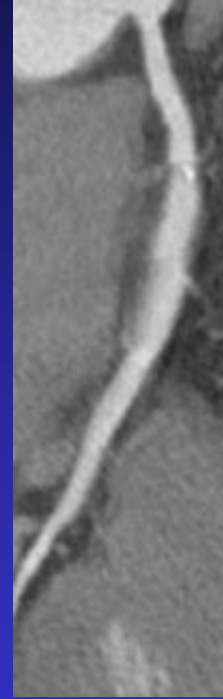
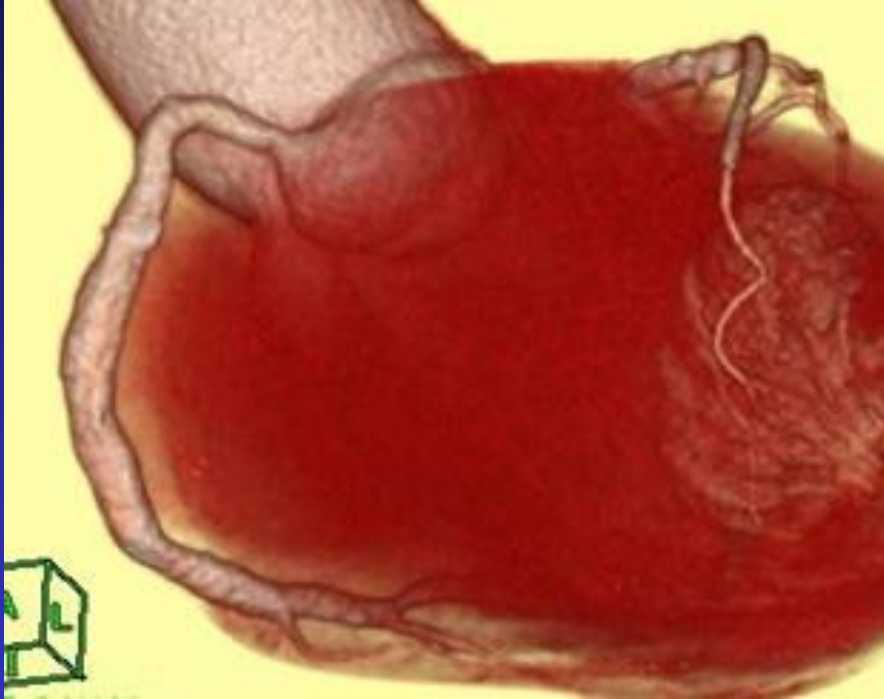
F. Coronary Artery Aneurysm Coronary Artery Ectasia

Coronary Artery Aneurysm



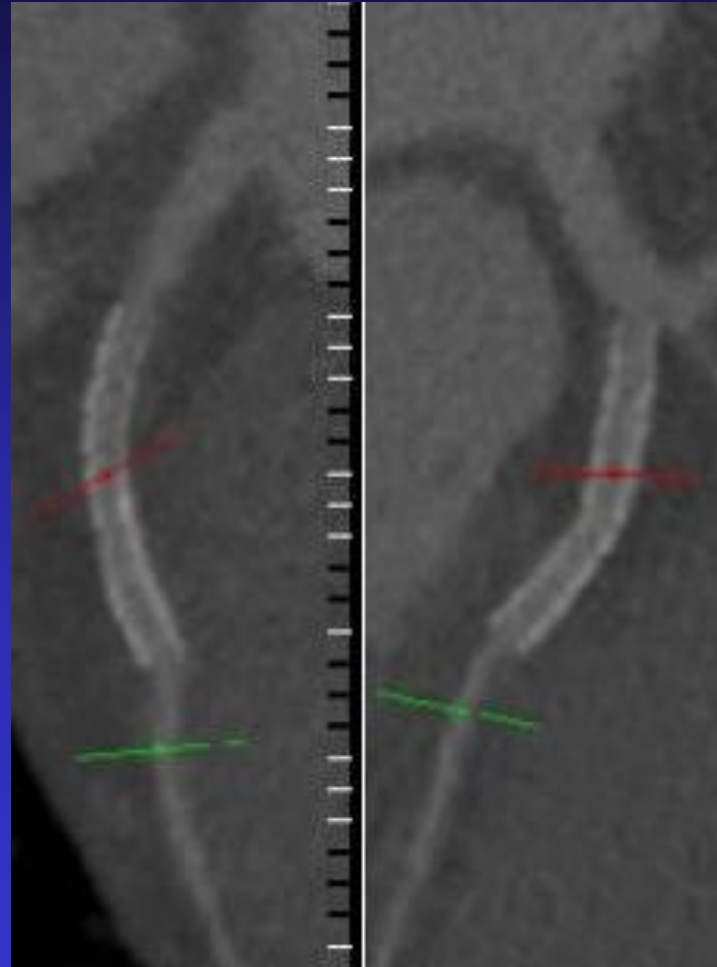


Coronary Ectasia

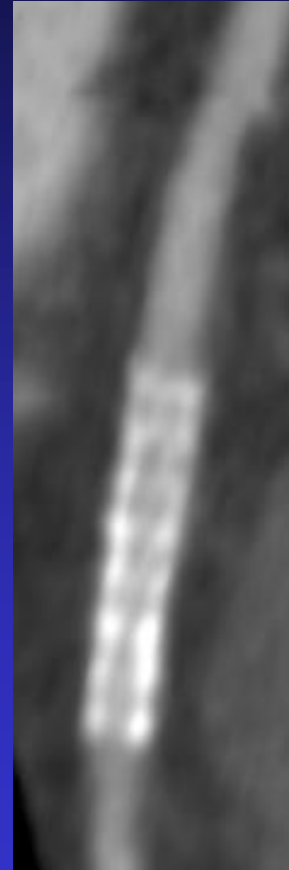
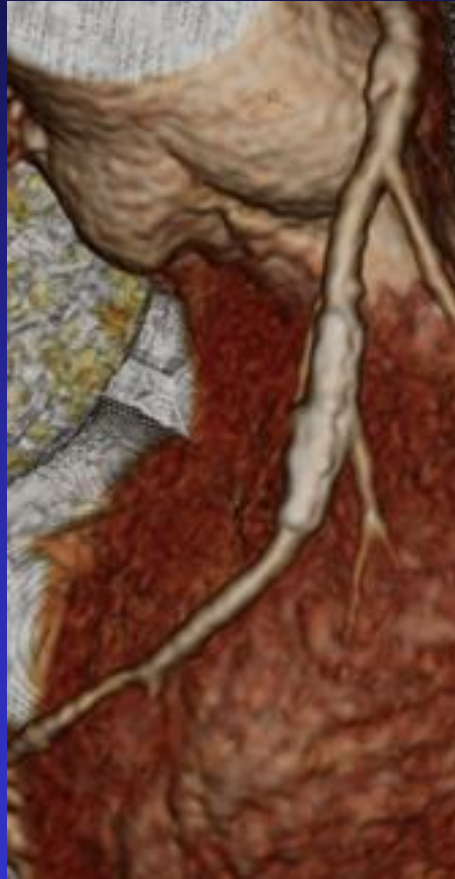


G. Coronary Stent

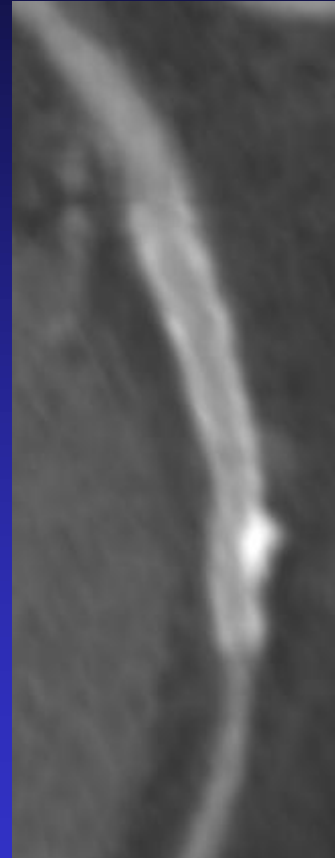
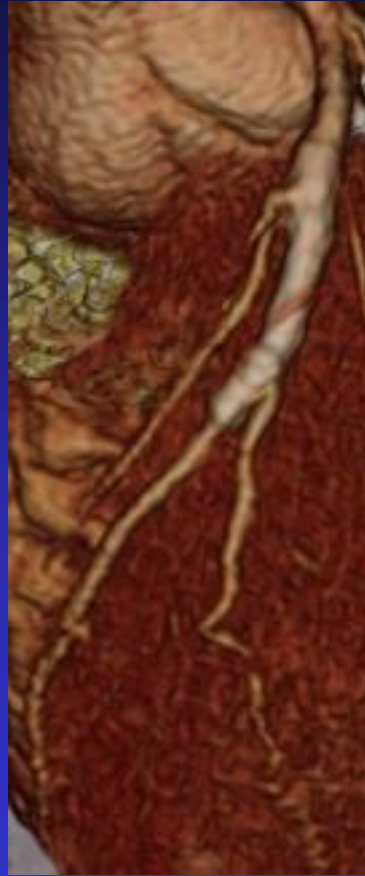
Vision Stent



Cypher Stent



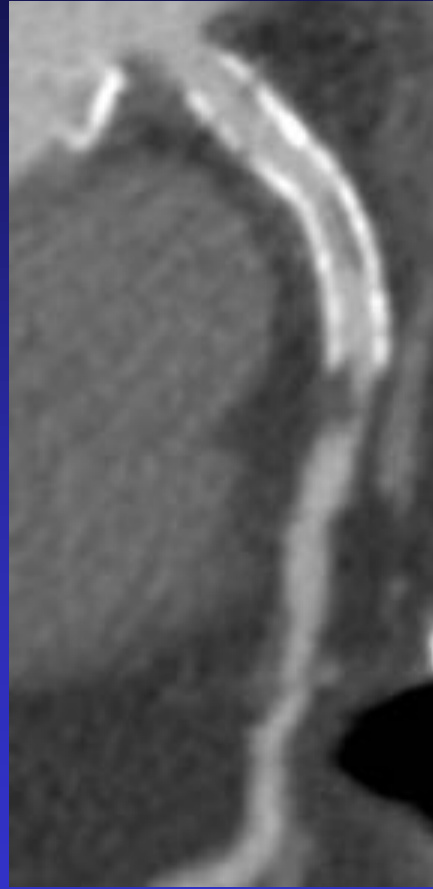
Taxus Stent



XPedition Stent

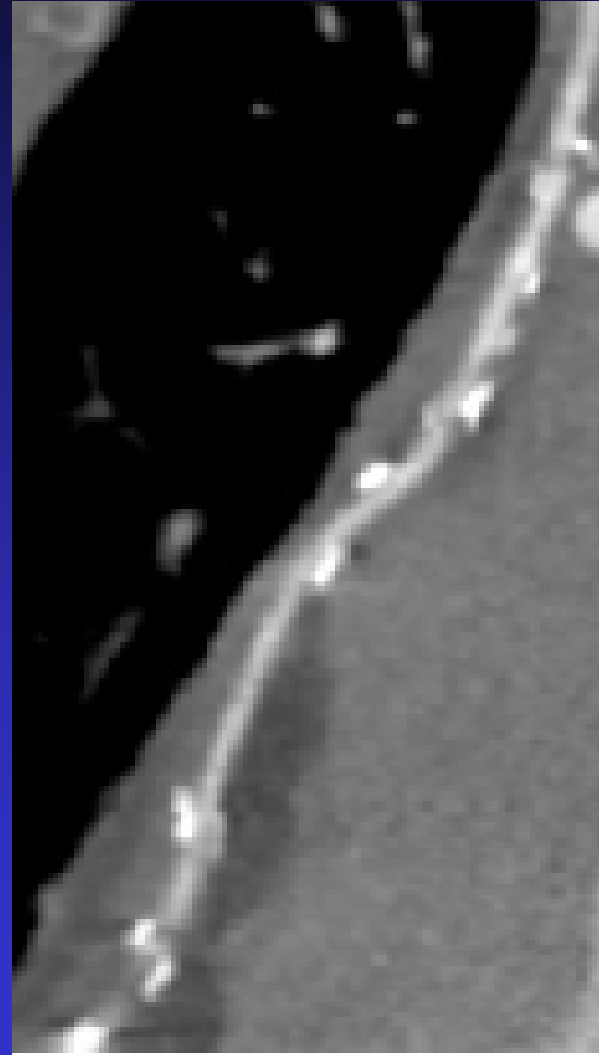
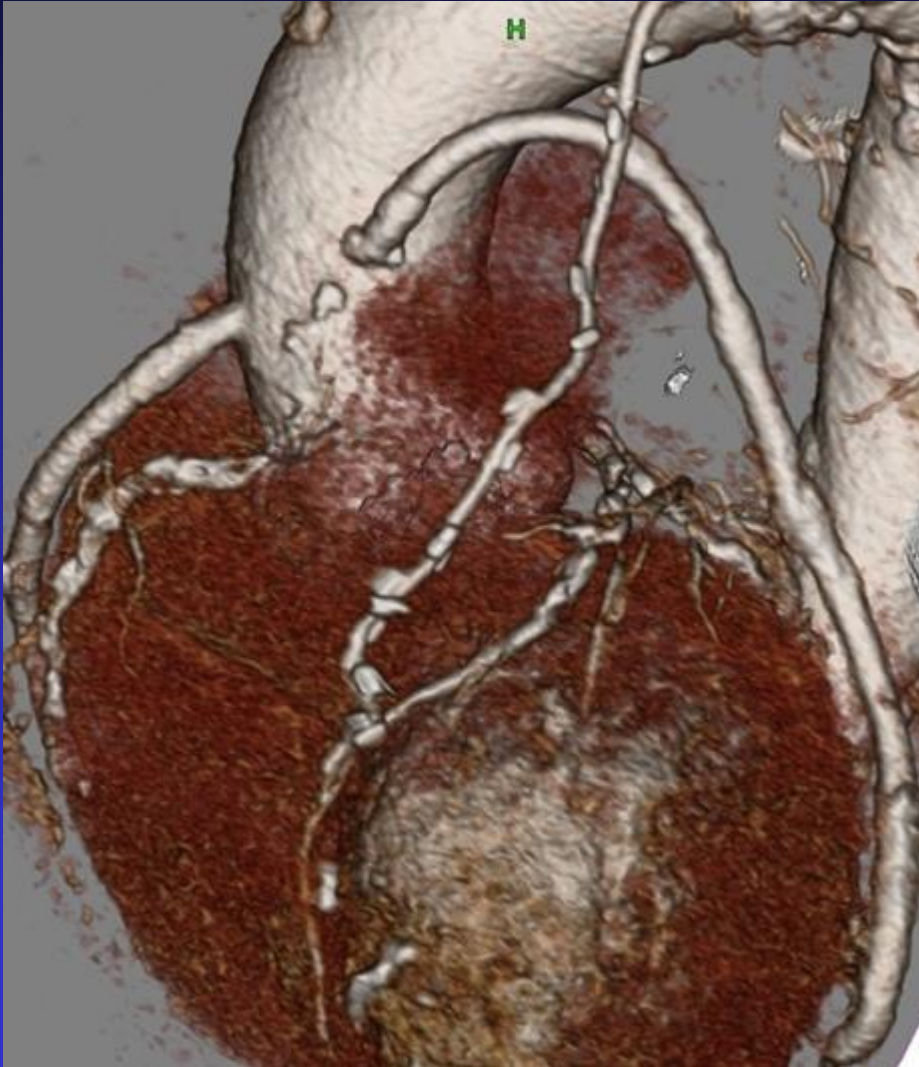


In-Stent Restenosis

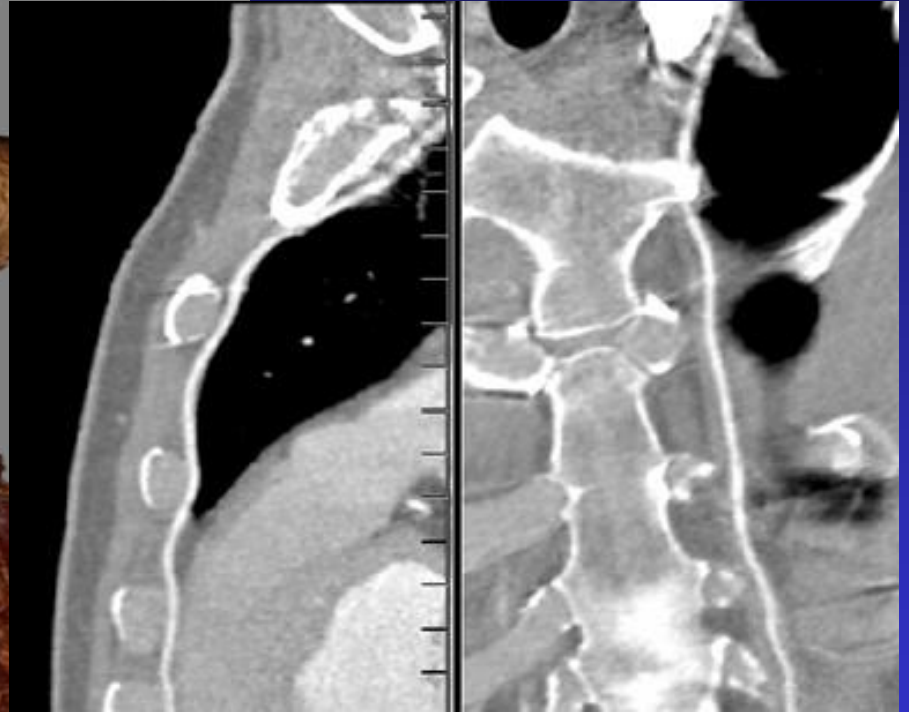
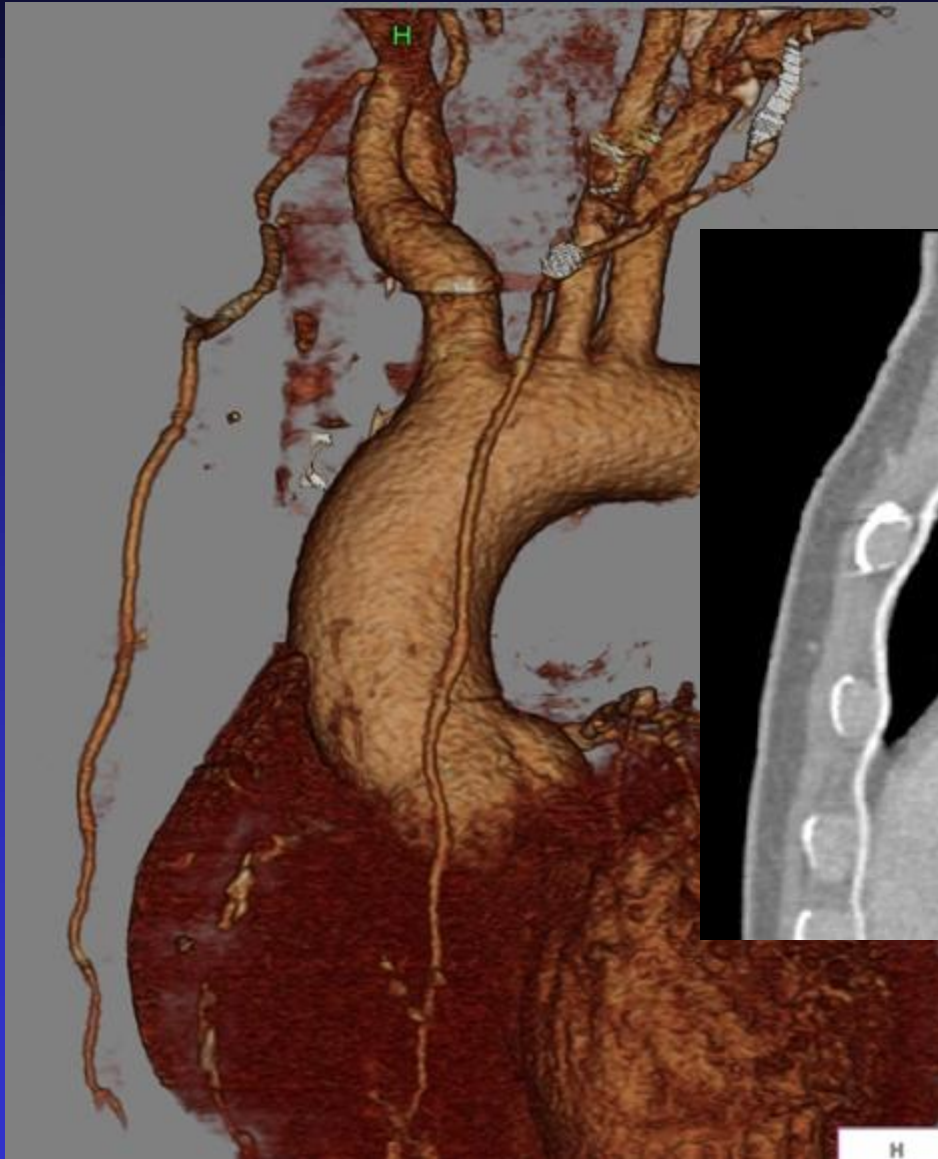


H. Coronary Artery Bypass Graft Surgery

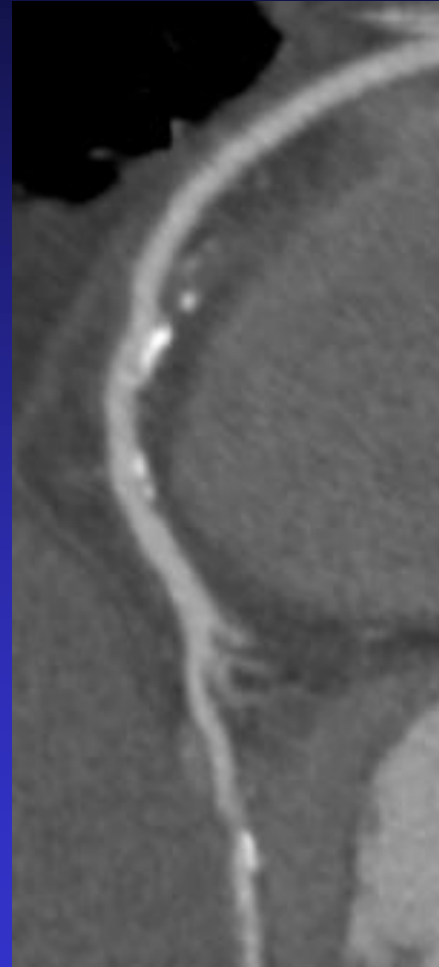
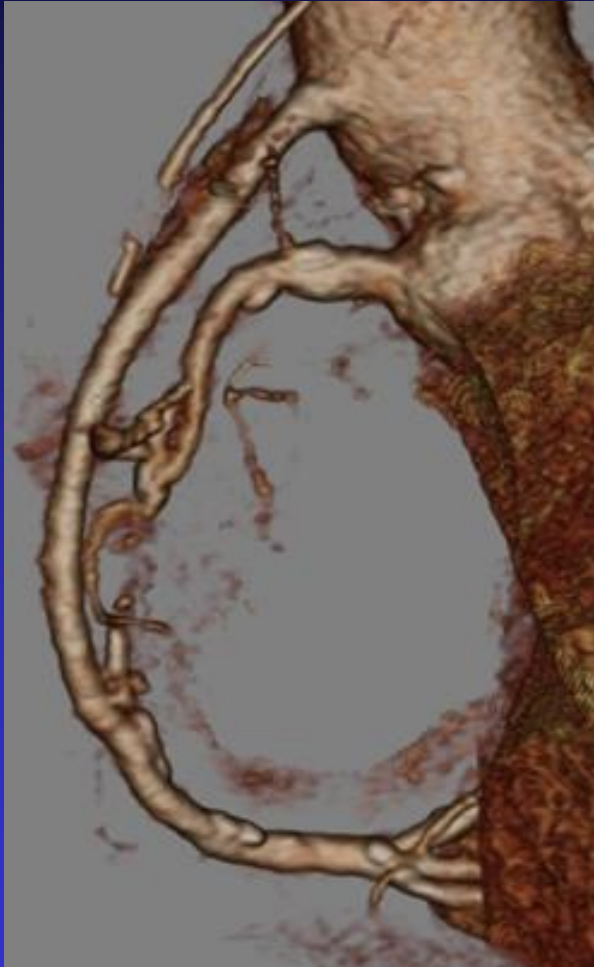
CABG (LITA)

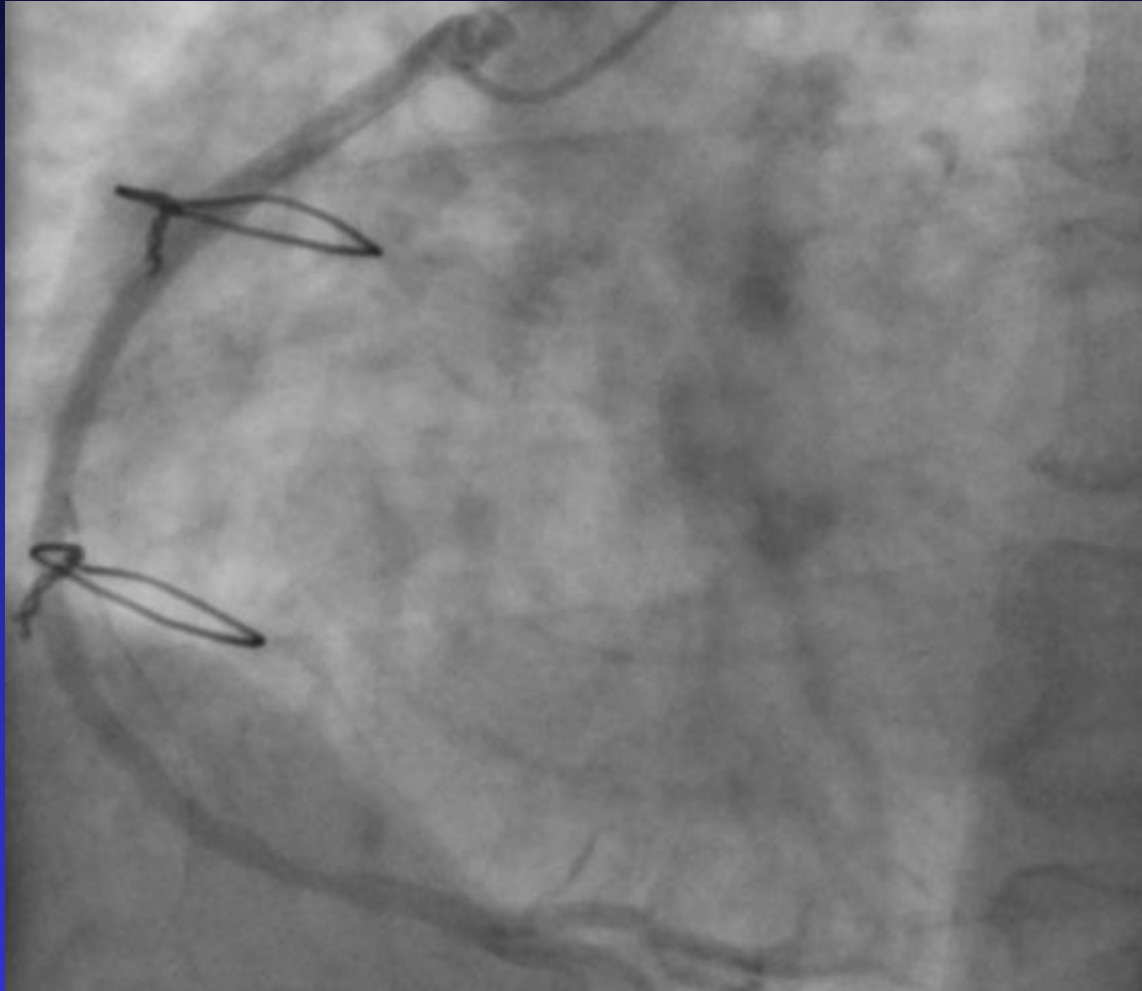


LITA

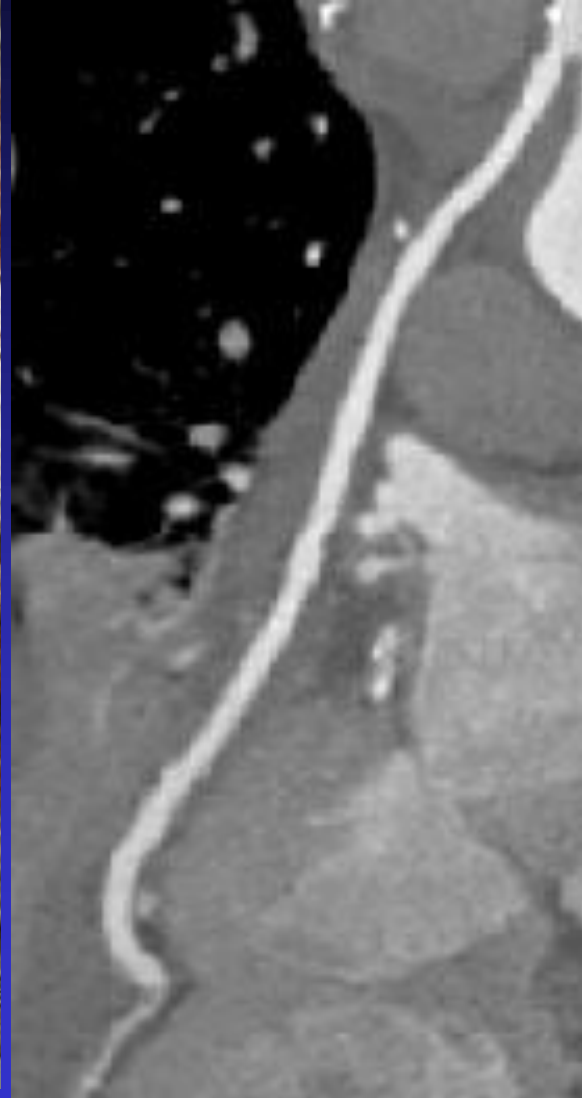
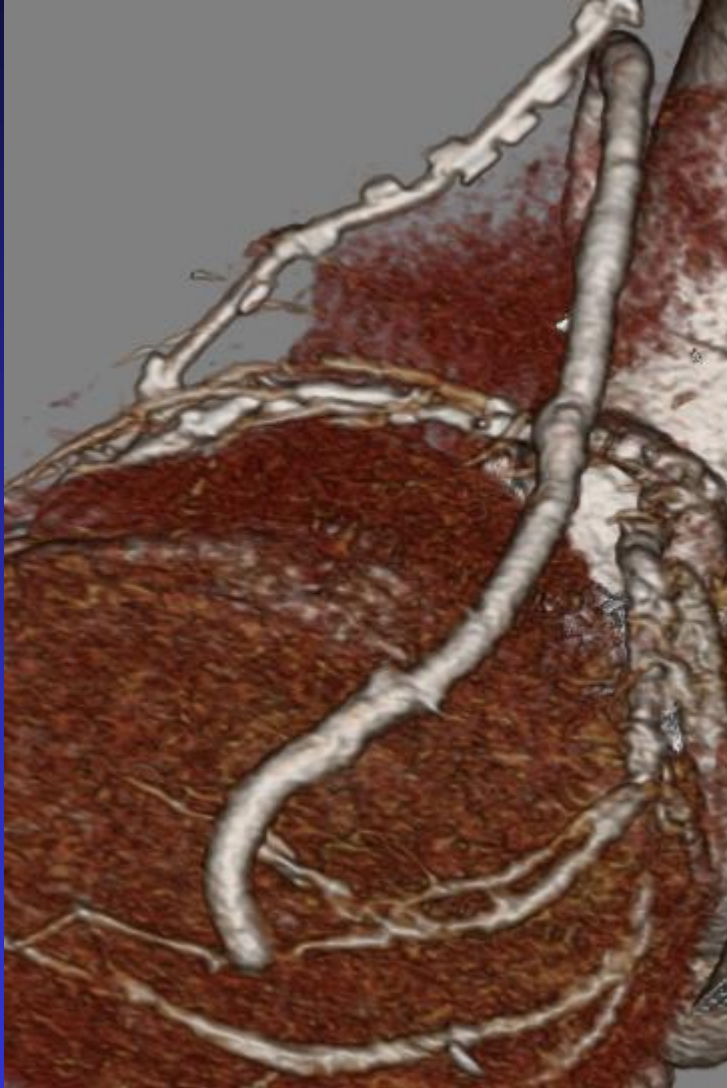


CABG (SVG)



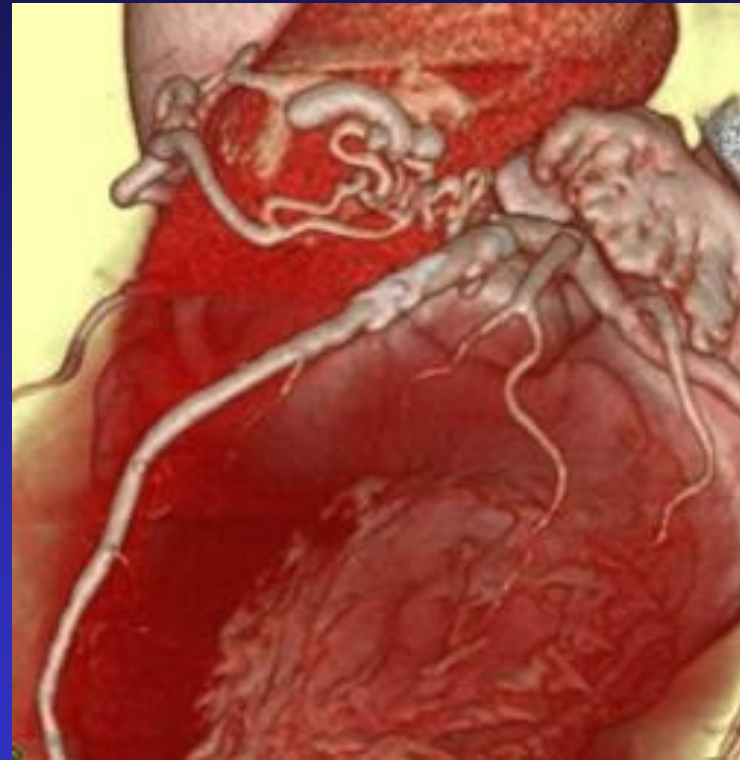


CABG (SVG)

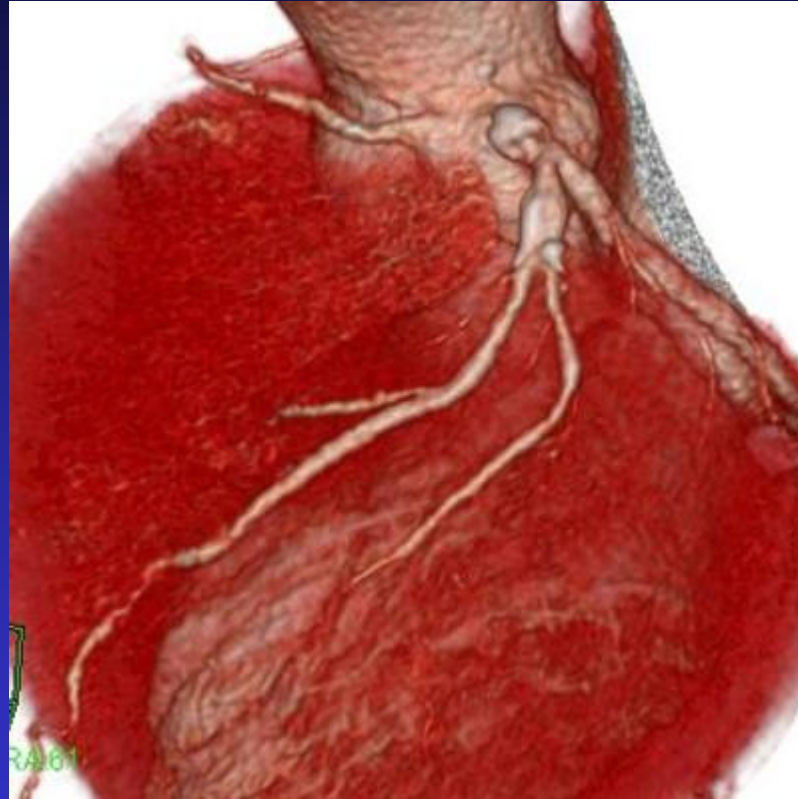


I. Anomalous Coronary Artery

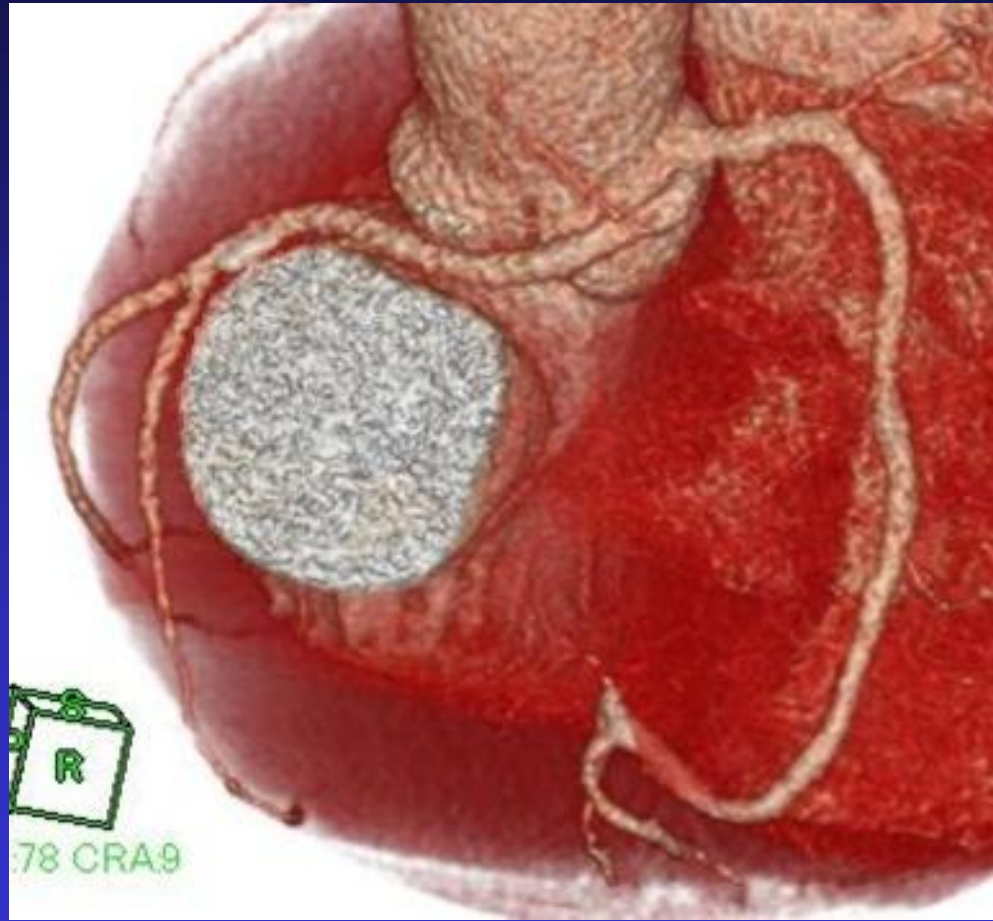
Coronary-PA Fistula



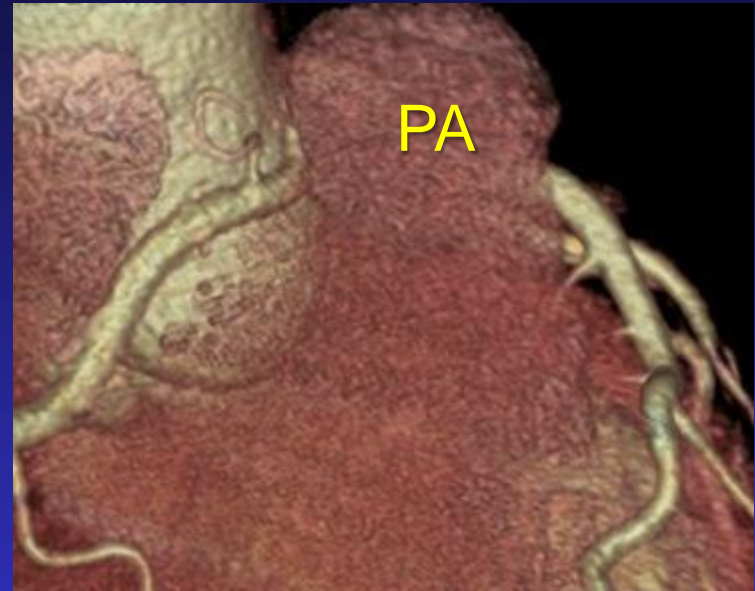
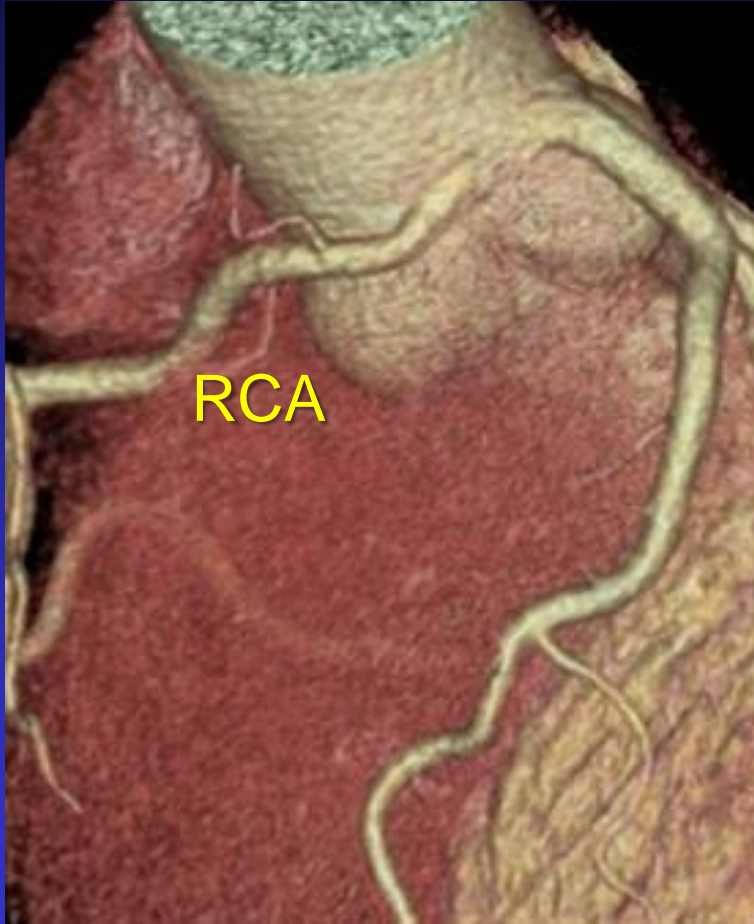
Single Coronary Artery

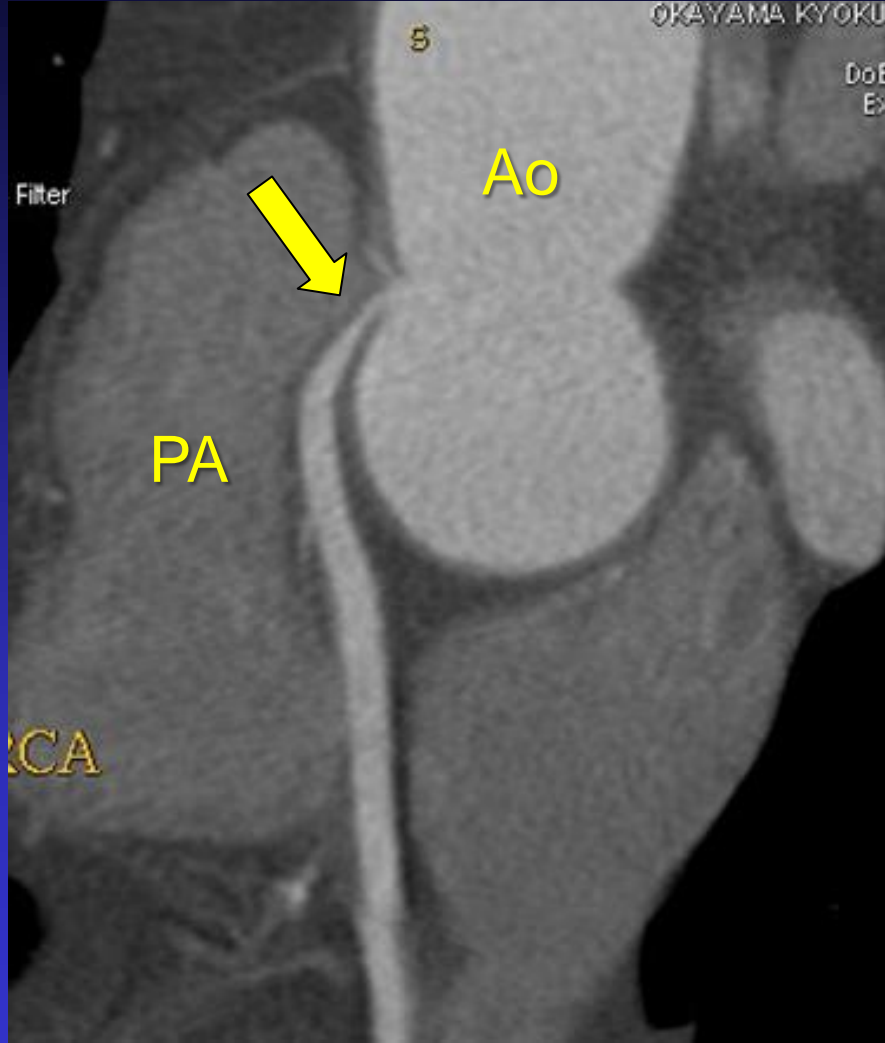


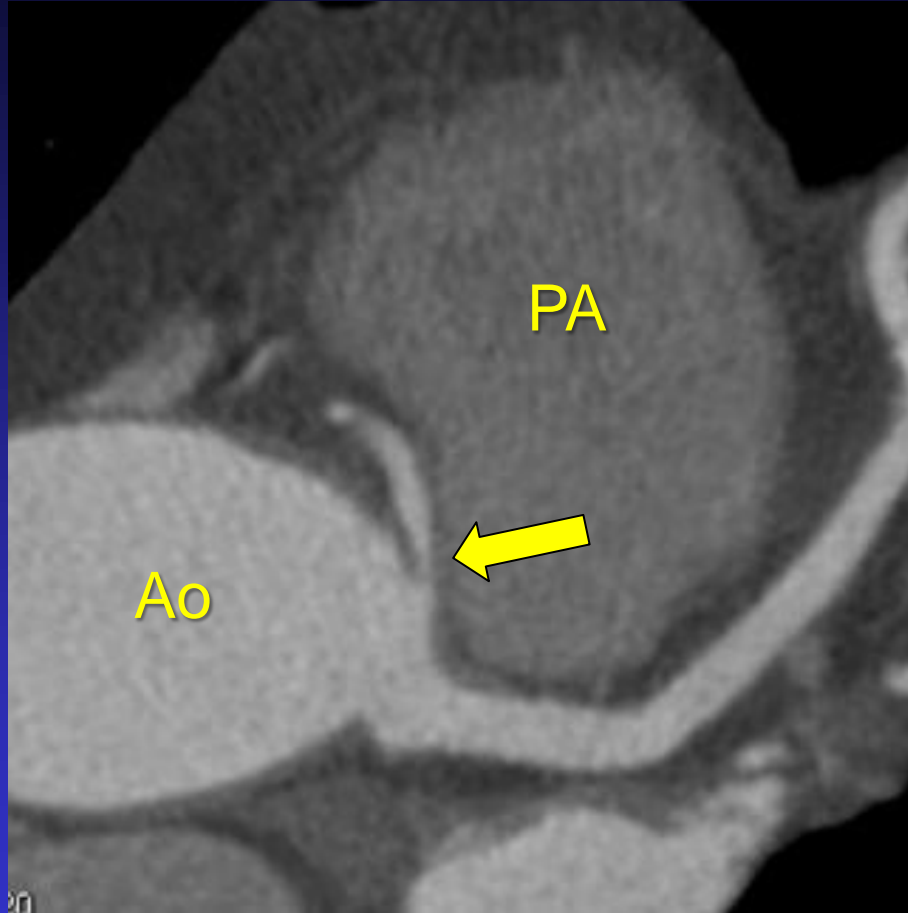
Anomalous Coronary Artery

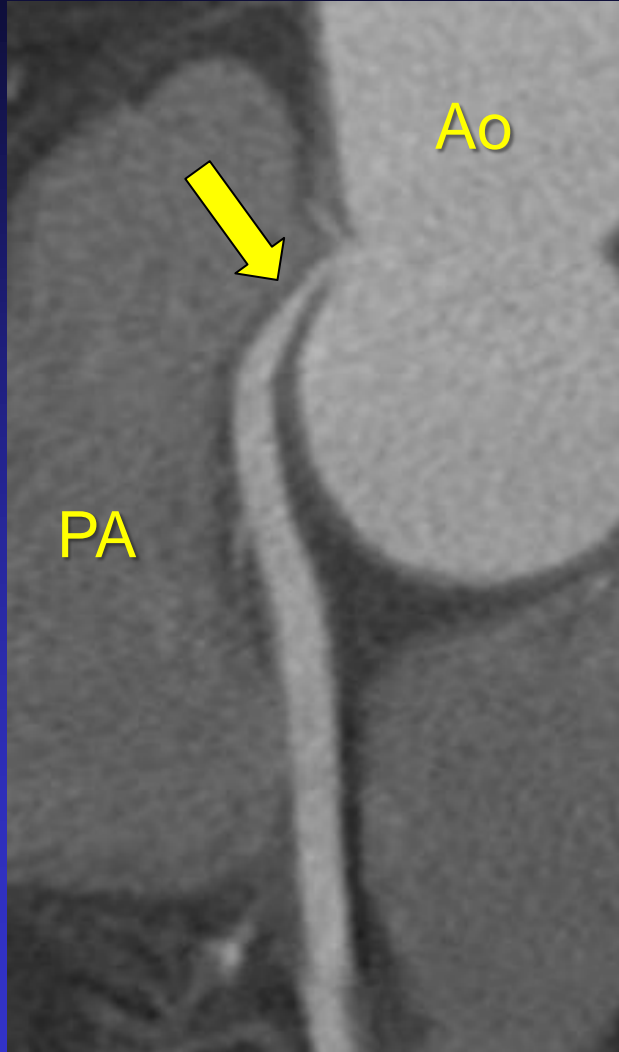


Anomalous Origin of RCA



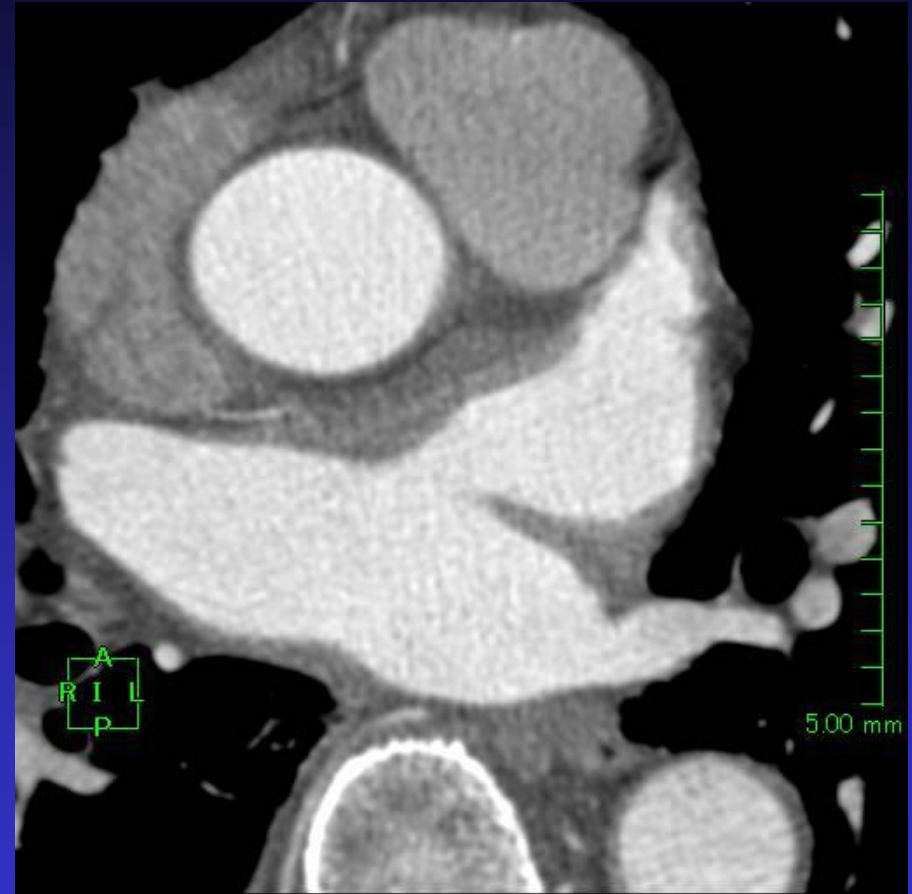
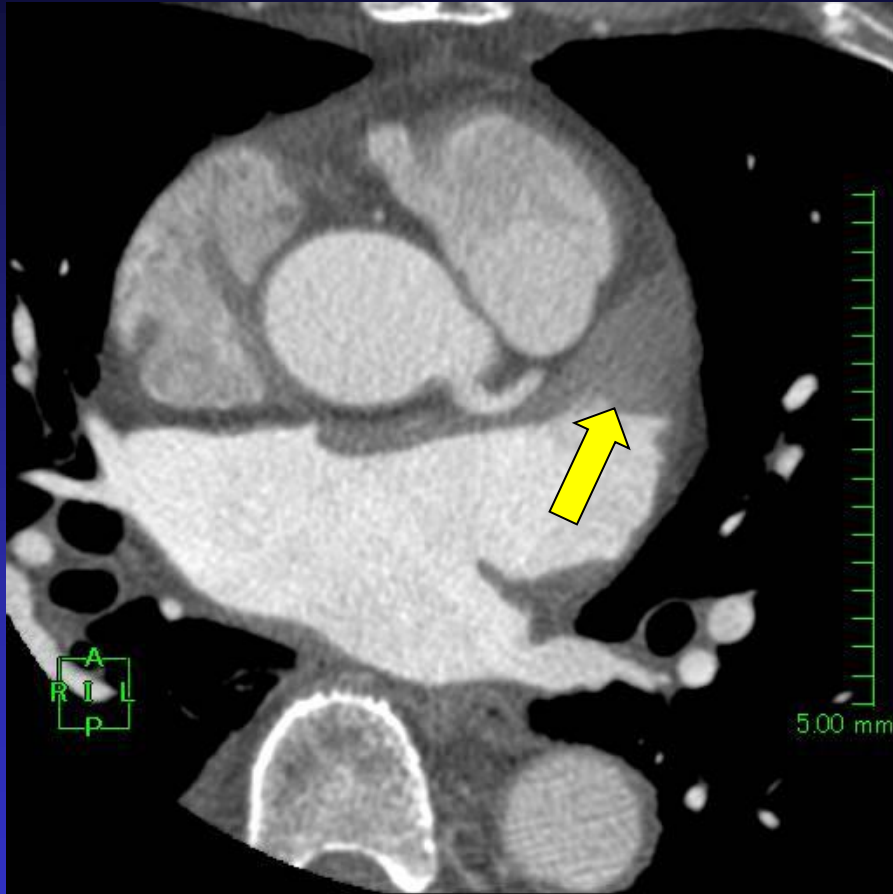






J. Embolic Stroke

LAA Thrombus



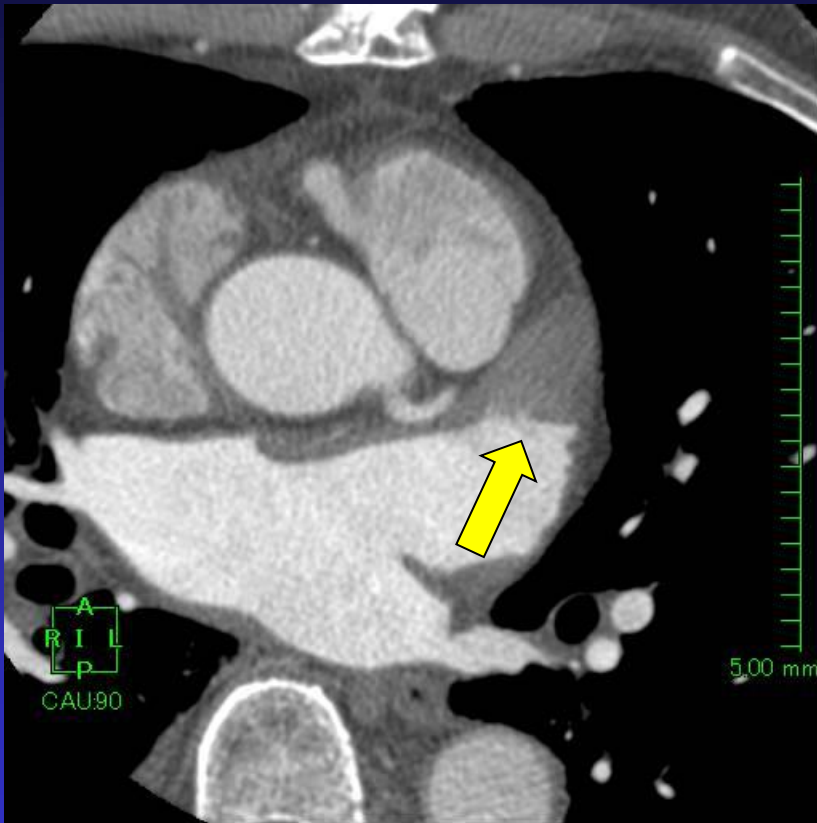
10 days later

LAA Thrombus: Early and Delayed



LAA/Ao 0.25

LAA Thrombus: Early and Delayed



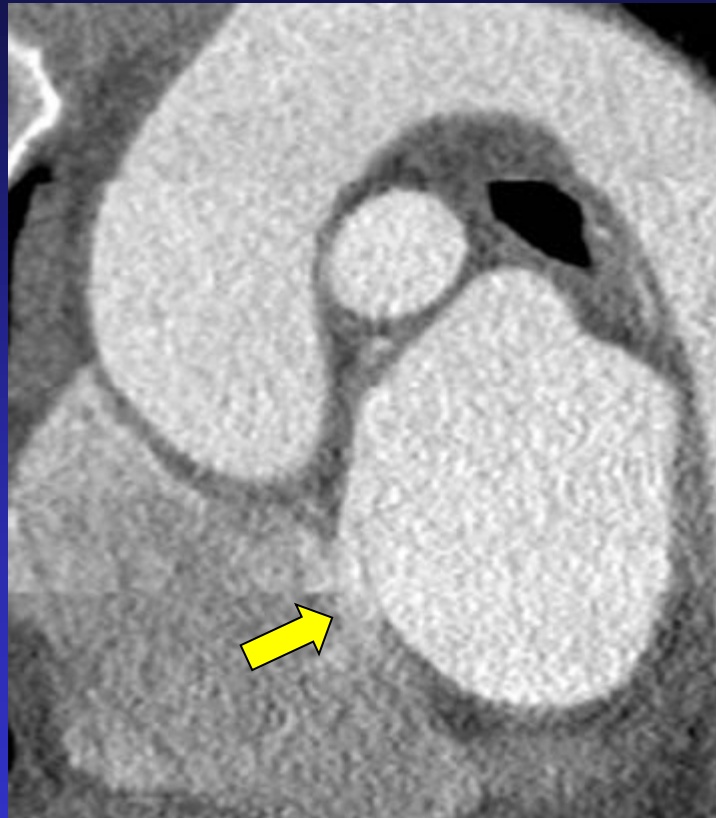
LAA/Ao 0.18

Patent Foramen Ovale

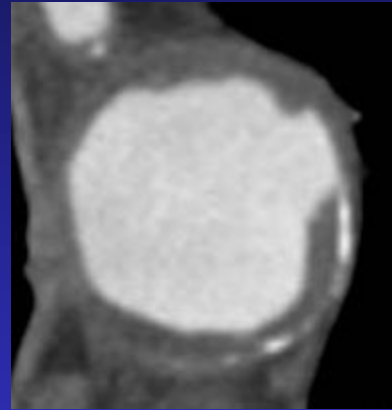
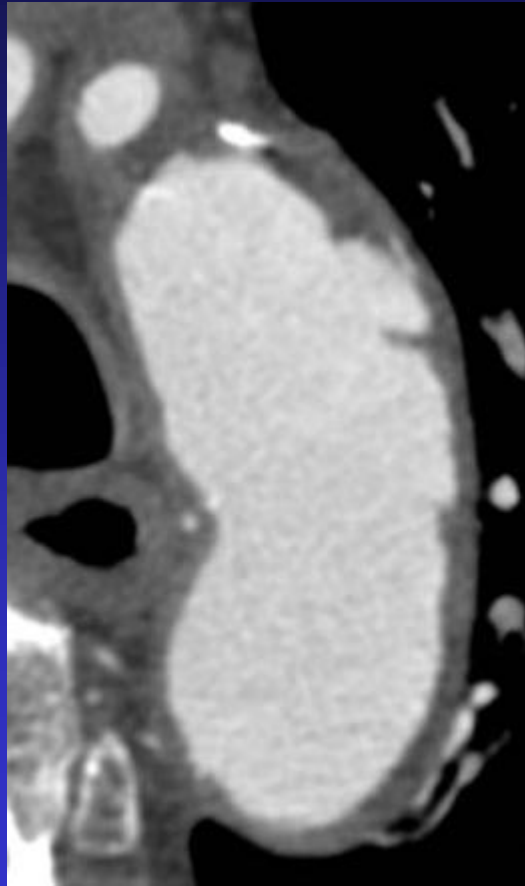




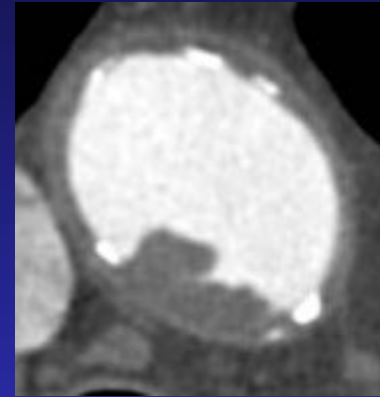
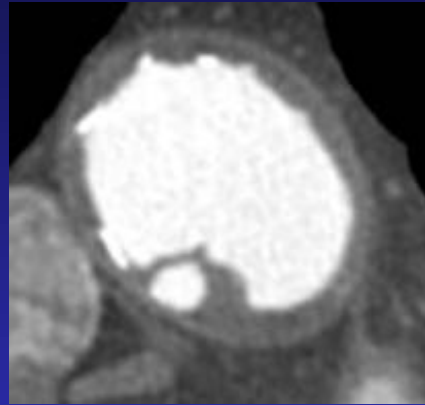
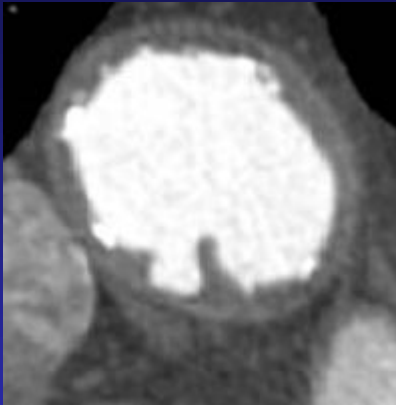
Patent Foramen Ovale



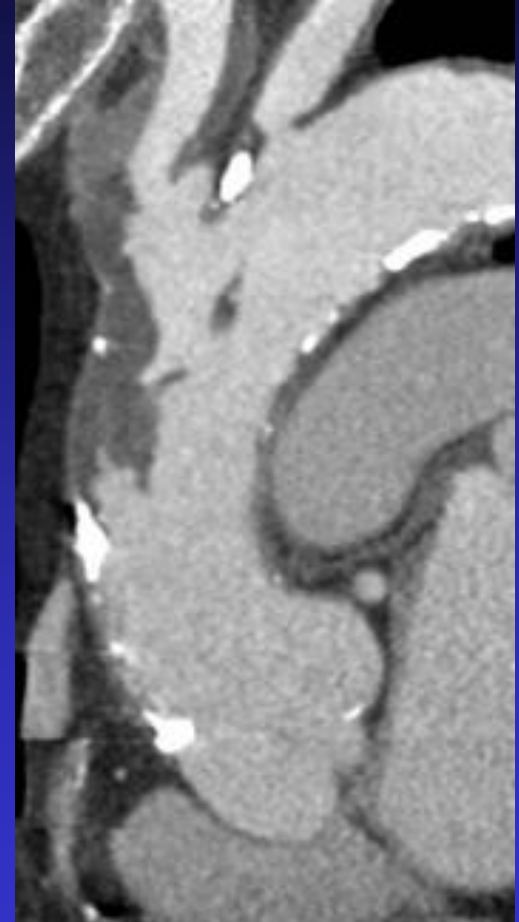
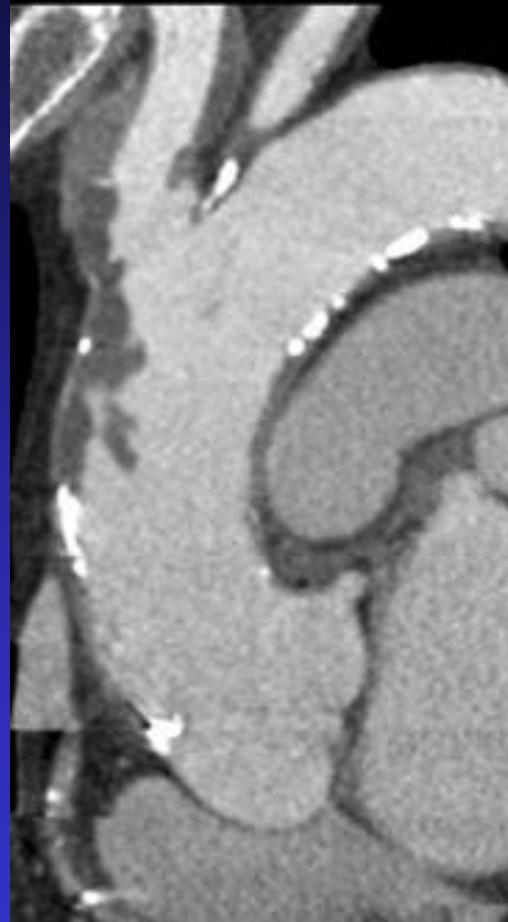
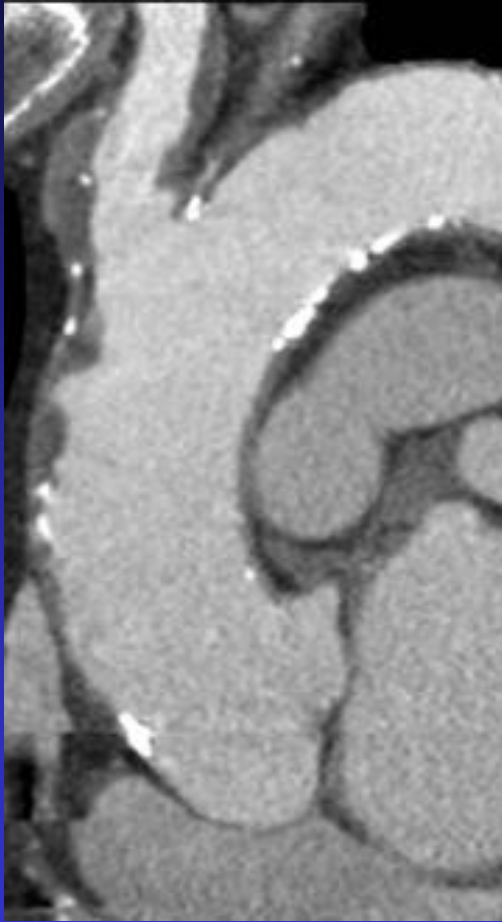
Aortic Atheroma (Aortic Arch)



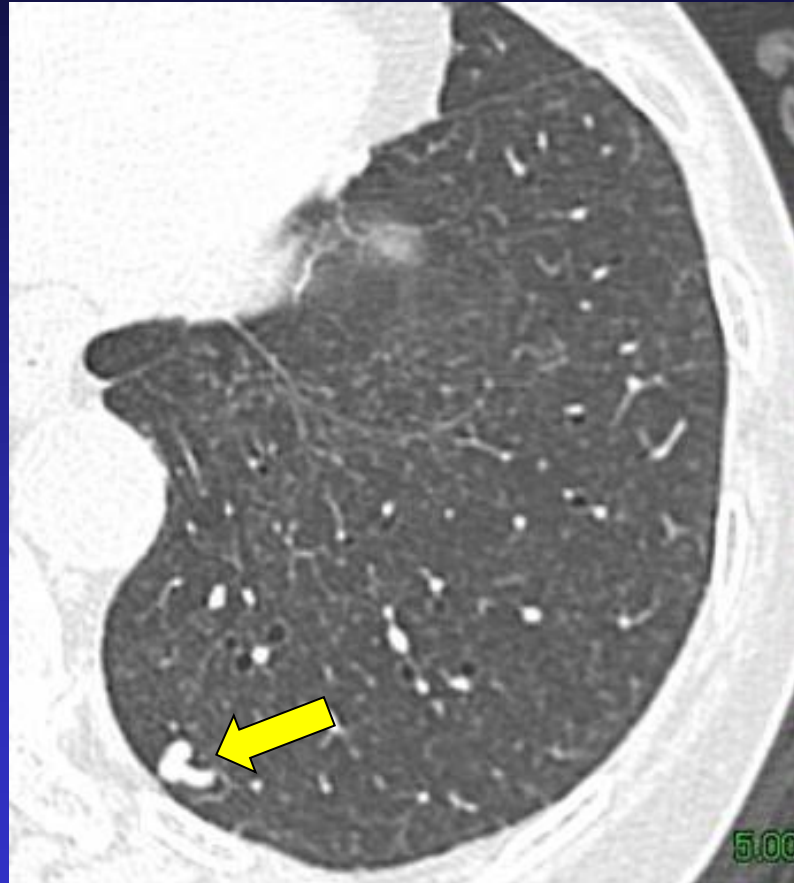
Aortic Atheroma (Ascending Aorta)

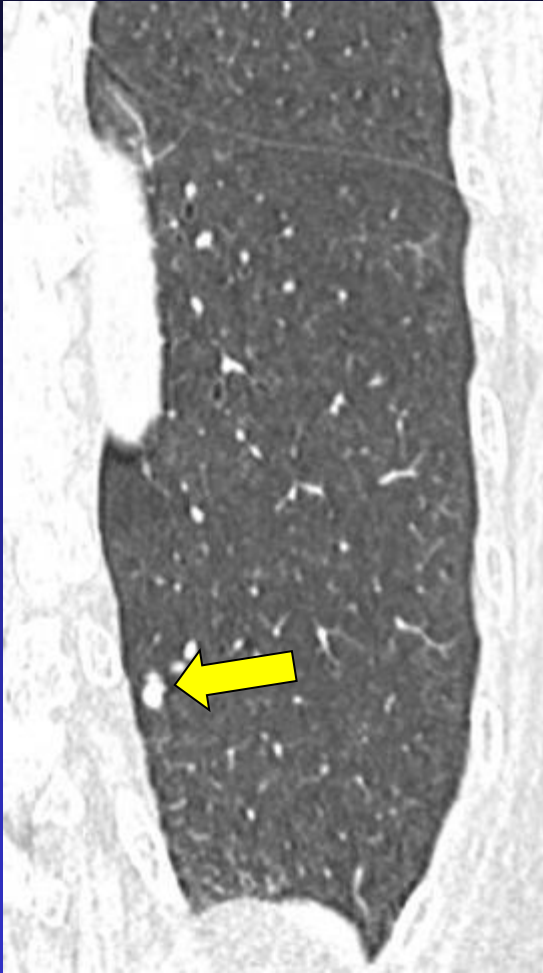


Aortic Atheroma



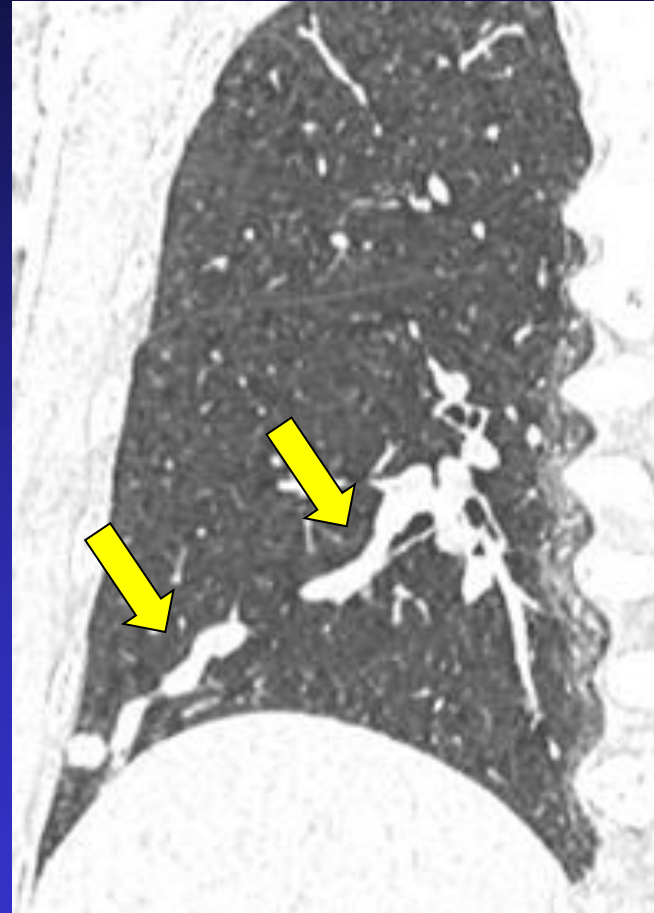
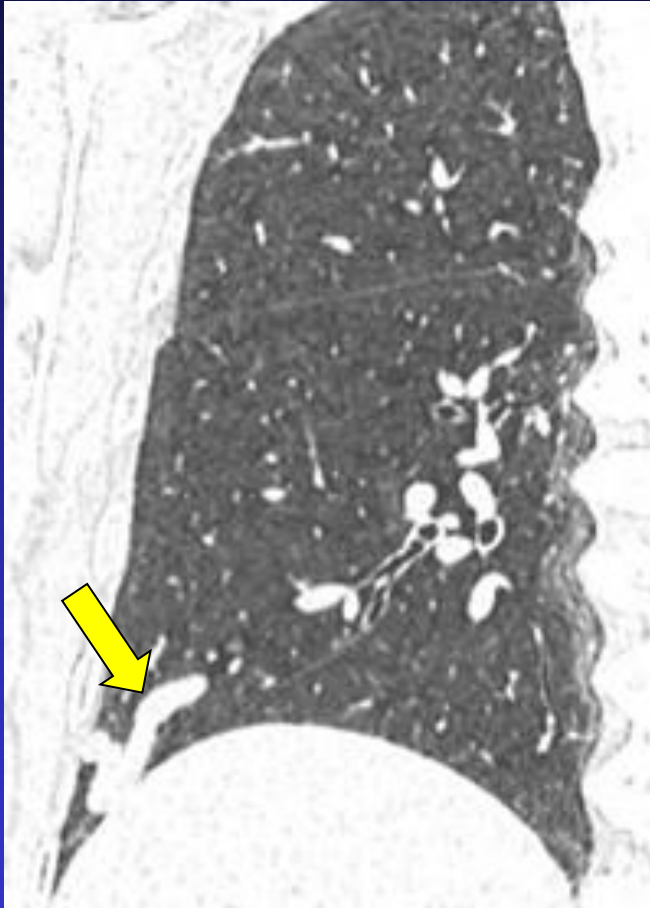
Arterio-Venous Fistula of the Lung

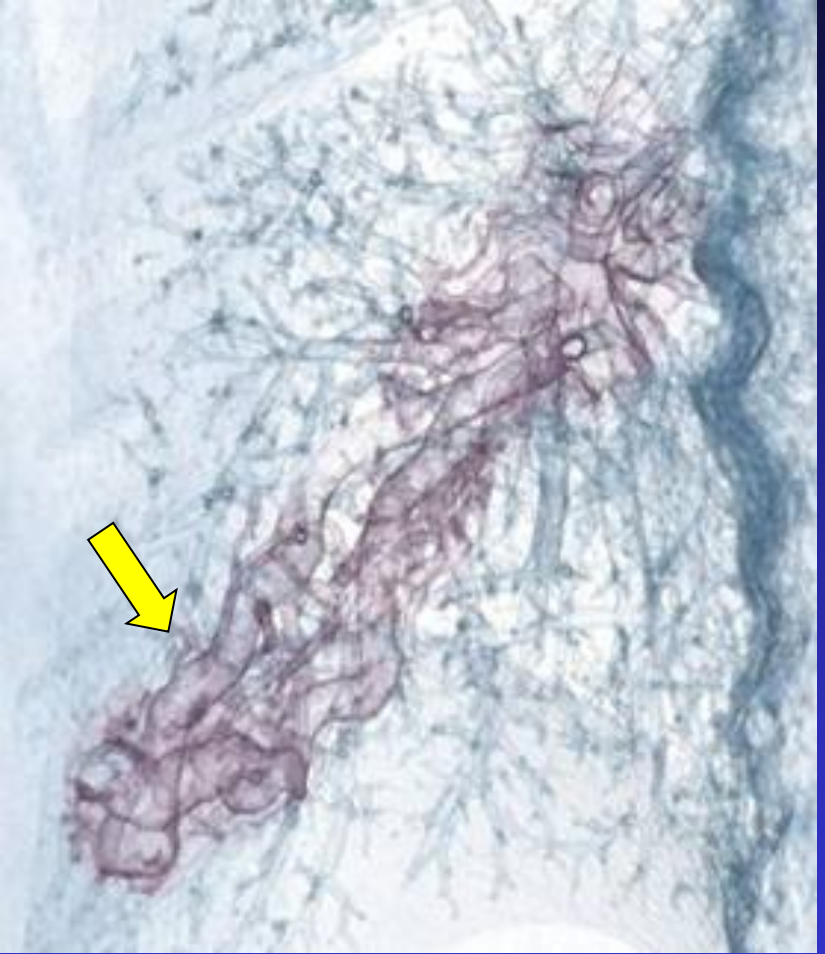
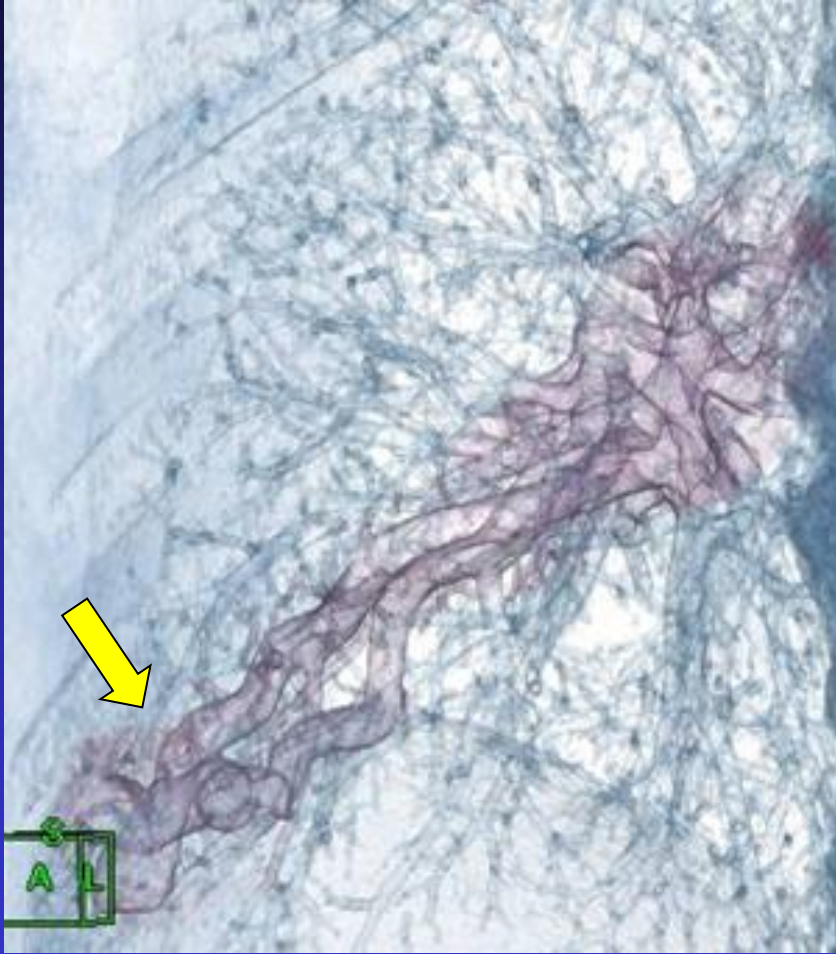






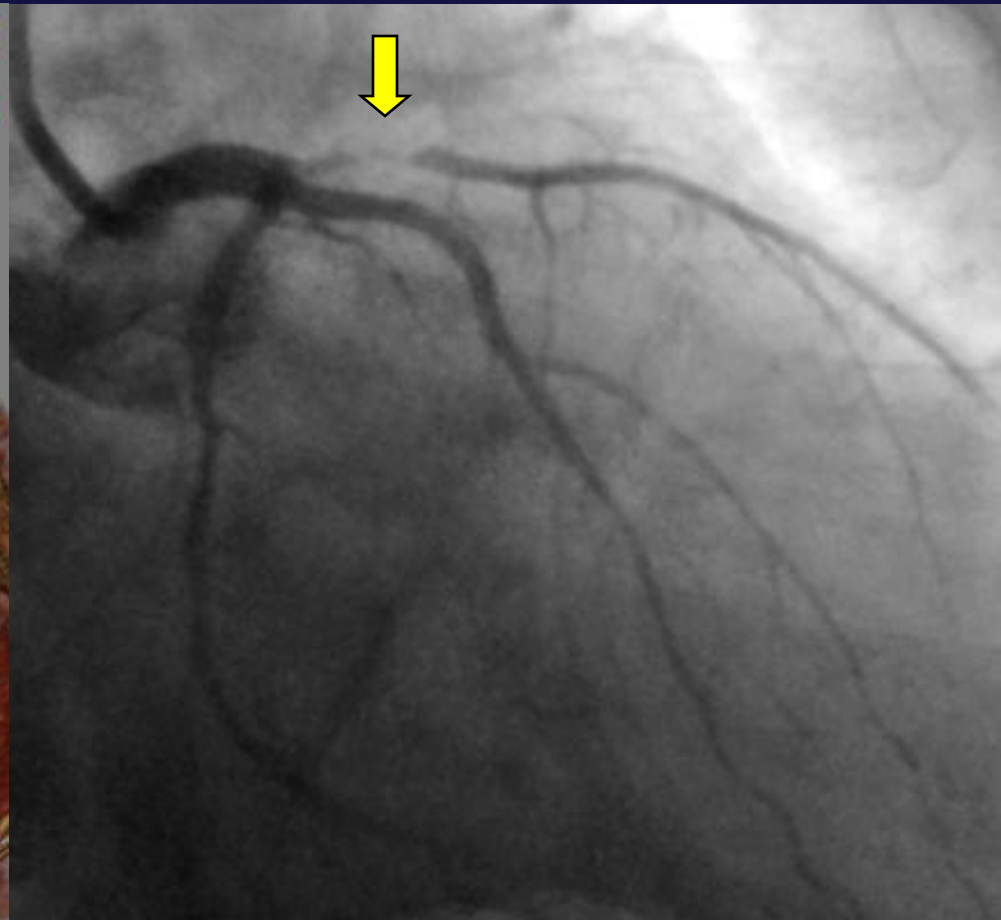
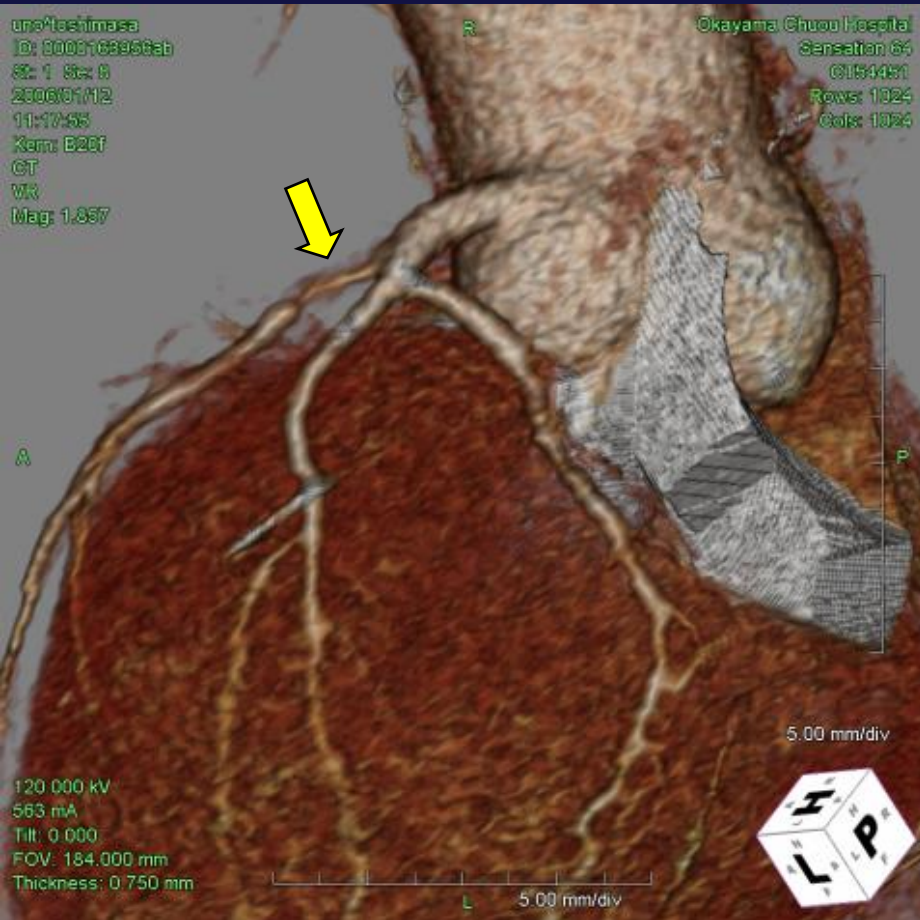
Arterio-Venous Fistula of the Lung

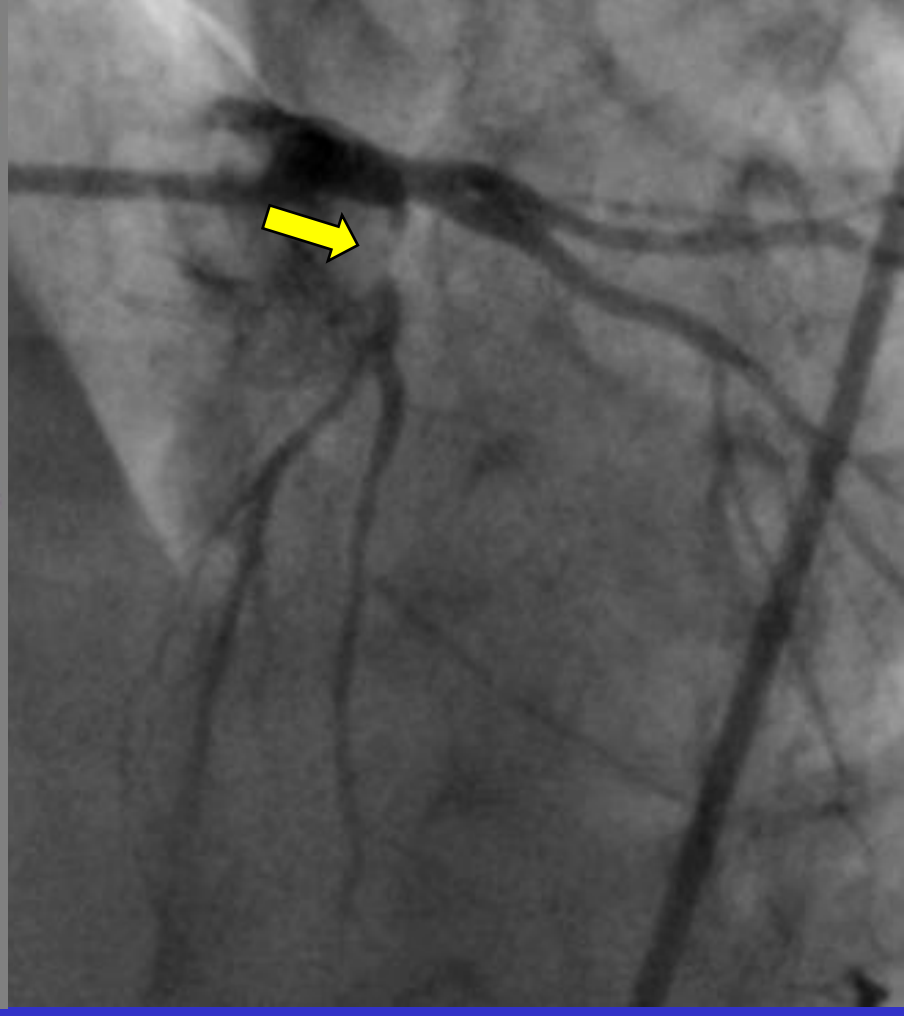
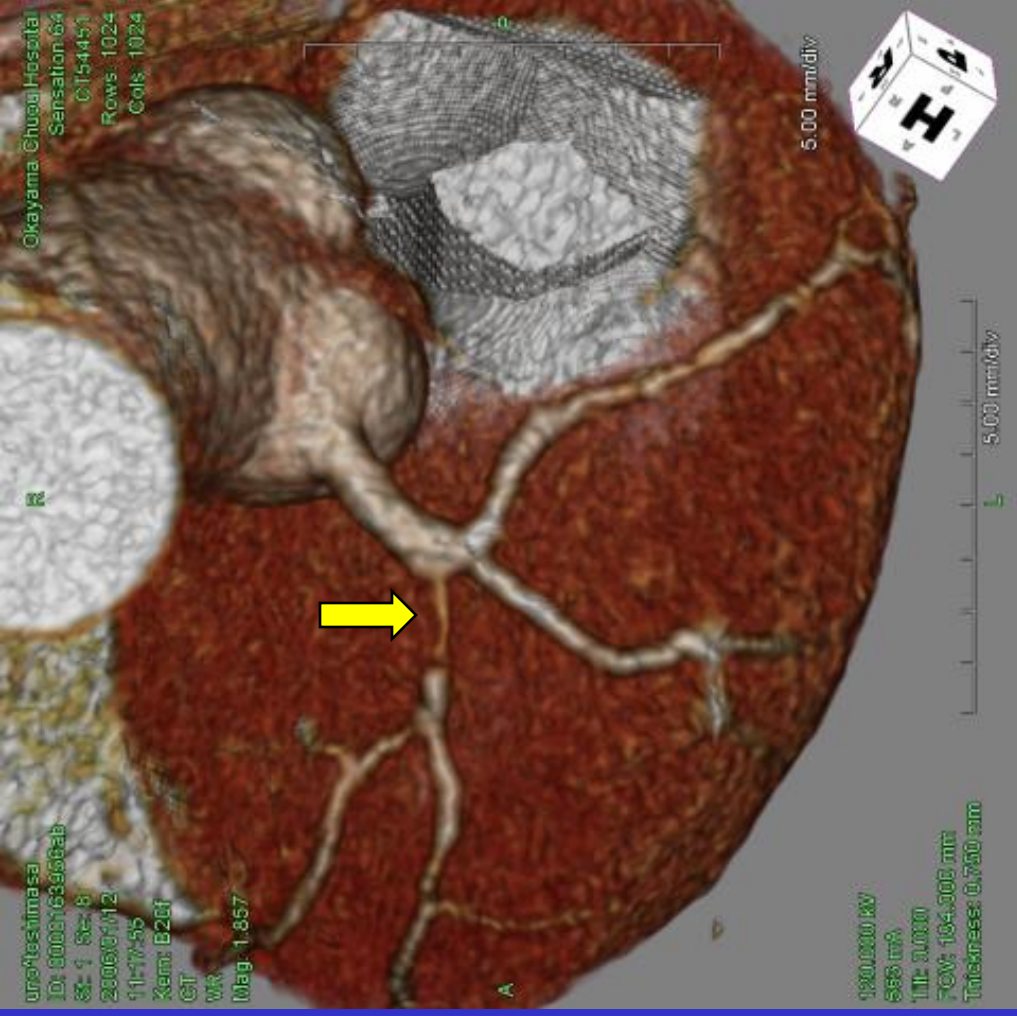


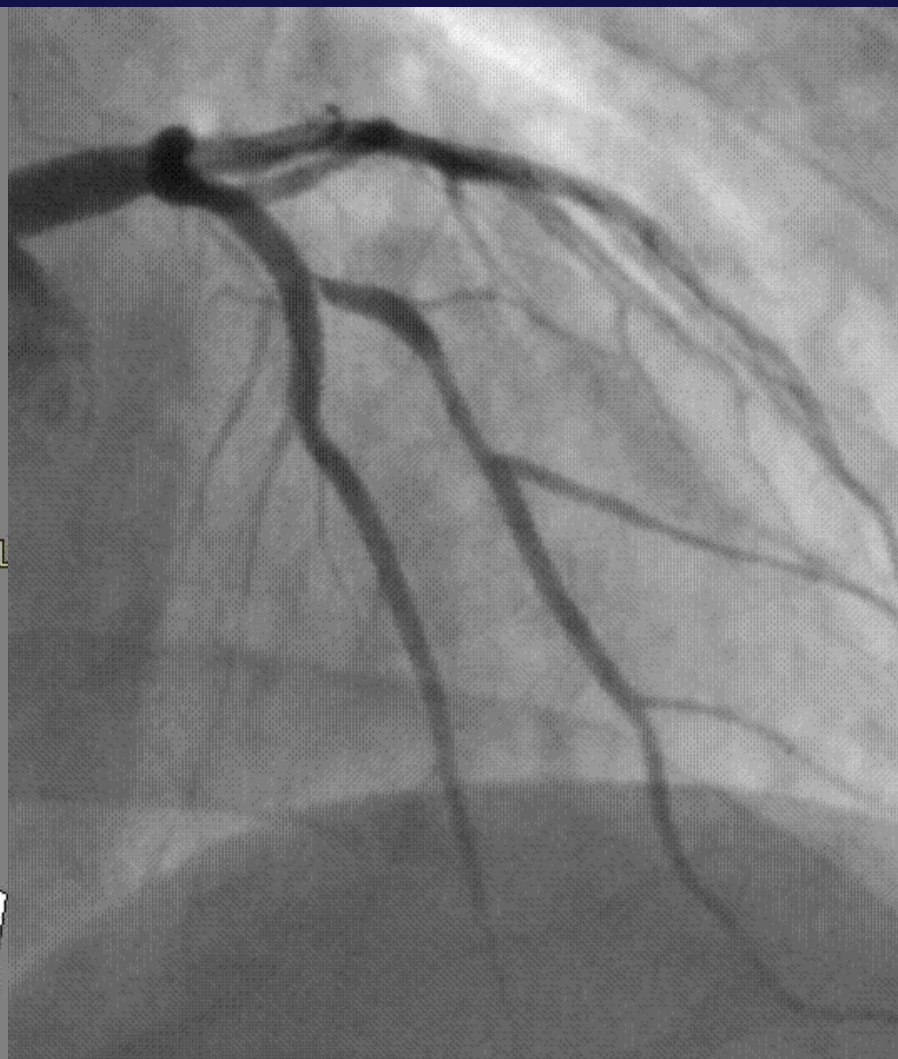
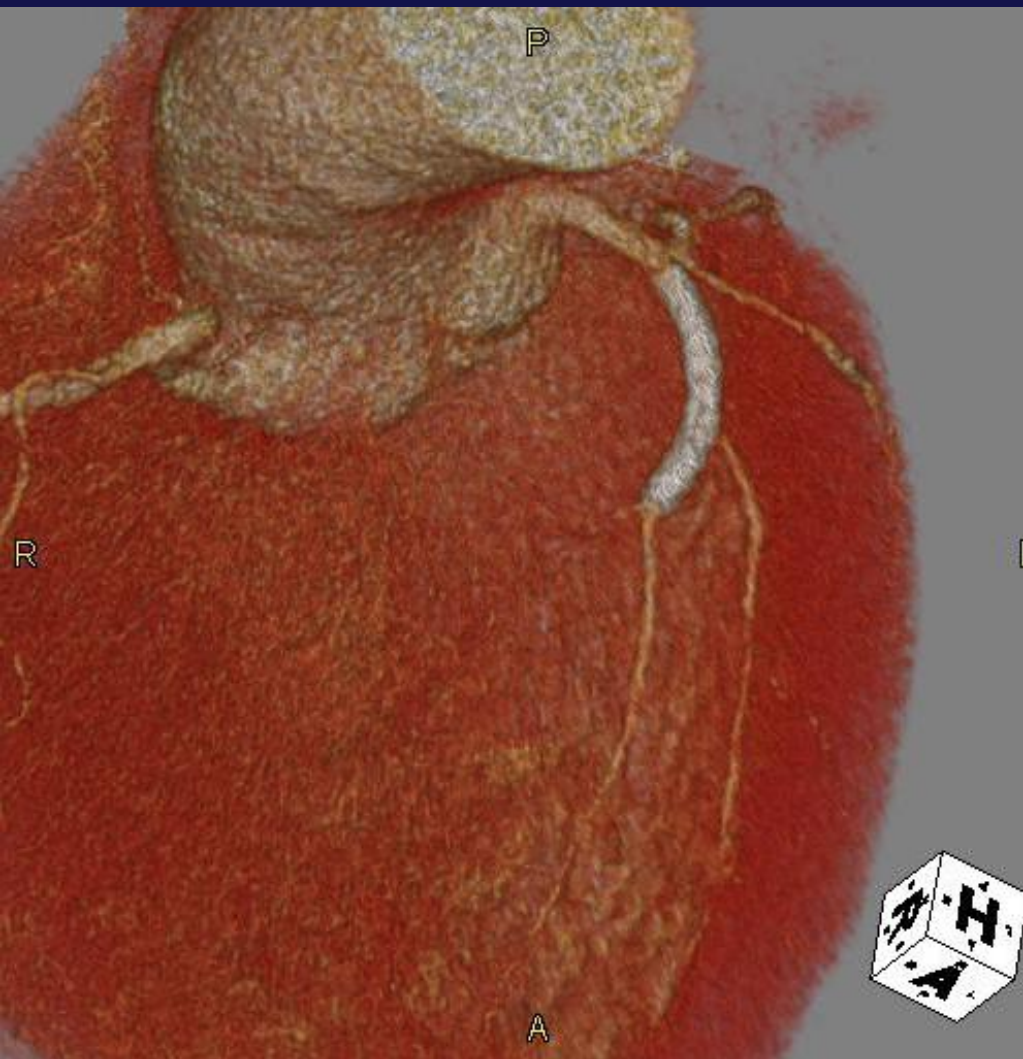


K. Myocardial Infarction

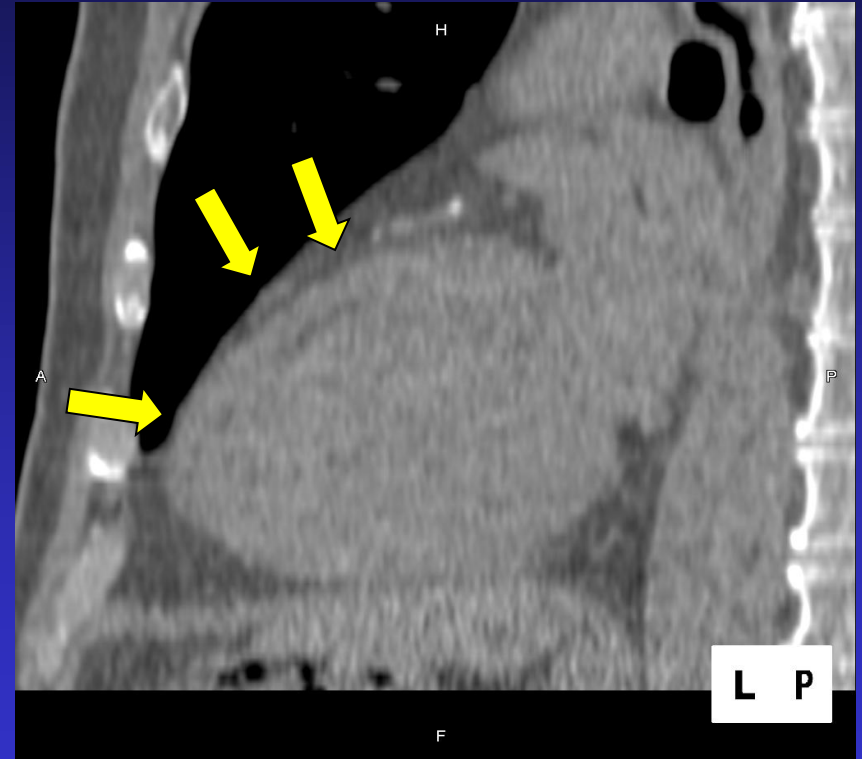
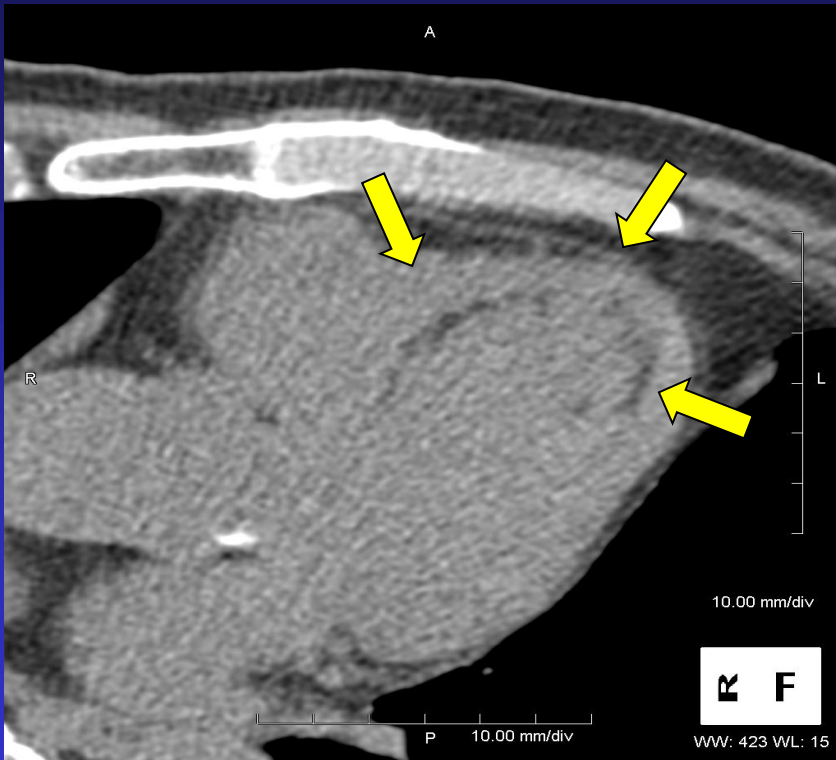
Acute Myocardial Infarction



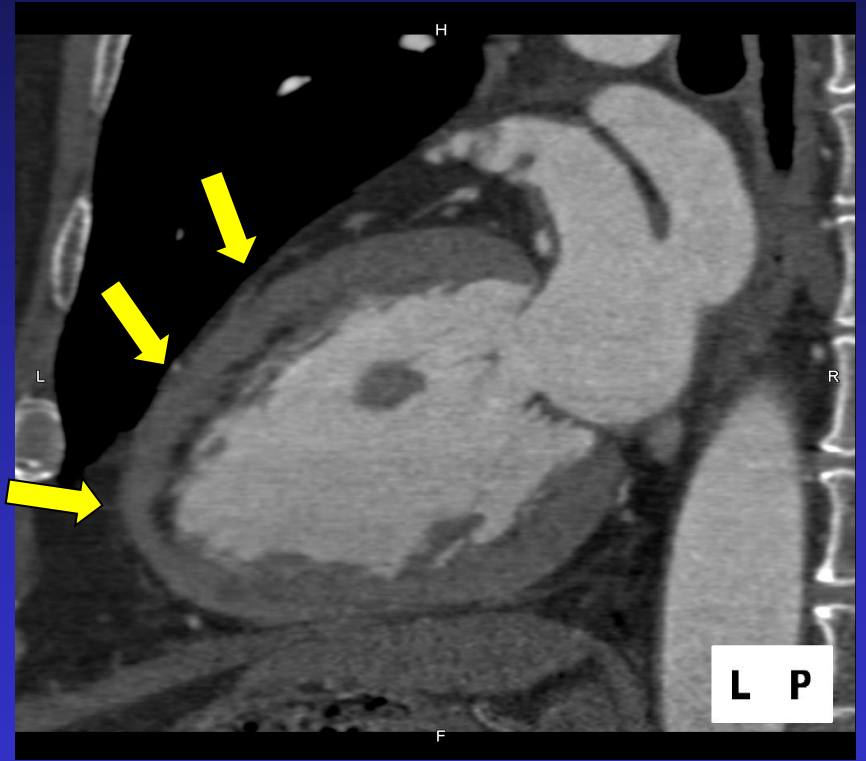
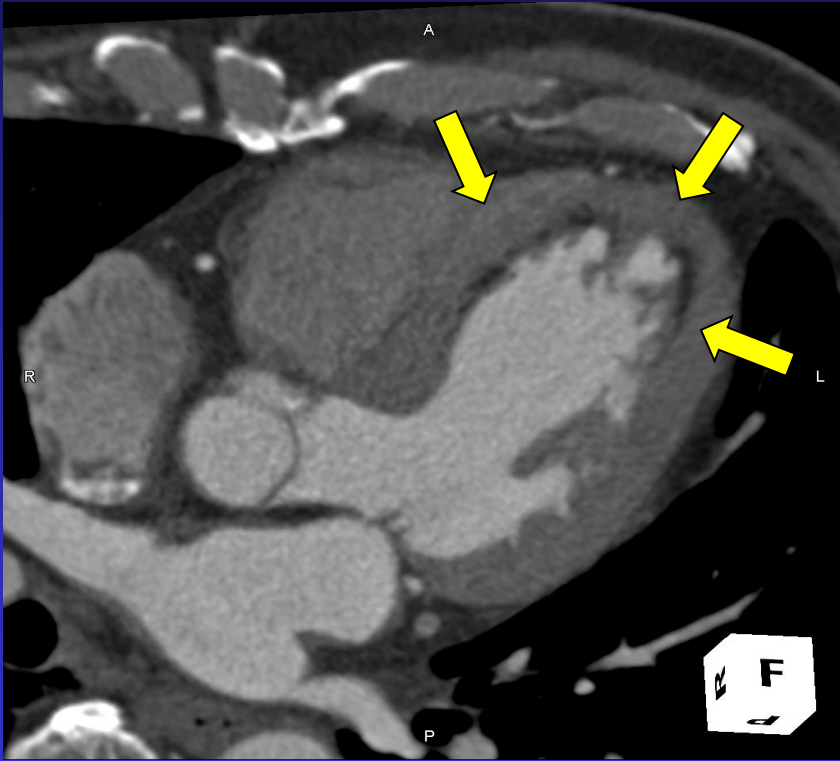




Old Myocardial Infarction

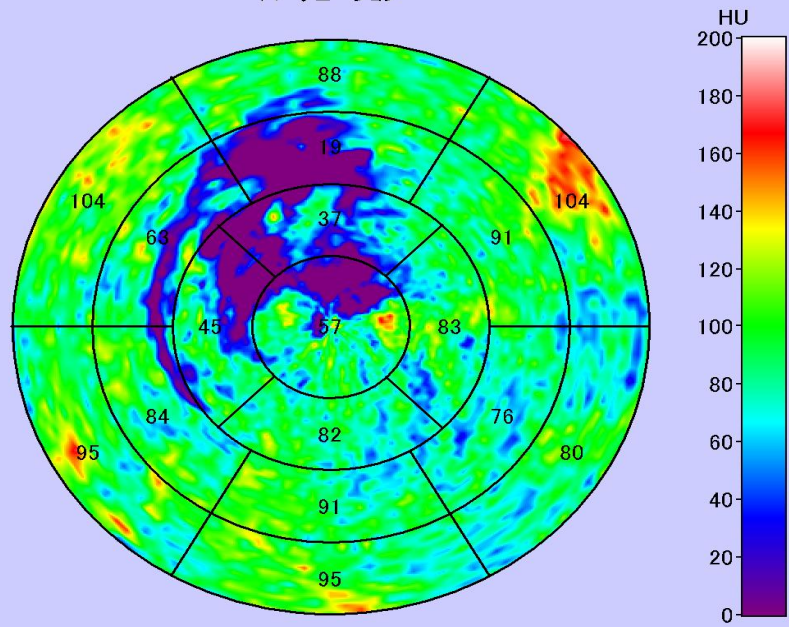


Non-contrast

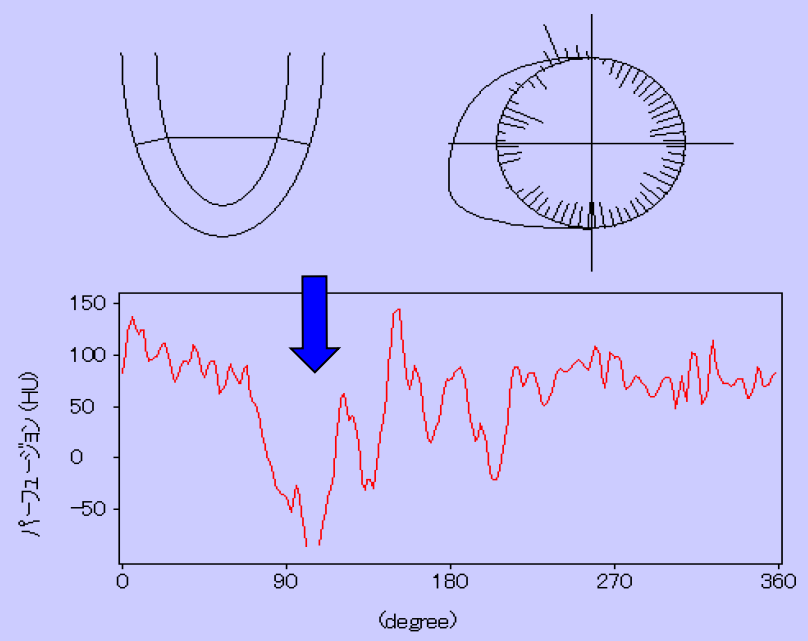


Contrast

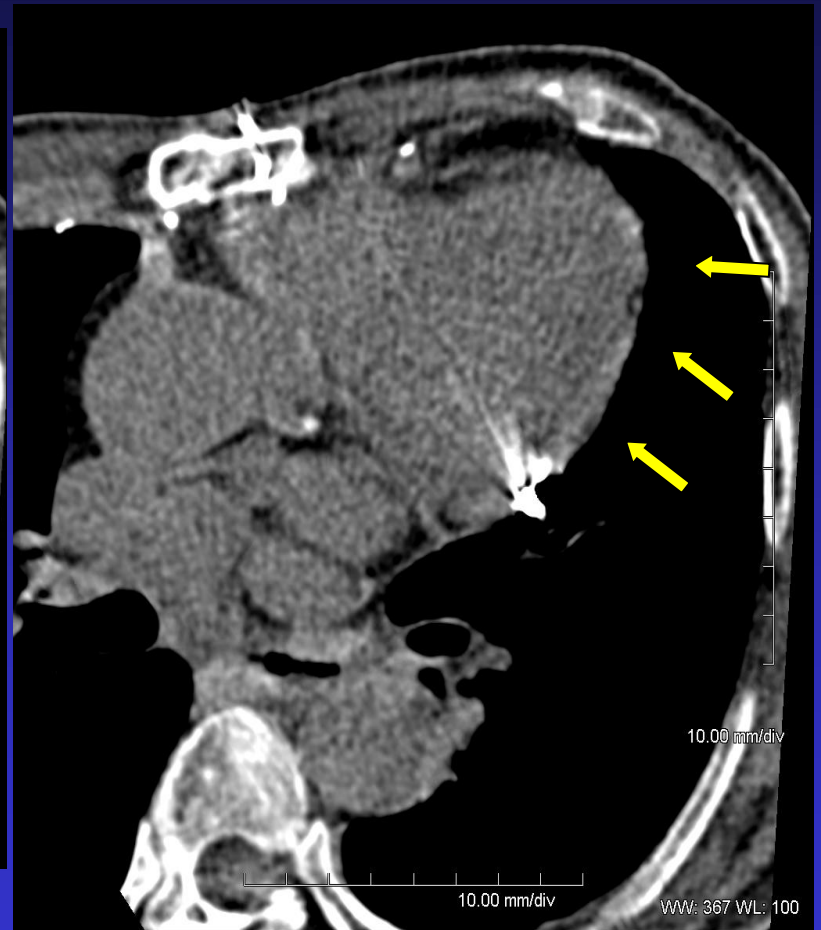
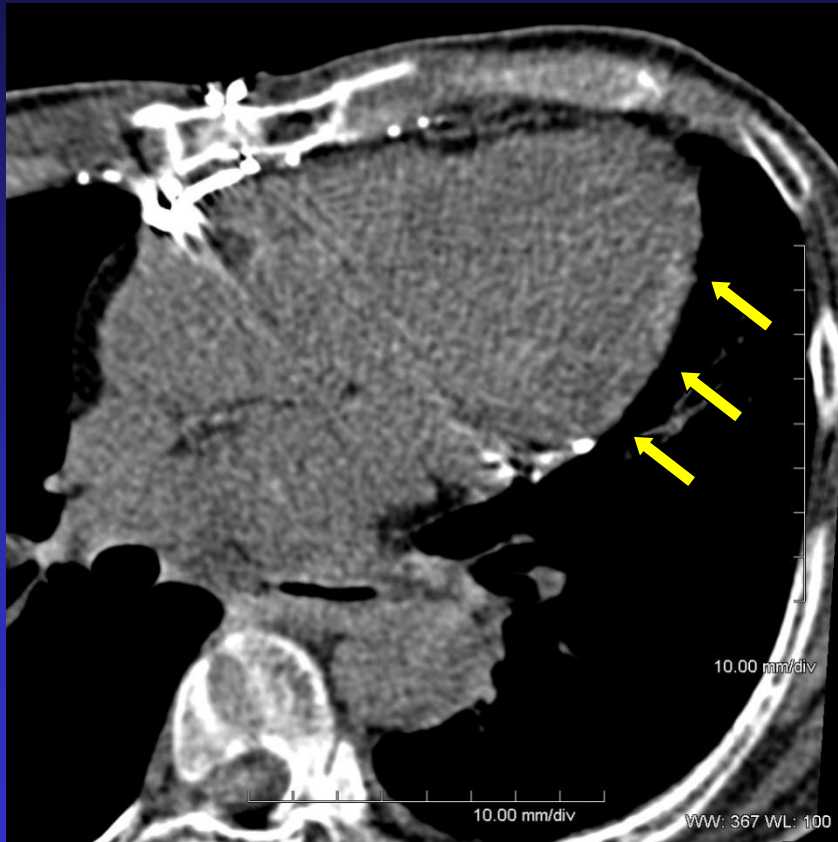
パーフュージョン

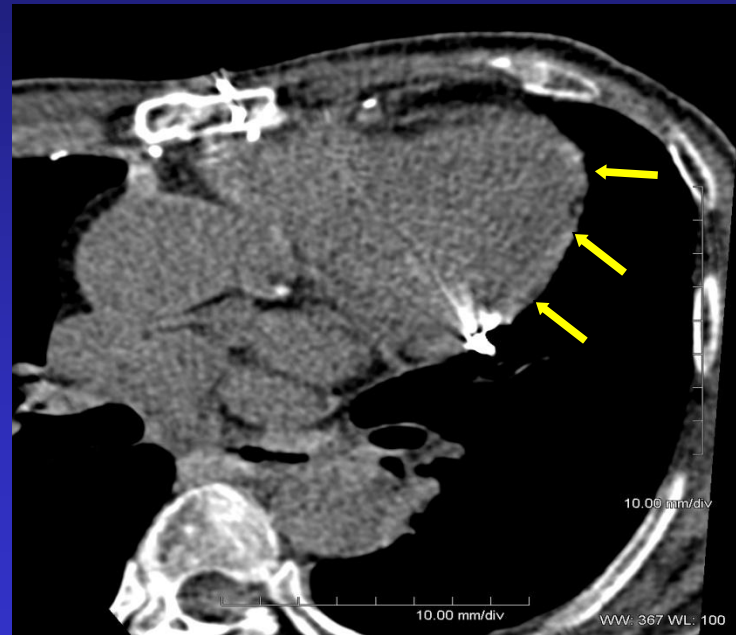
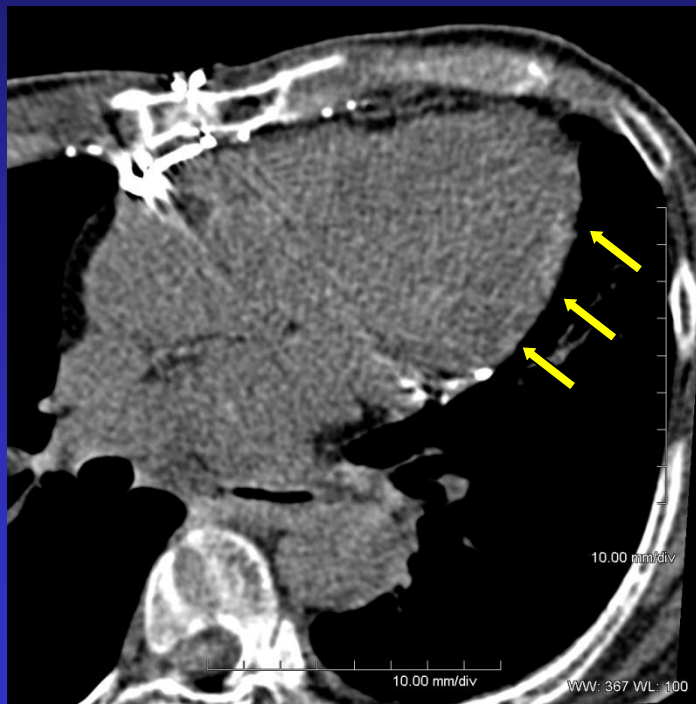
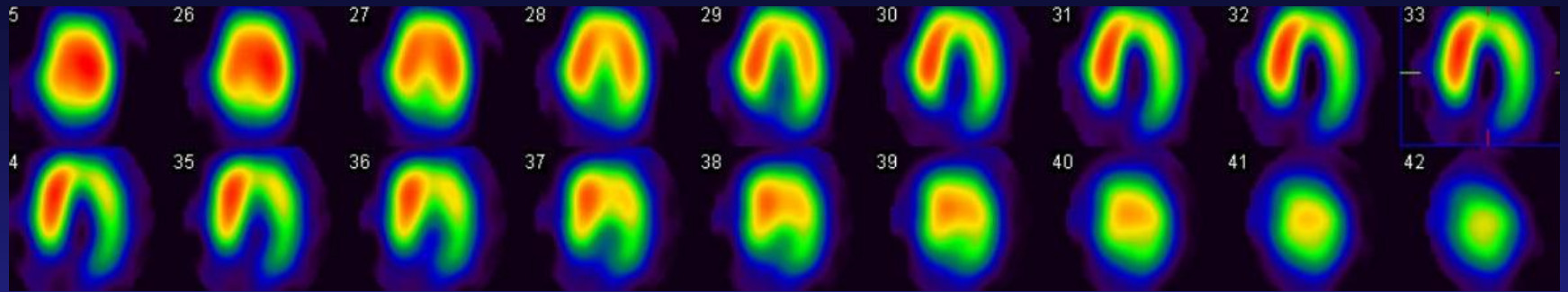


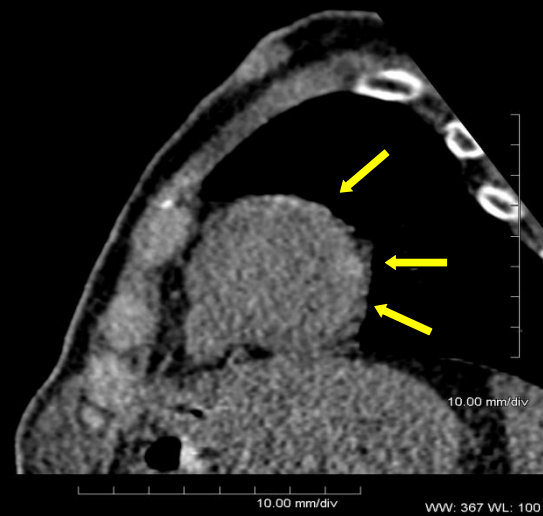
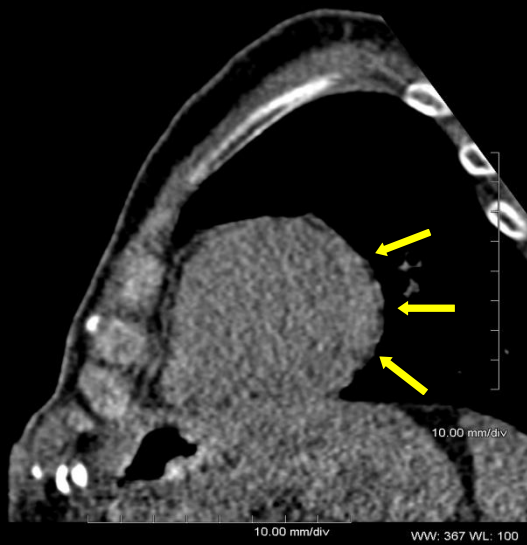
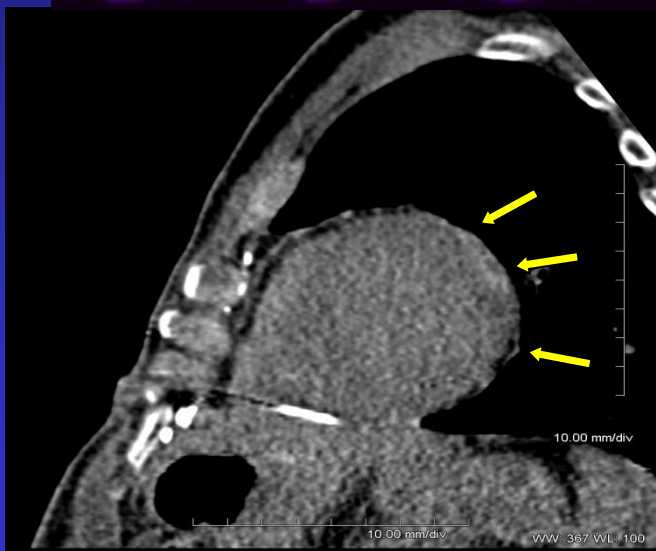
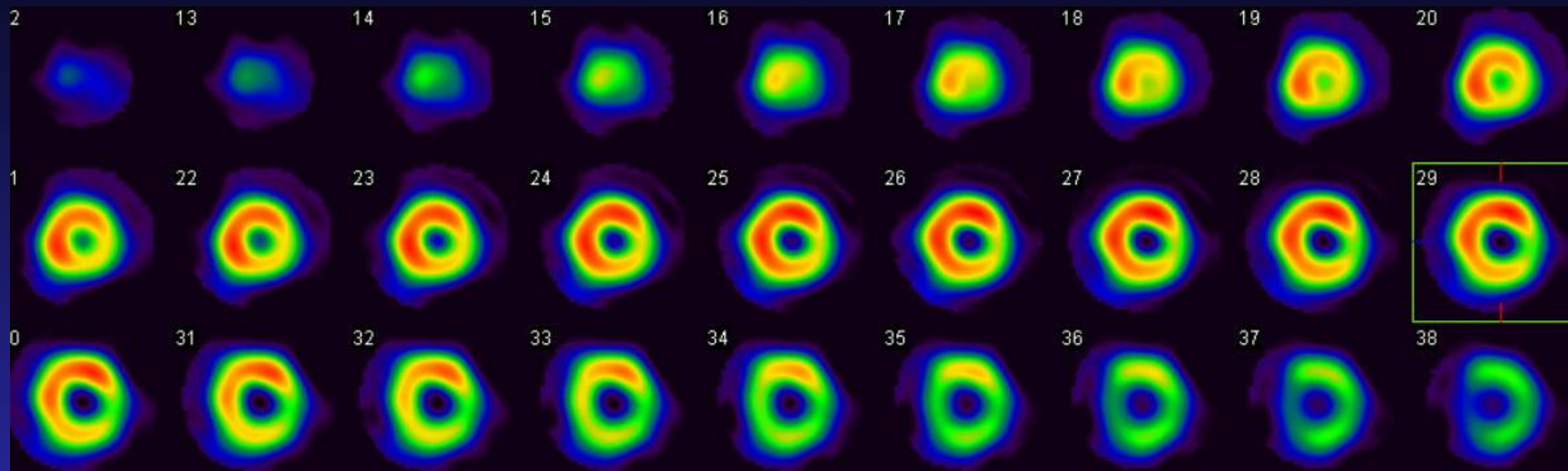
パーフュージョン



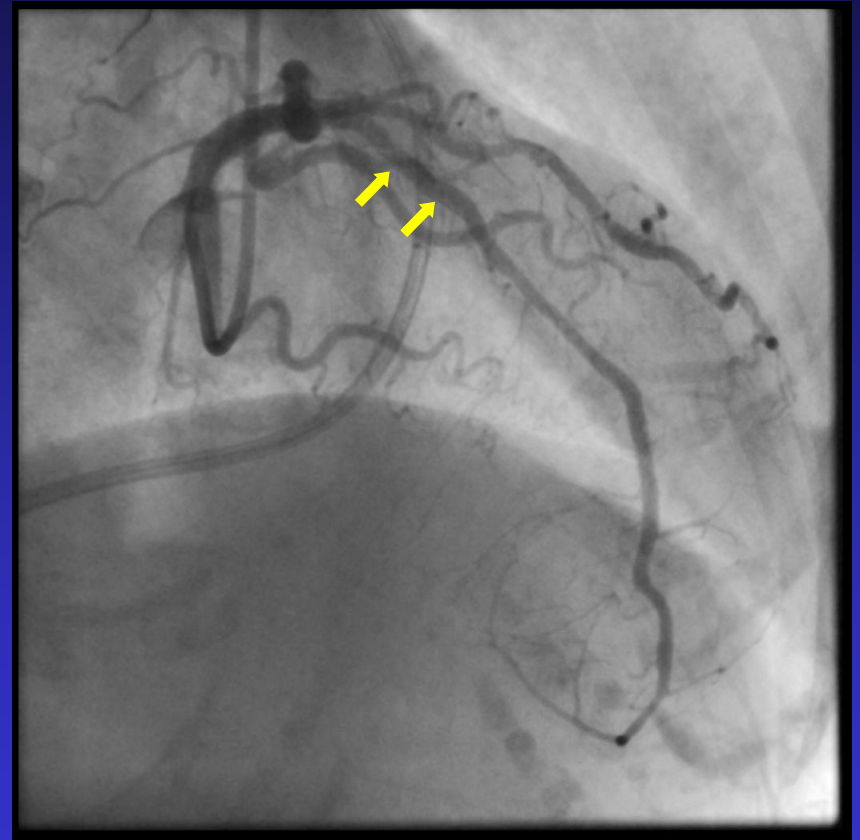
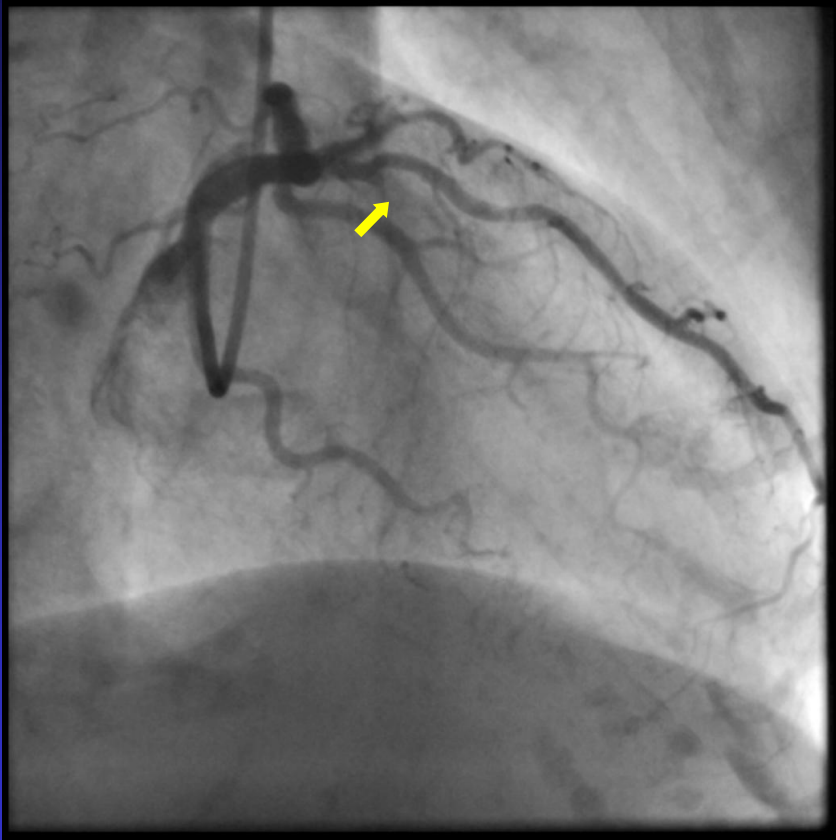
Delayed Enhancement







AMI-PCI



Patient Name: Nishigoori, Nahoko
Study Date: 11/17/2006

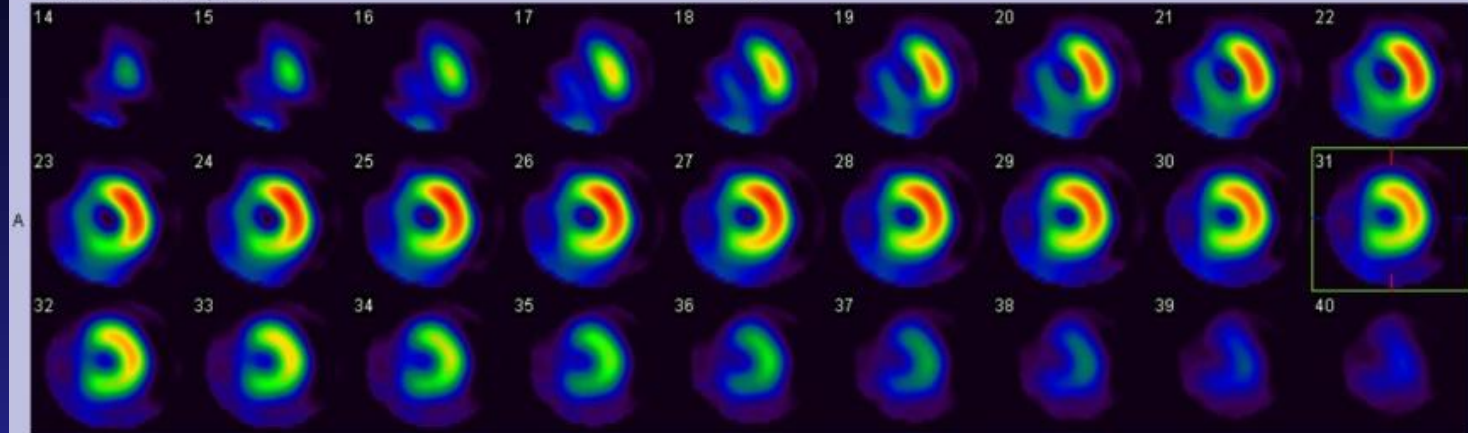
Patient ID: 11173655

DOB: 8/7/1932

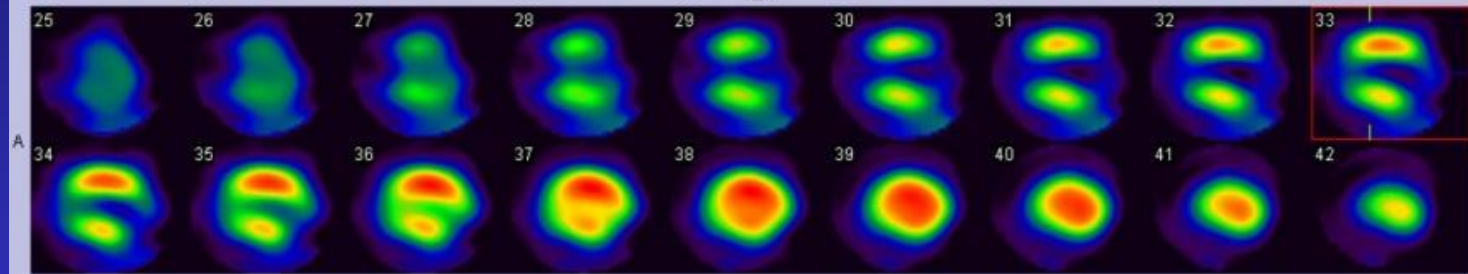
Study Name: Myocardial Perfusion

Row A - TI Rest Tomo [Recon]

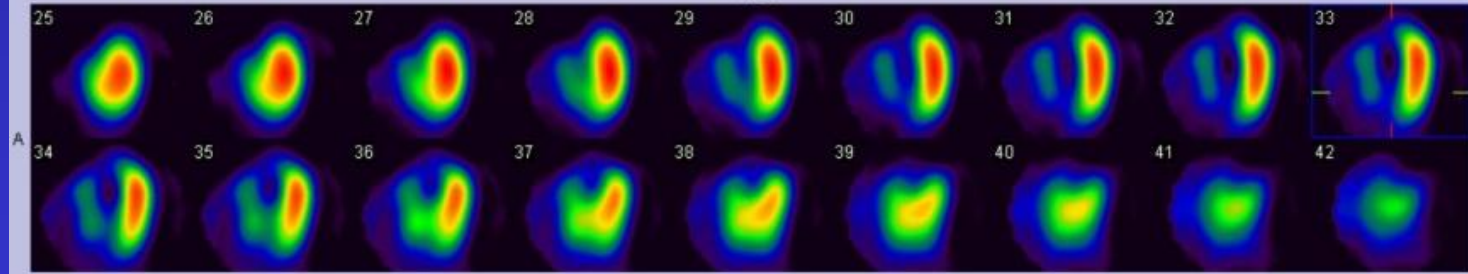
SA



VLA



HLA



TI Rest Tomo [Recon]

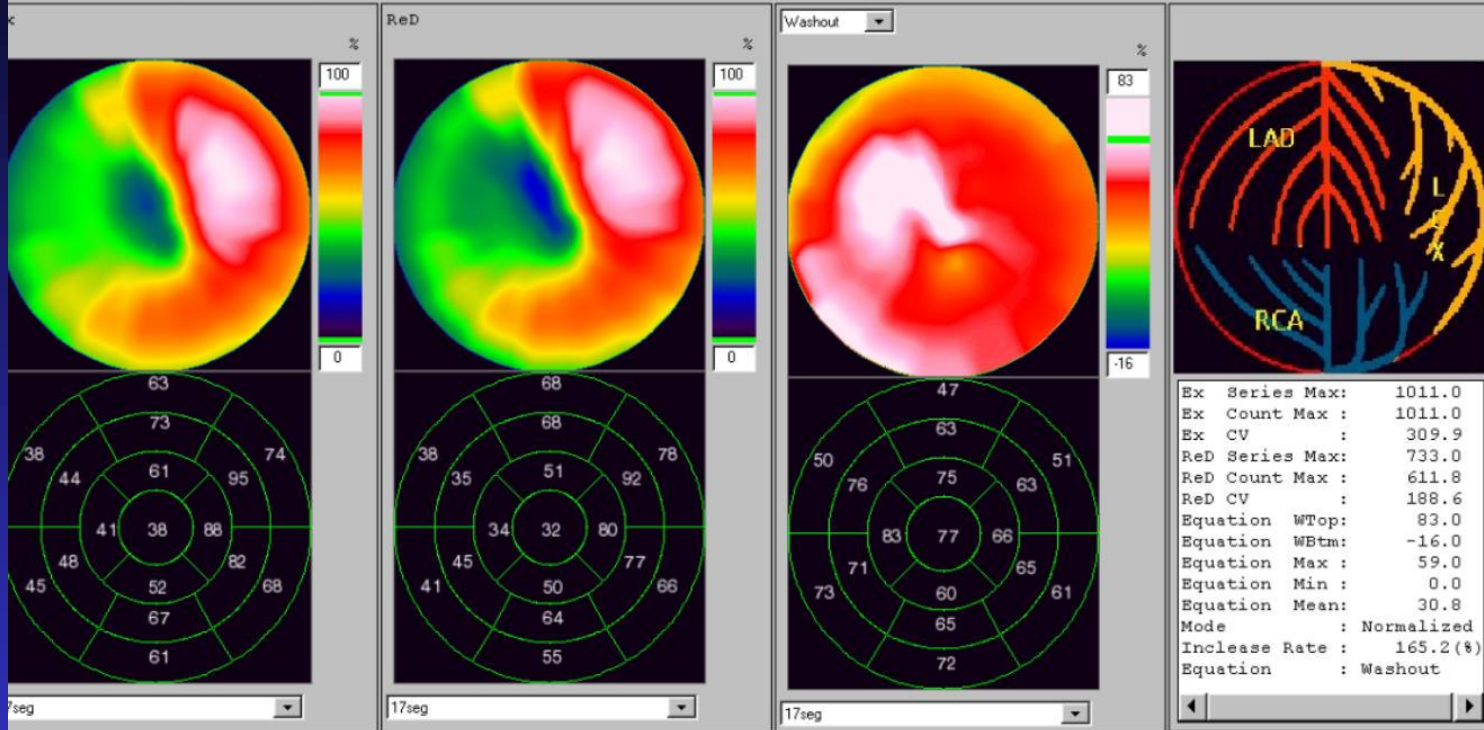
²⁰¹Thallium

111.0 MBq (3.00 mCi) Chloride

Patient Name: Nishigoori, Nahoko
 Sex: F
 Study Date: 11/17/2006

Patient ID: 11173655
 Age: 074Y

DOB: 8/7/1932
 Study Name: Myocardial Perfusion

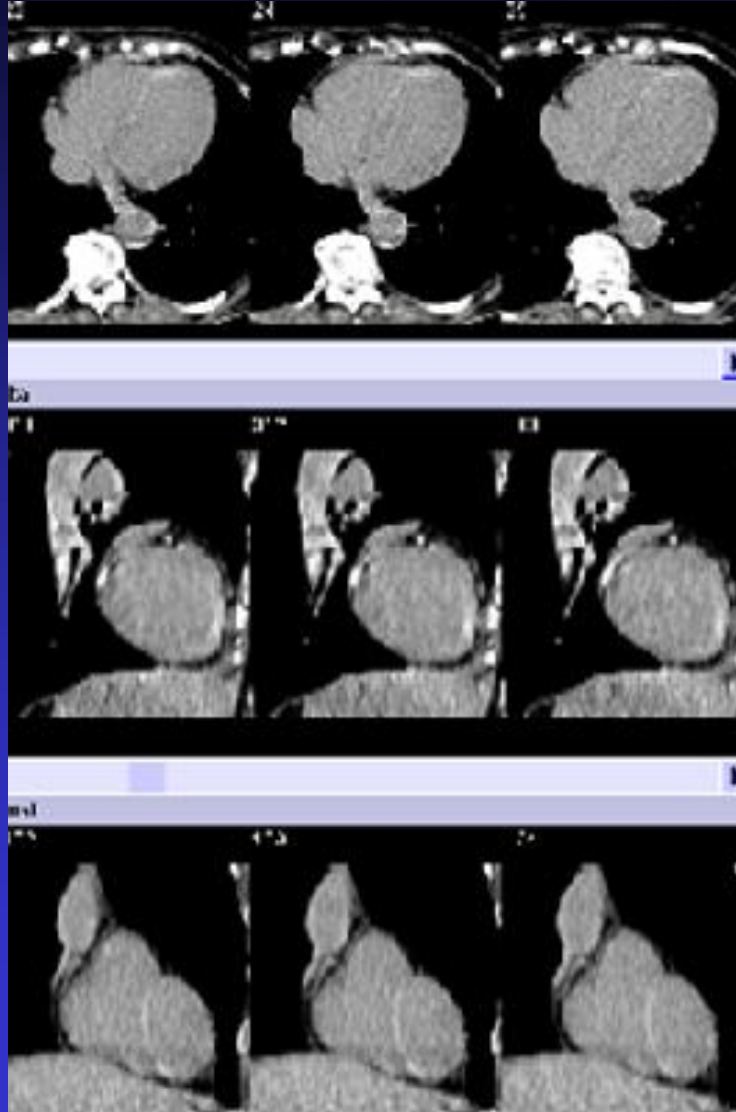


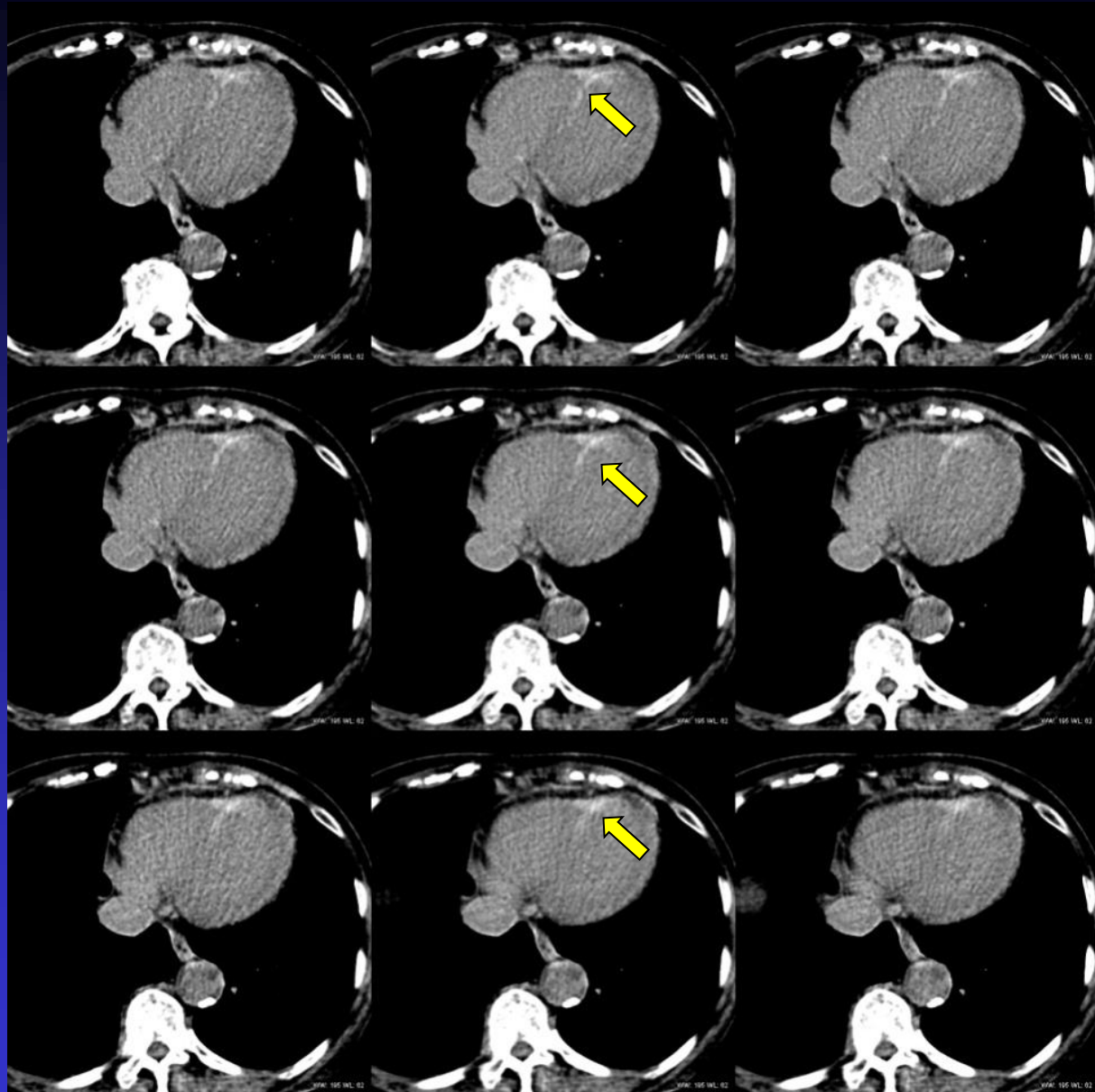
Raw
 Equation Raw
 Cutoff No
 Decay
 Normalize To Total DMax
 Equation Normalize
 Cutoff +
 Cutoff -
 Normalize To Each DMax

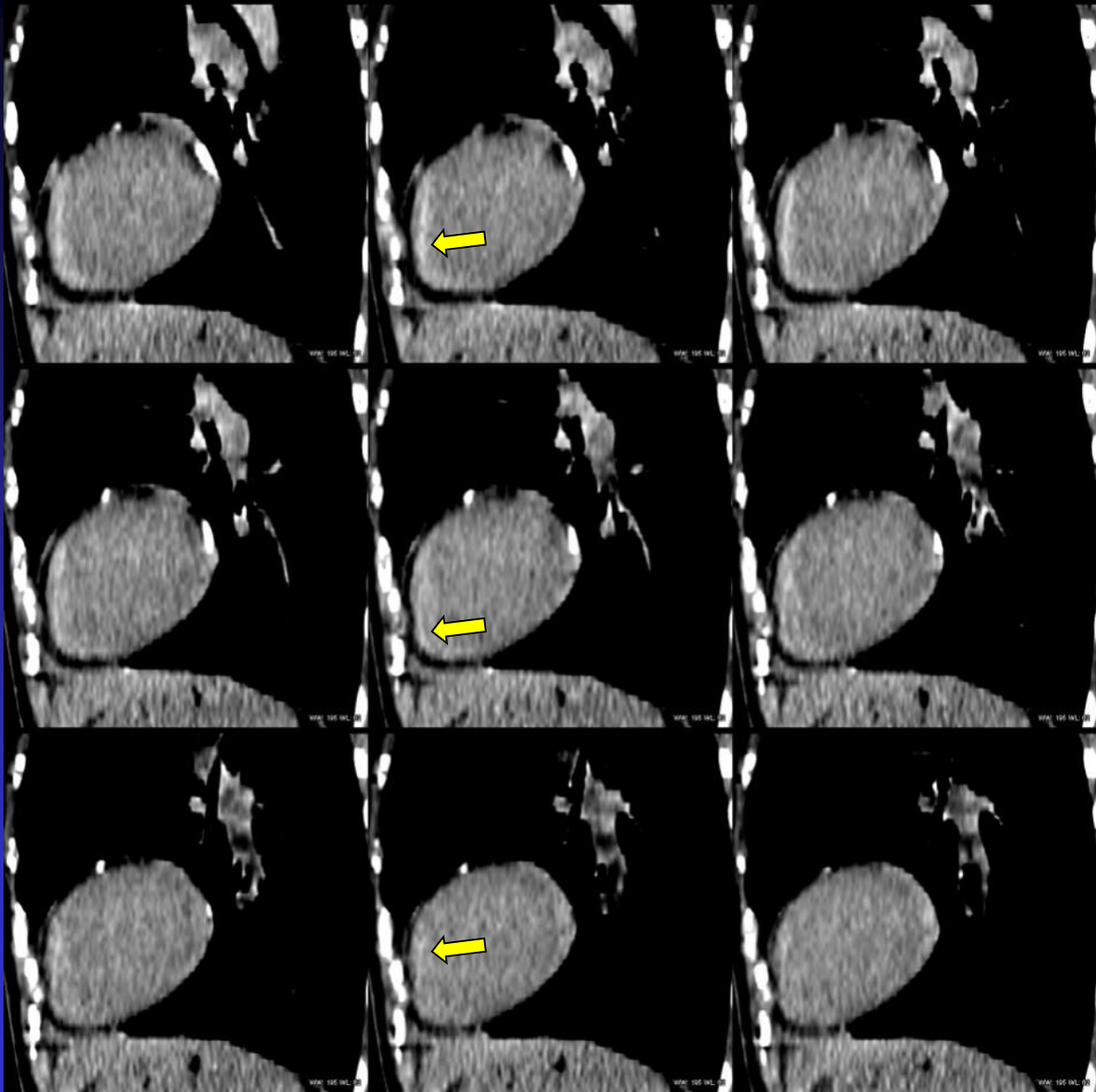
Series desc. = Tl Rest Tomo [Recon]
 Acquisition Date = 20061117
 Time = 11:10:45
 Slice thickness = 3.30mm
 Number of frames = 49
 Row/Col = 64 / 64
 Pixel spacing = 3.30mm
 Isotope = 201Thallium
 Radiopharmaceutical = Chloride
 Total dose = 111 MBq
 Scan duration time = 24.24sec

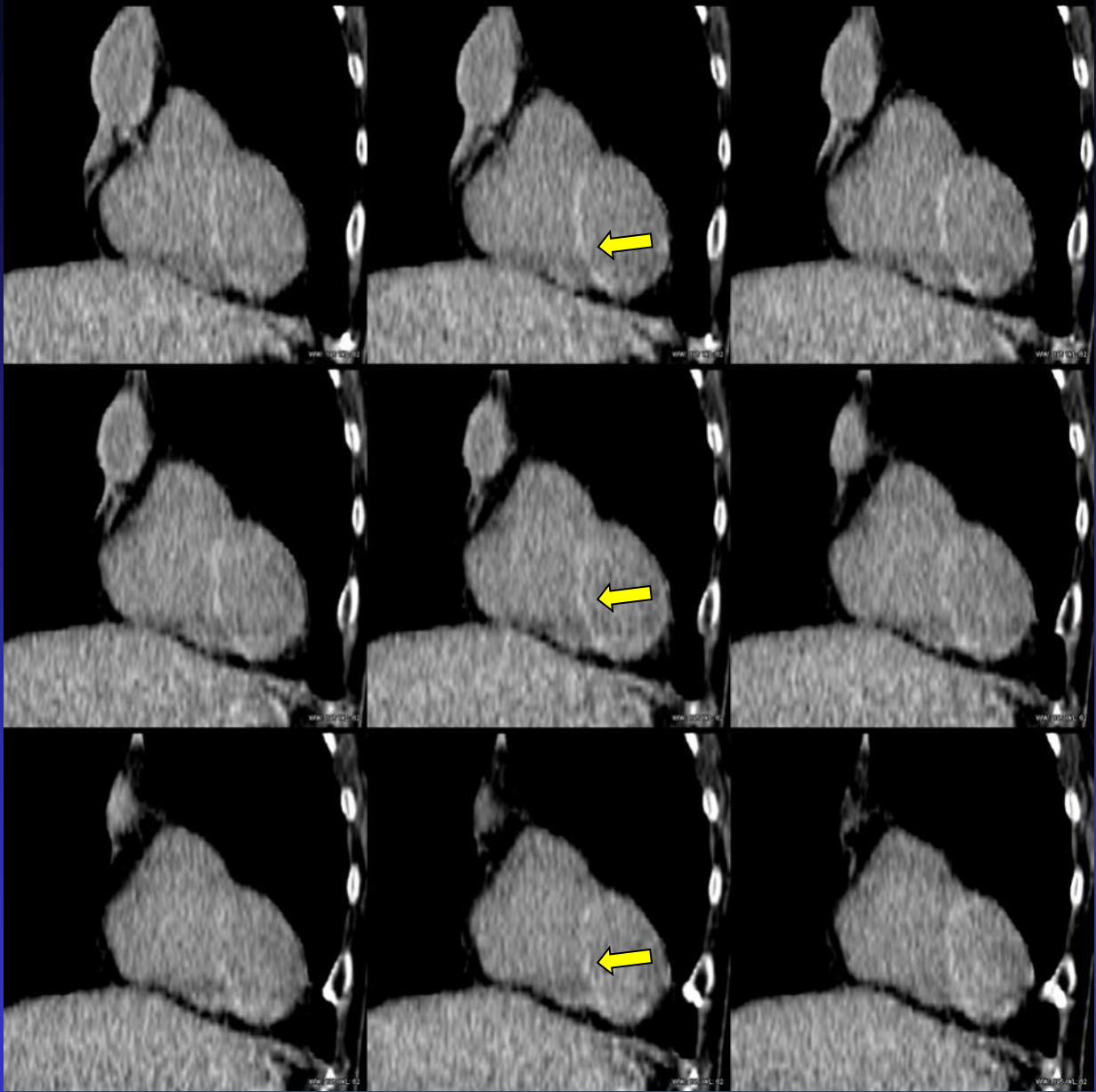
Series desc. = Tl Delay Tomo [Recon]
 Acquisition Date = 20061117
 Time = 15:21:46
 Slice thickness = 3.30mm
 Number of frames = 49
 Row/Col = 64 / 64
 Pixel spacing = 3.30mm
 Isotope = 201Thallium
 Radiopharmaceutical = Chloride
 Total dose = 111 MBq
 Scan duration time = 25.00sec

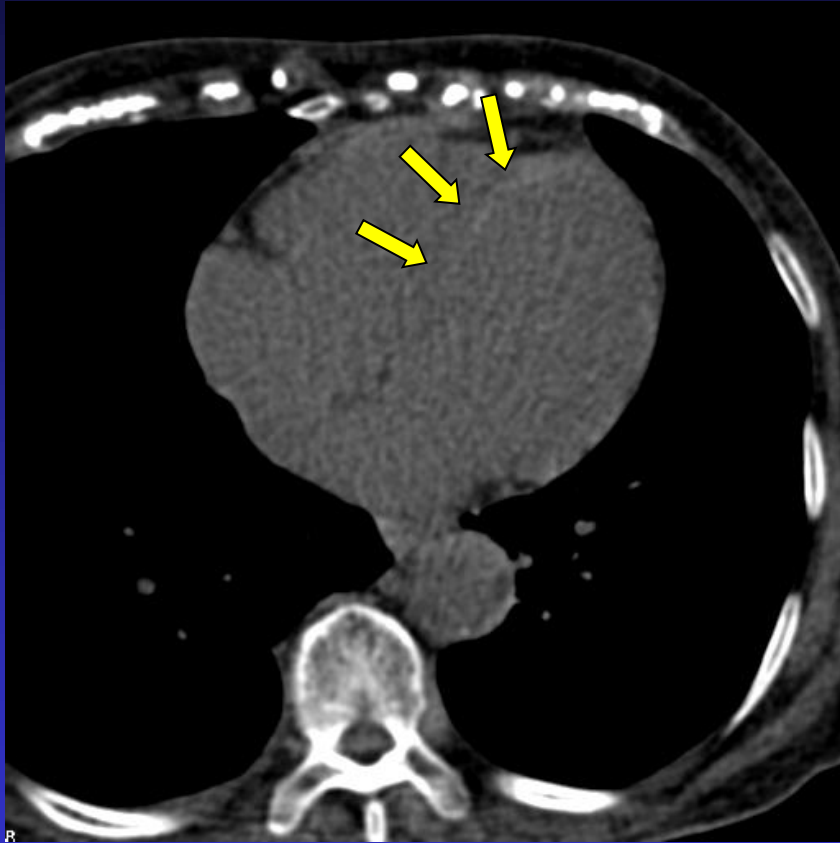
Delayed Enhancement











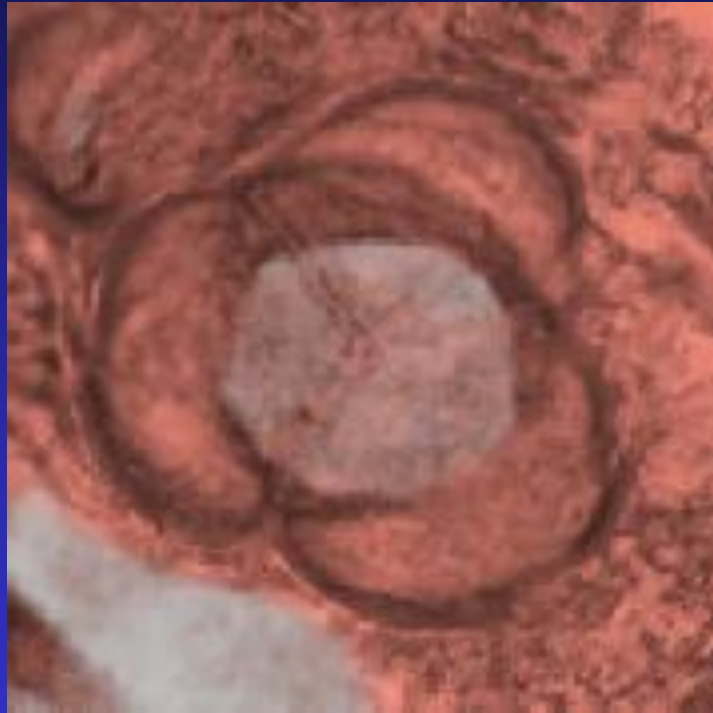
acute phase



8 months later

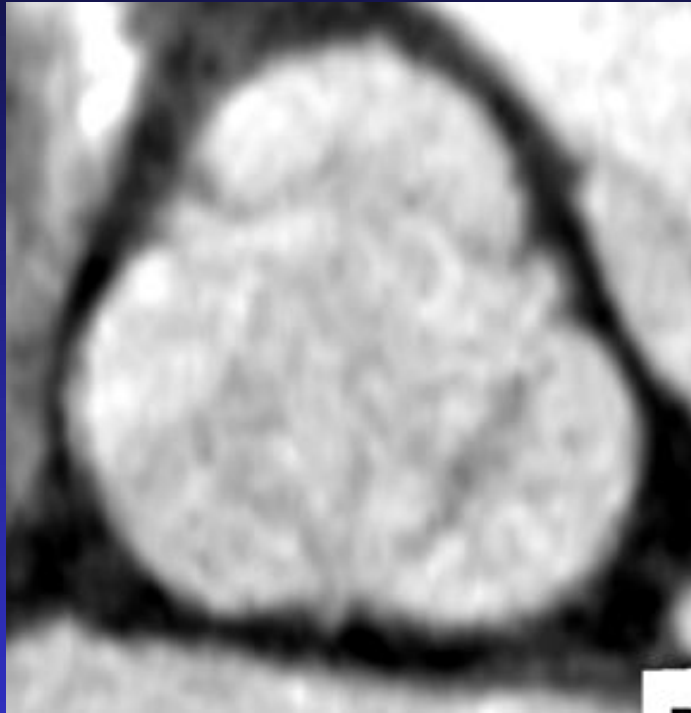
L. Cardiac Valve

Normal Aortic Valve



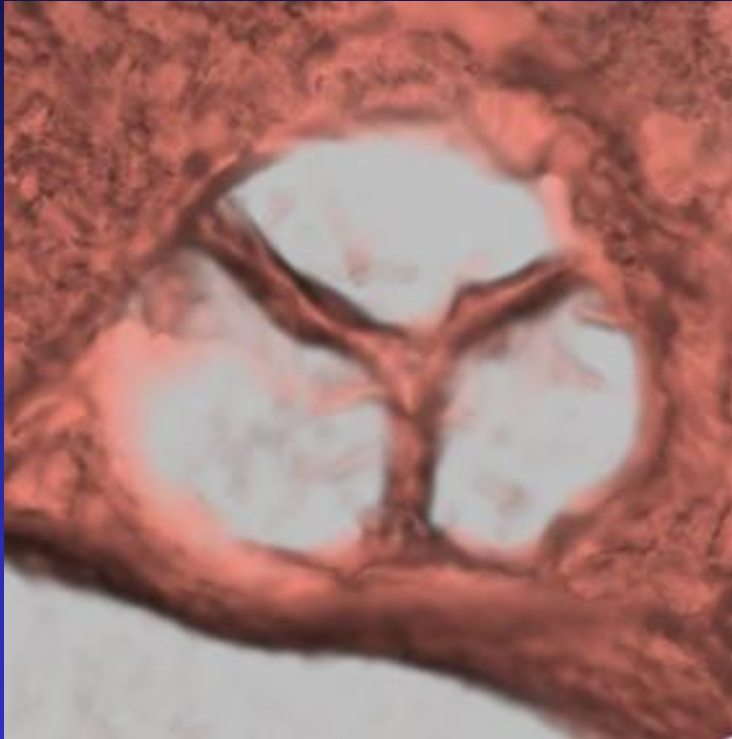
Normal Aortic Valve

Aortic Stenosis

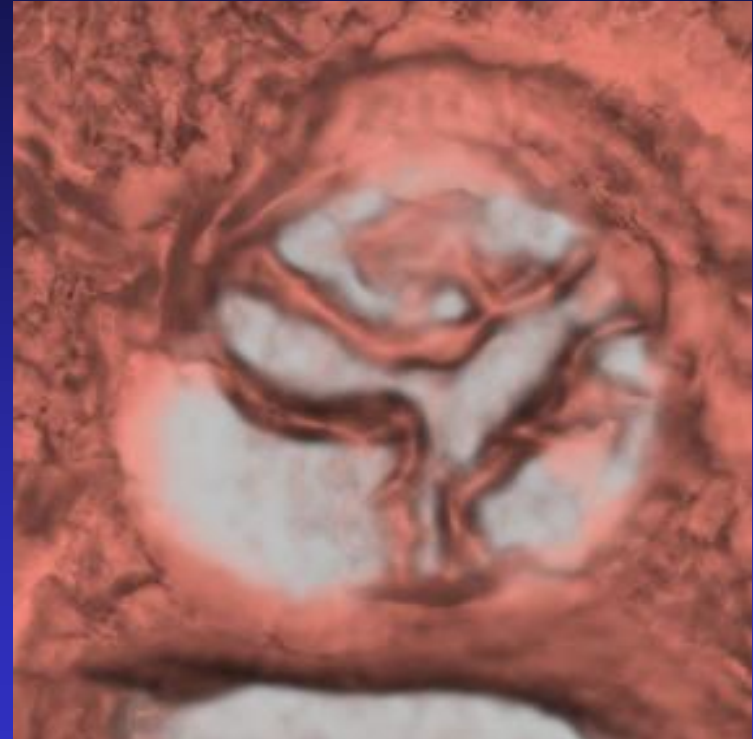


diastolic phase

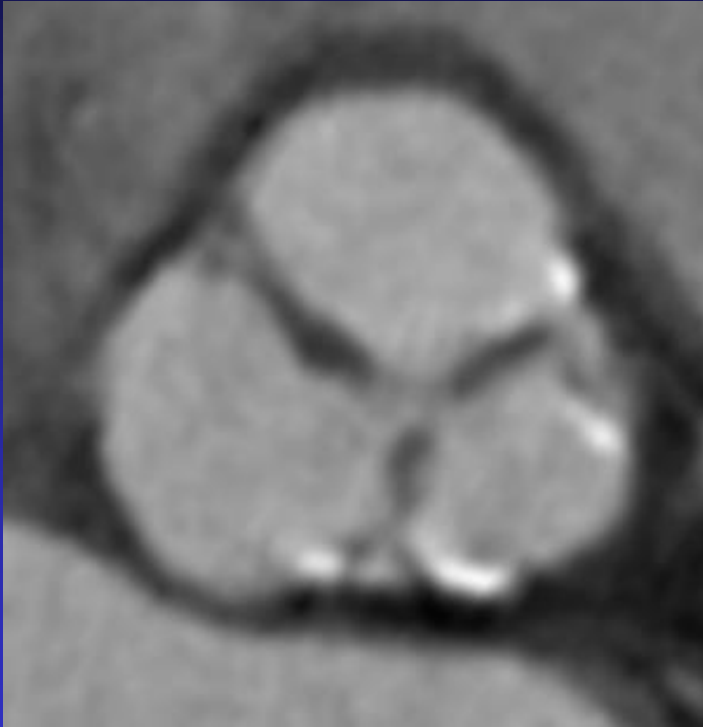
Aortic Stenosis



diastolic phase



systolic phase

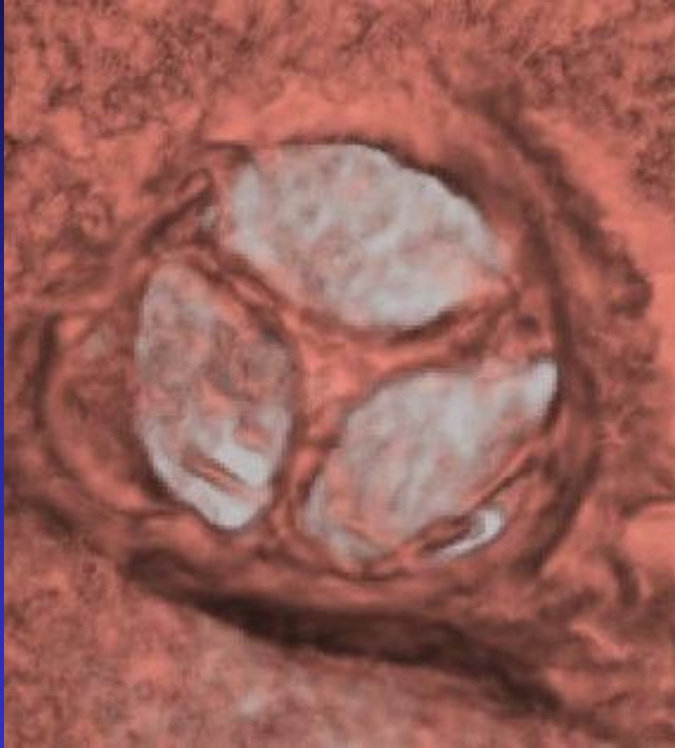


diastolic phase

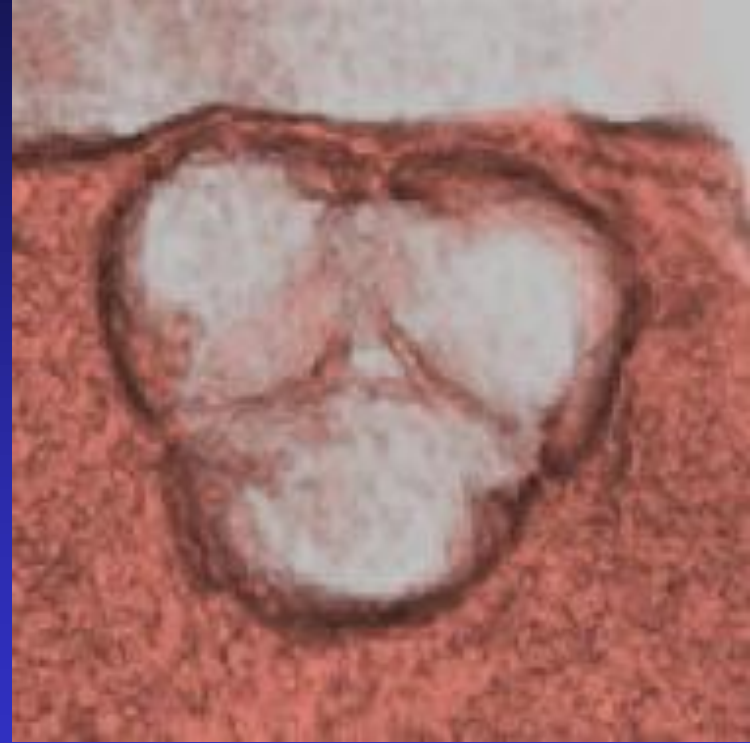


systolic phase

Aortic Stenosis

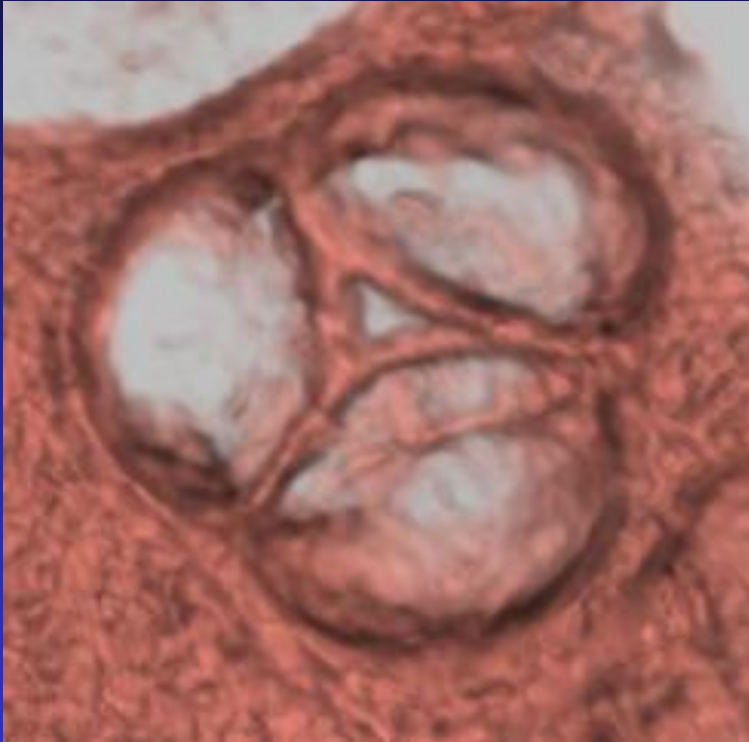


diastolic phase

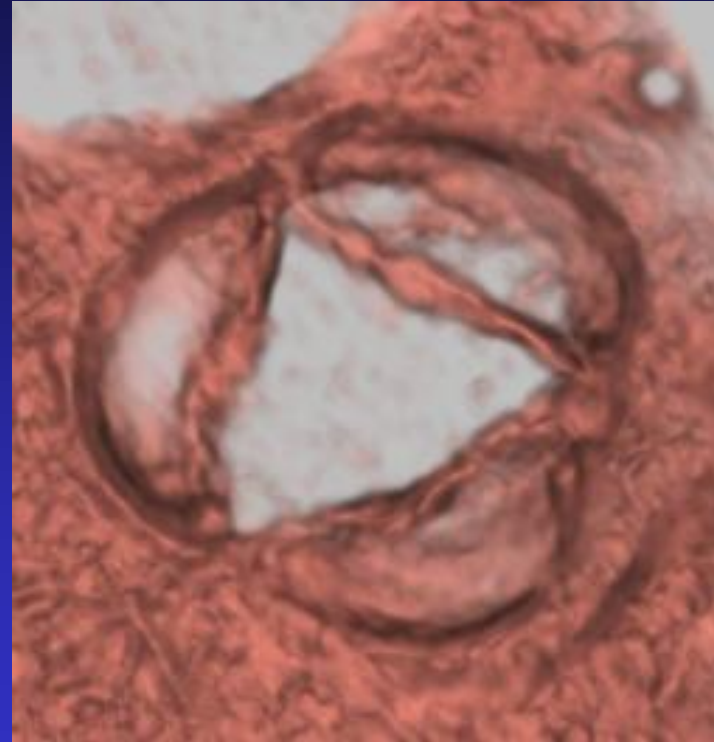


systolic phase

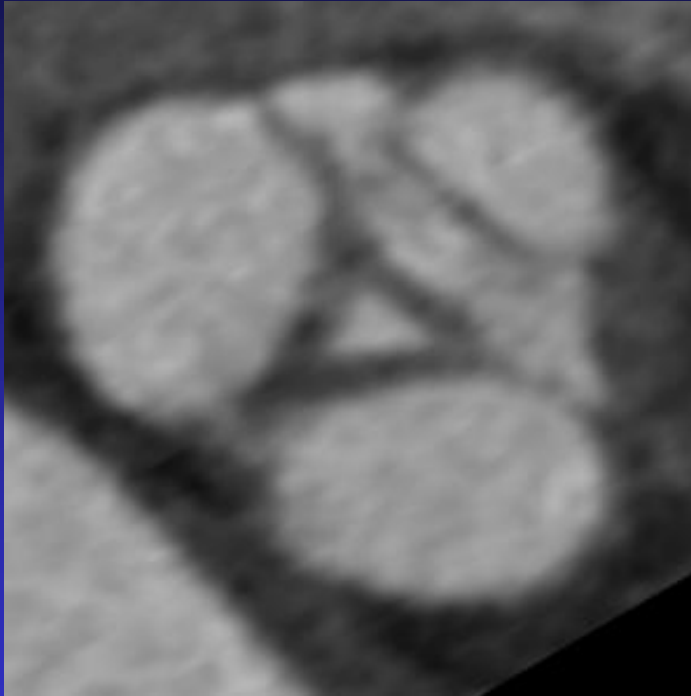
Aortic Regurgitation



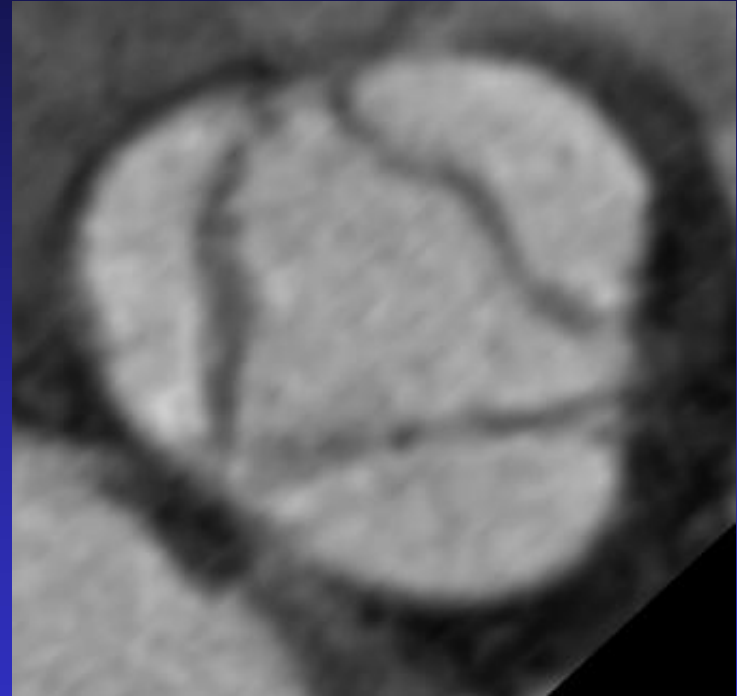
diastolic phase



systolic phase

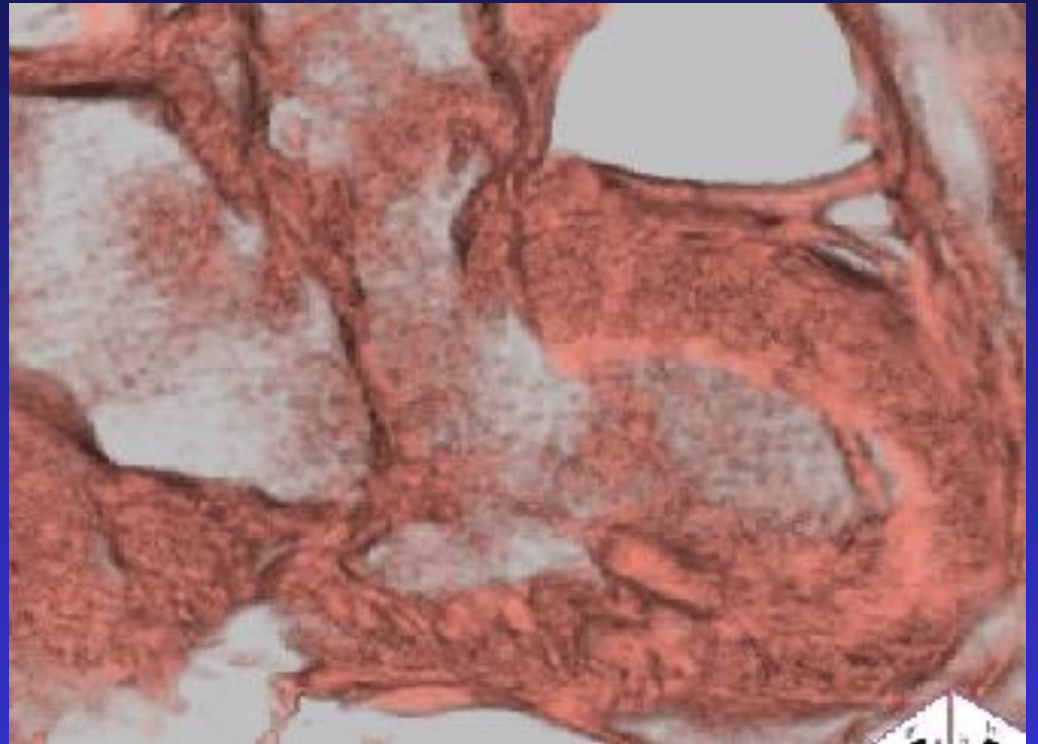
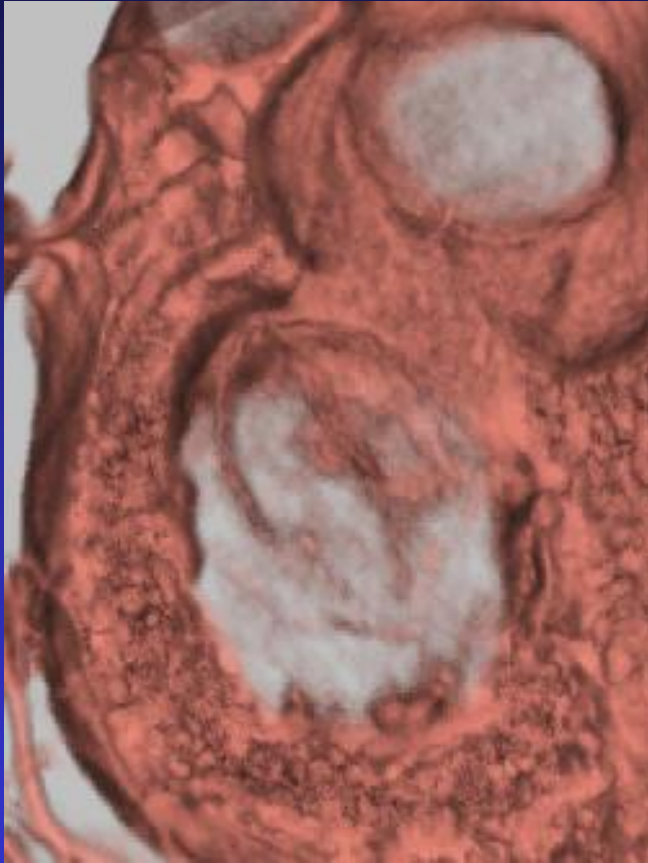


diastolic phase

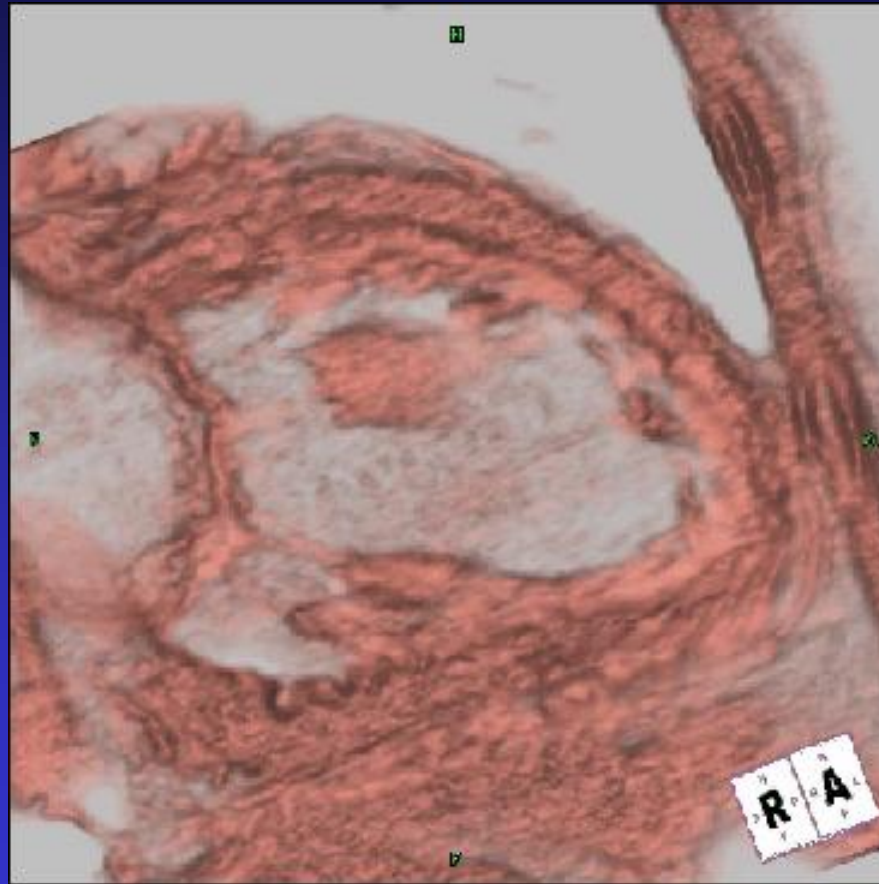


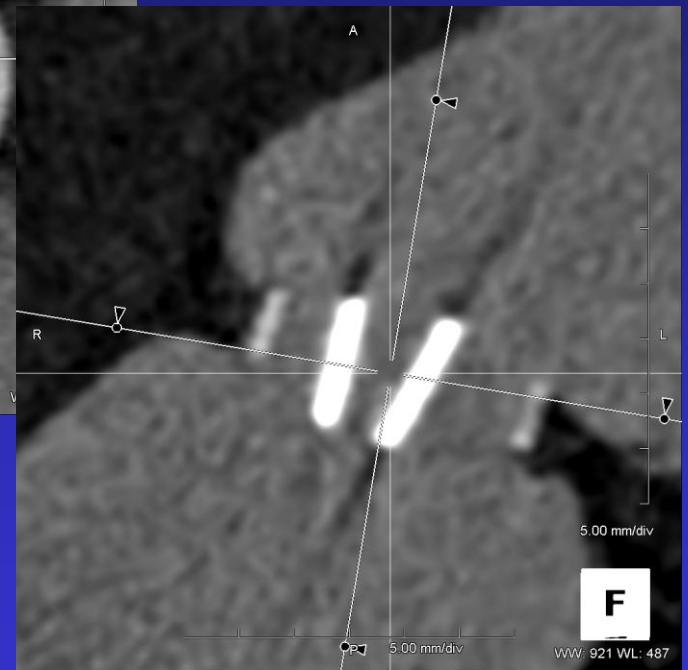
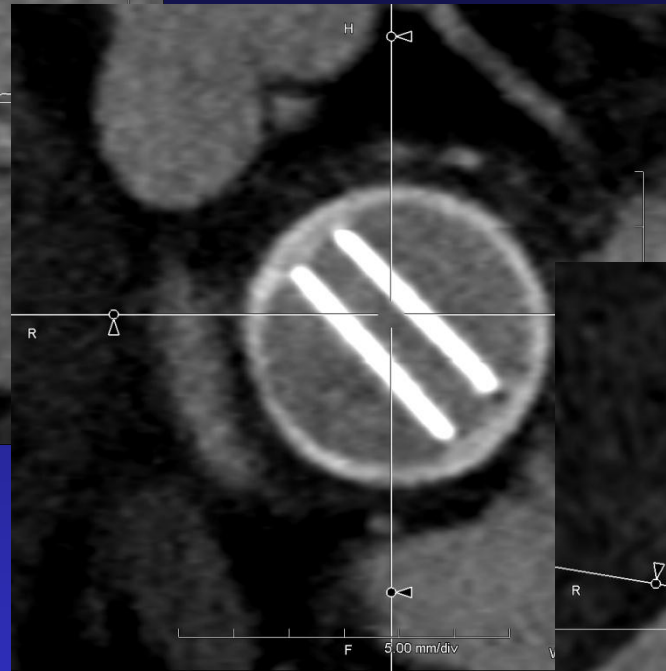
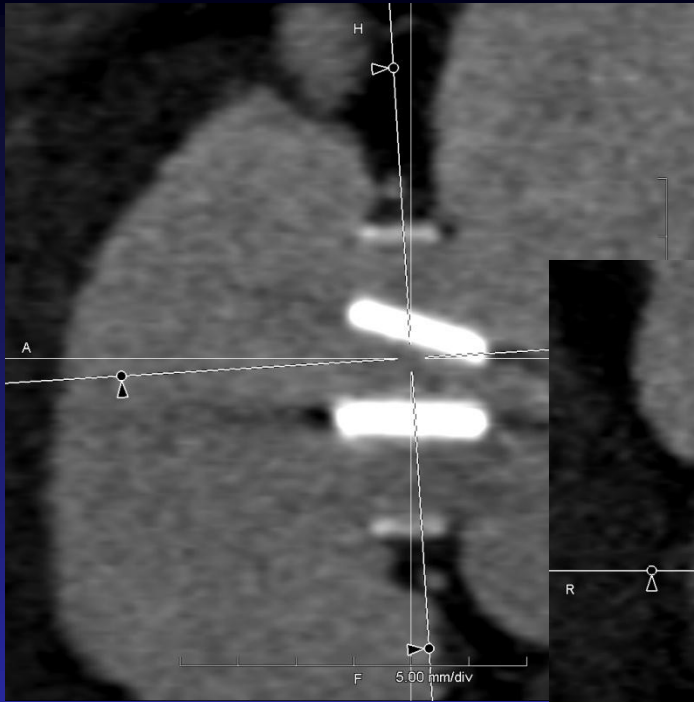
systolic phase

Normal Mitral Valve

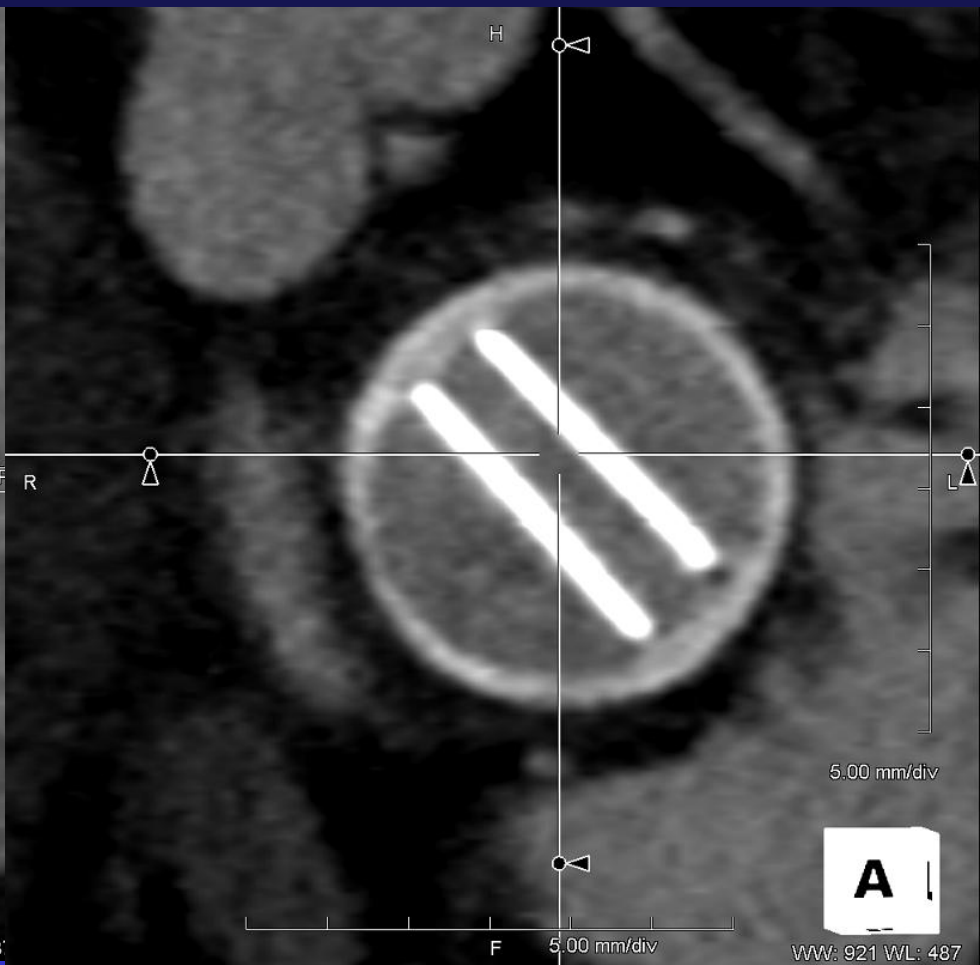
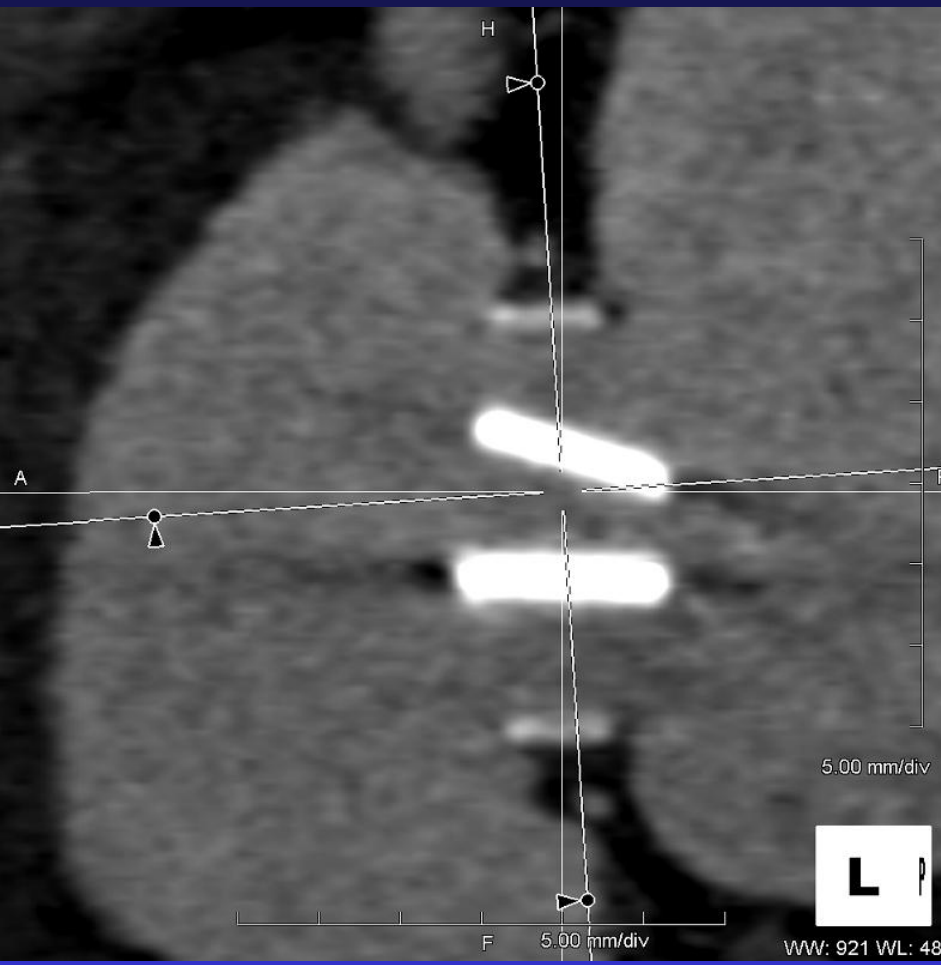


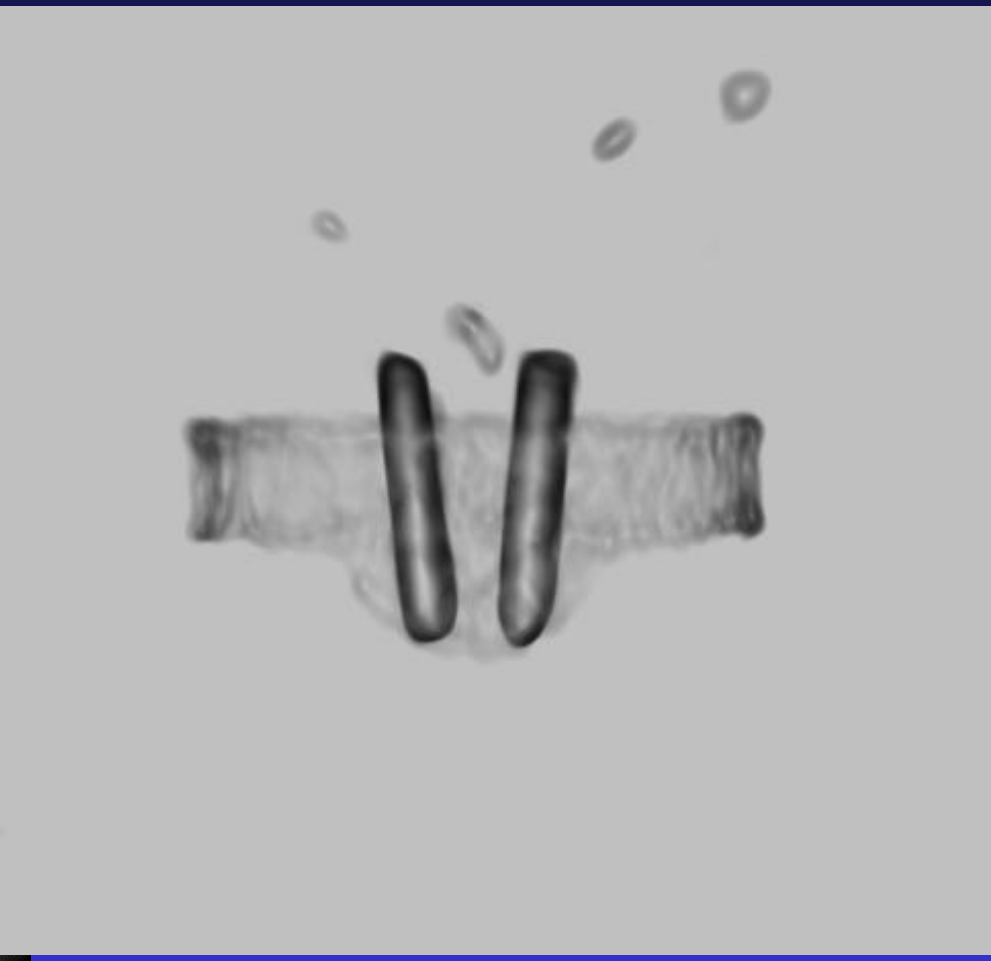
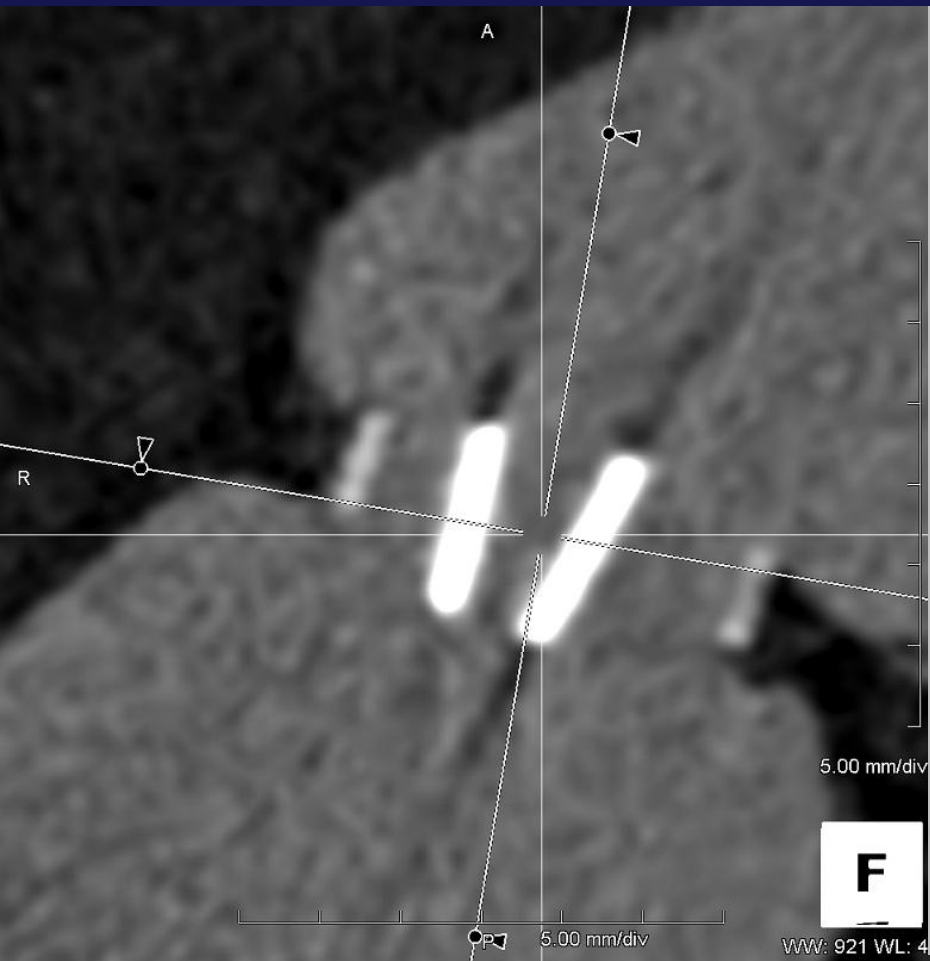
Mitral Valve Apparatus





Prosthetic Valve



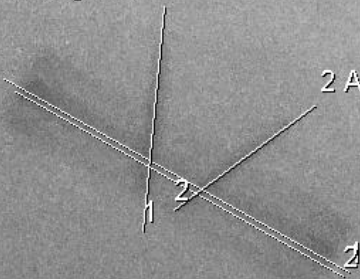


Okiyama^Tatsuo
ID: 00068582
St: 07061414420950 Se: 21
2007/06/14
14:55:23
Kern: B25f
CT
VR

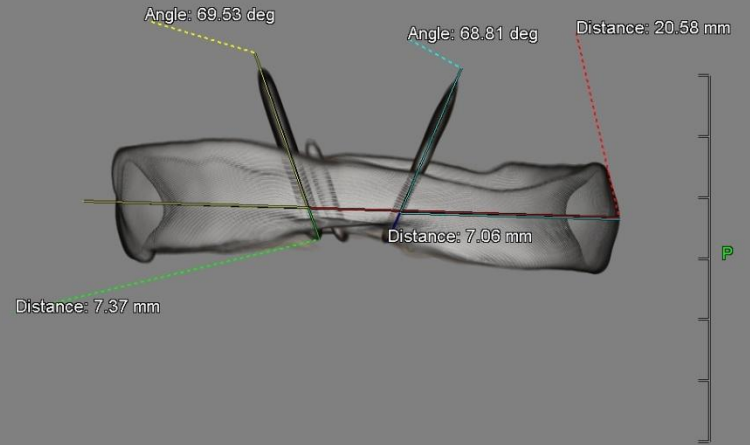
Okayama Chuo Hospital
Sensation 64
CT54451
Rows: 1024
Cols: 1024

1 Angle: 66 degrees

2 Angle: 114 degrees



A



%R-R: 20.0
120.000 kV
243 mA
Tilt: 0.000
FOV: 150.000 mm
Thickness: 0.750 mm
LAO 71 CRA 41

2.50 mm/div



Morimoto^Toshiaki
ID: 00133308
St: 07073111142544 Se: 11
2007/07/31
11:28:53
Kern: B25f
CT
VR

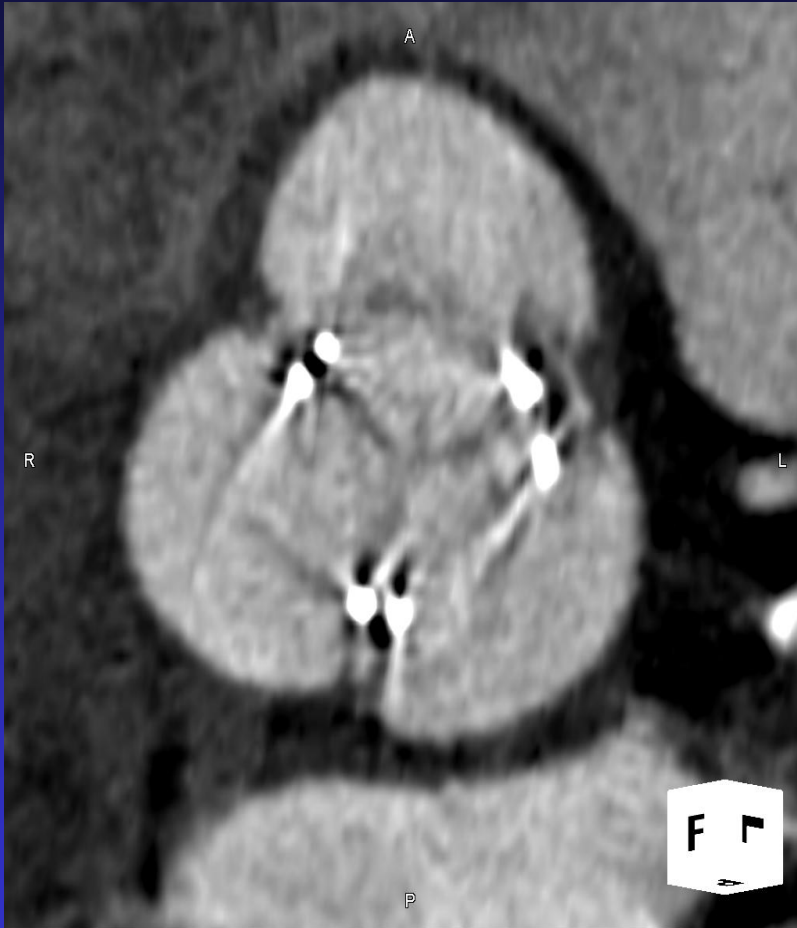
Okayama Chuo Hospital
Sensation 64
CT54451
Rows: 1024
Cols: 1024



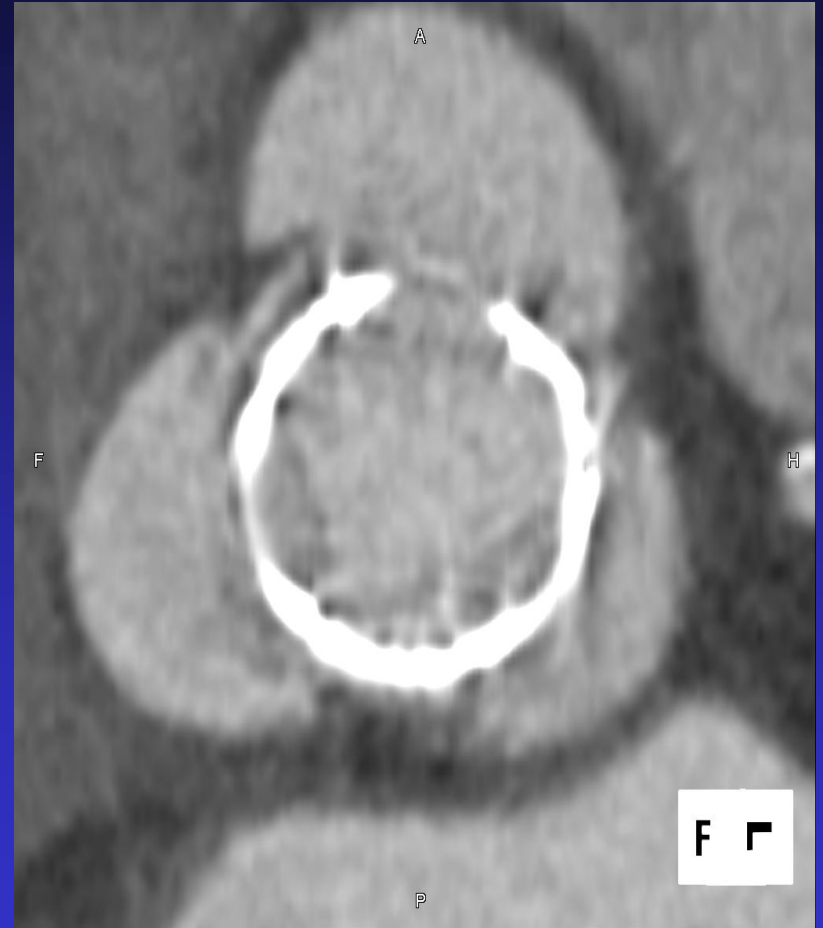
%R-R: 10.0
120.000 kV
545 mA
Tilt: 0.000
FOV: 136.000 mm
Thickness: 0.750 mm
RAO 70 CRA 38



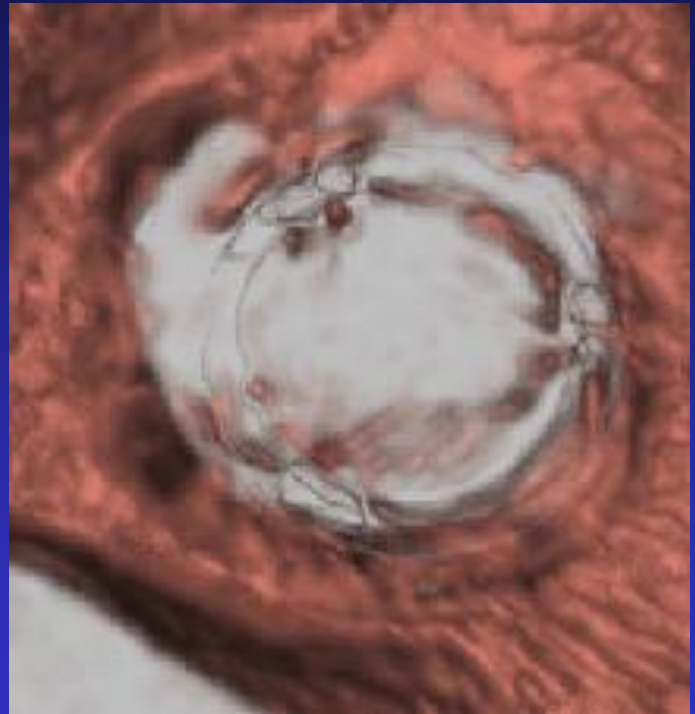
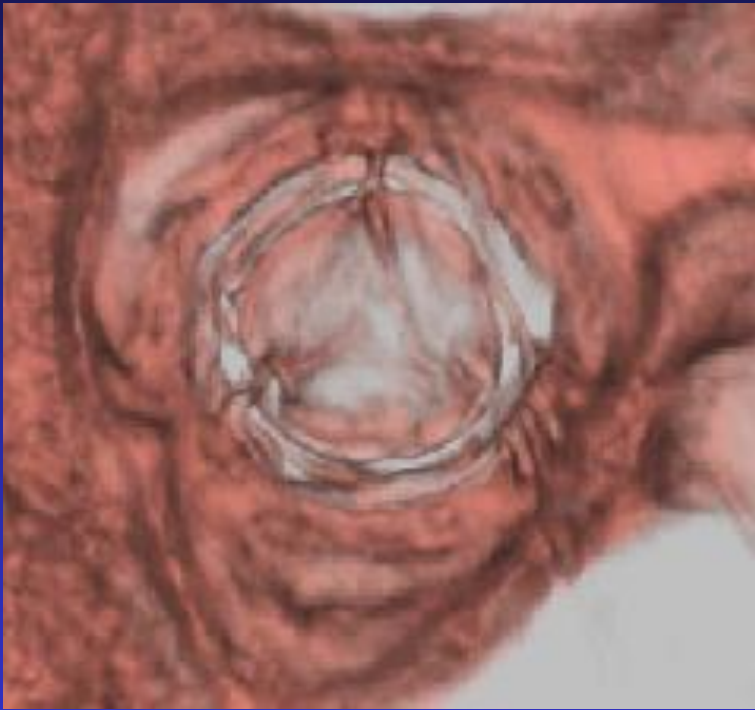
Bioprosthetic Valve



diastolic phase

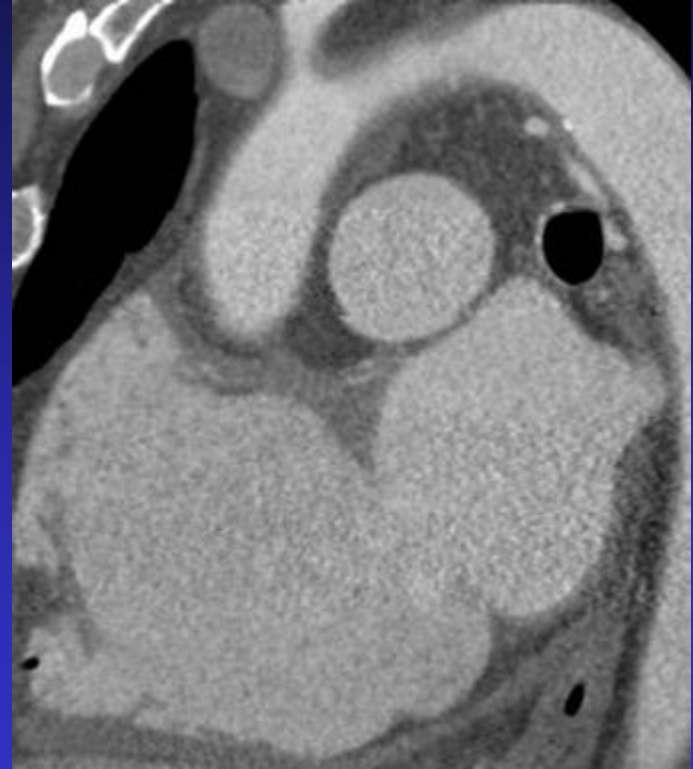
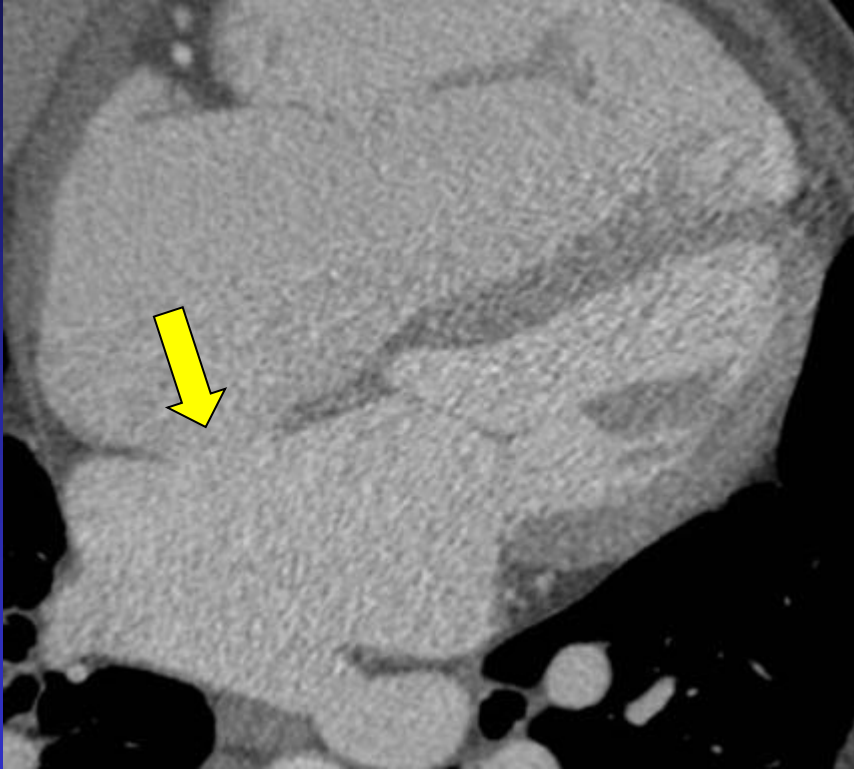


systolic phase

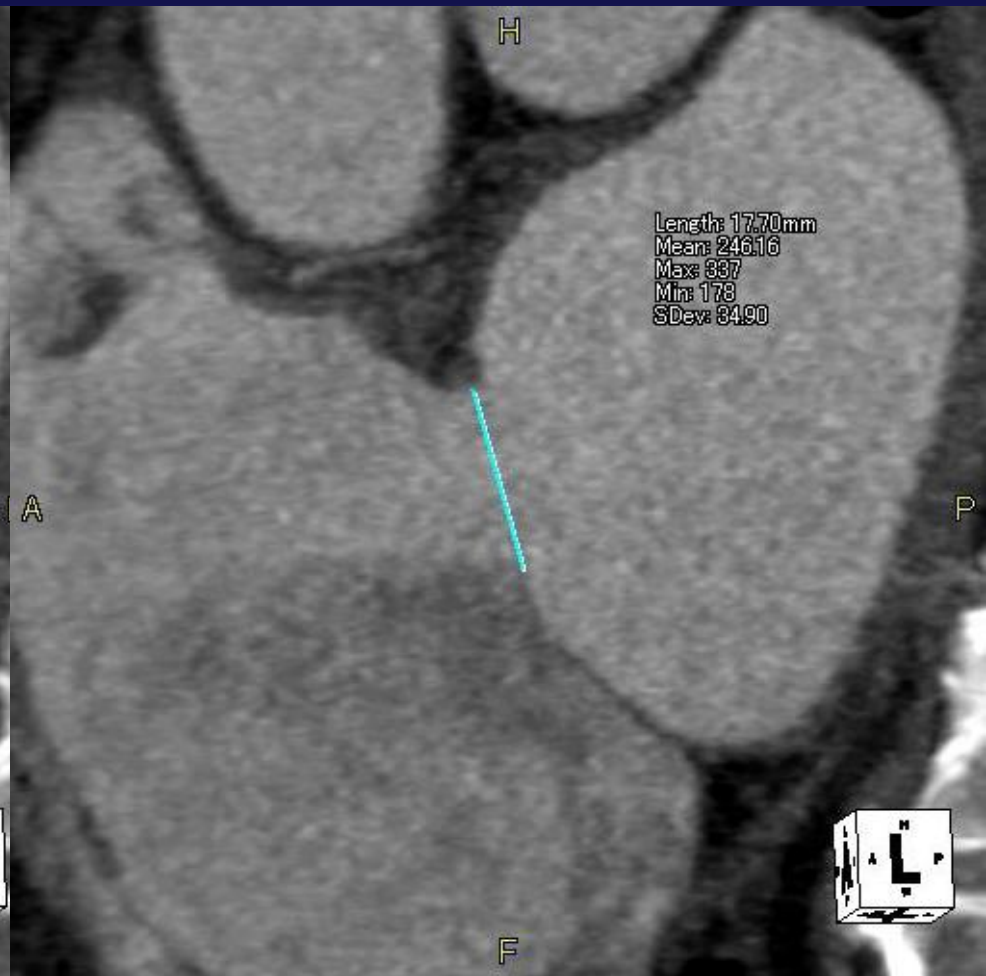


M. Congenital Heart Disease

Atrial Septal Defect



Atrial Septal Defect

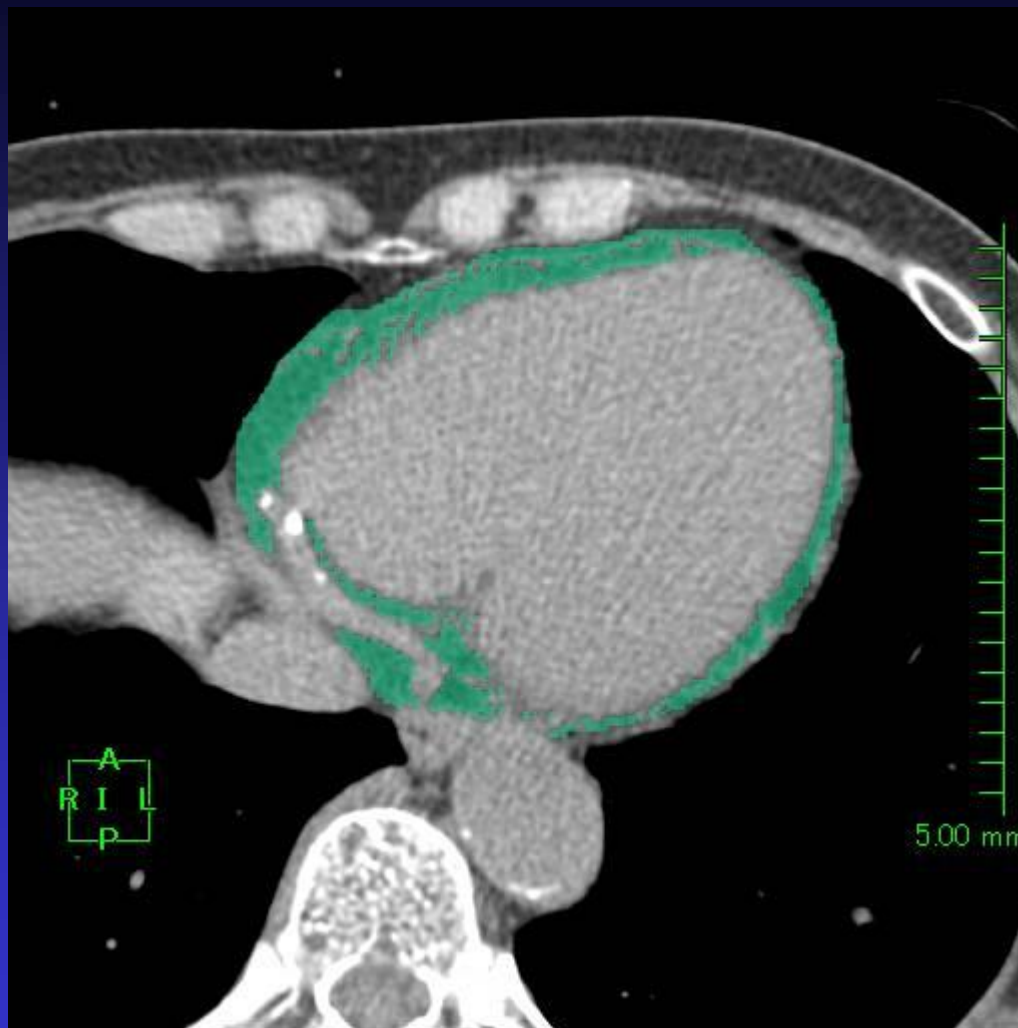


N. Epicardial Fat

EFV 45ml



EFV 87ml



EFV 131ml



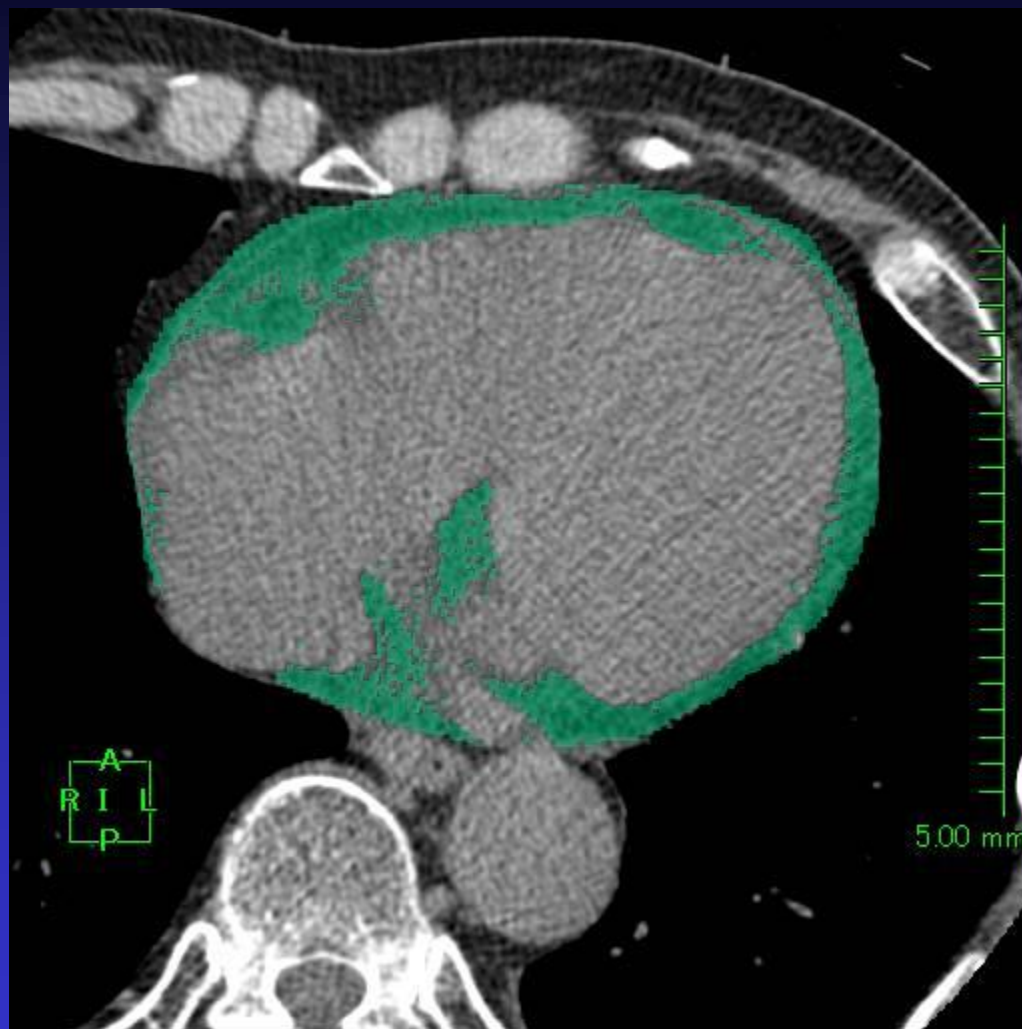
EFV 157ml



EFV 170ml



EFV 254ml



EFV 379ml

