64 ECG gated MSCT OF CORONARY ARTERIES AND ASCENDING AORTA
- technical approach

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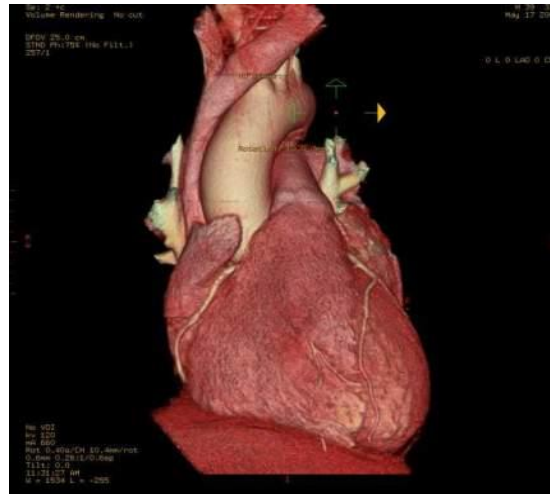Special hospital for surgery diseases **"Filip II"**

February 2011

64 ECG gated MSCT OF CORONARY ARTERIES AND ASCENDING AORTA

- CT coronarography
- CT of thoracic aorta with cardio protocol

Retrospective
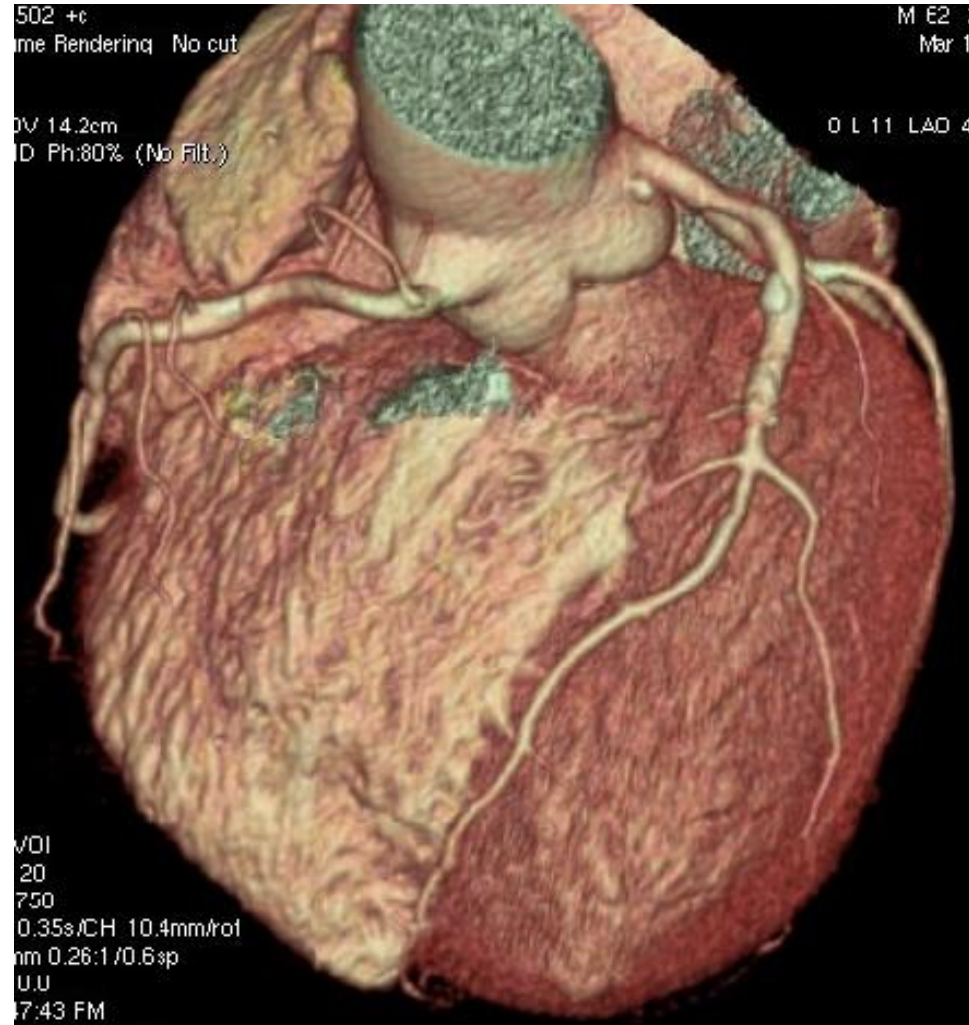Snap shot prospective

Cardiosurgery - Skopje

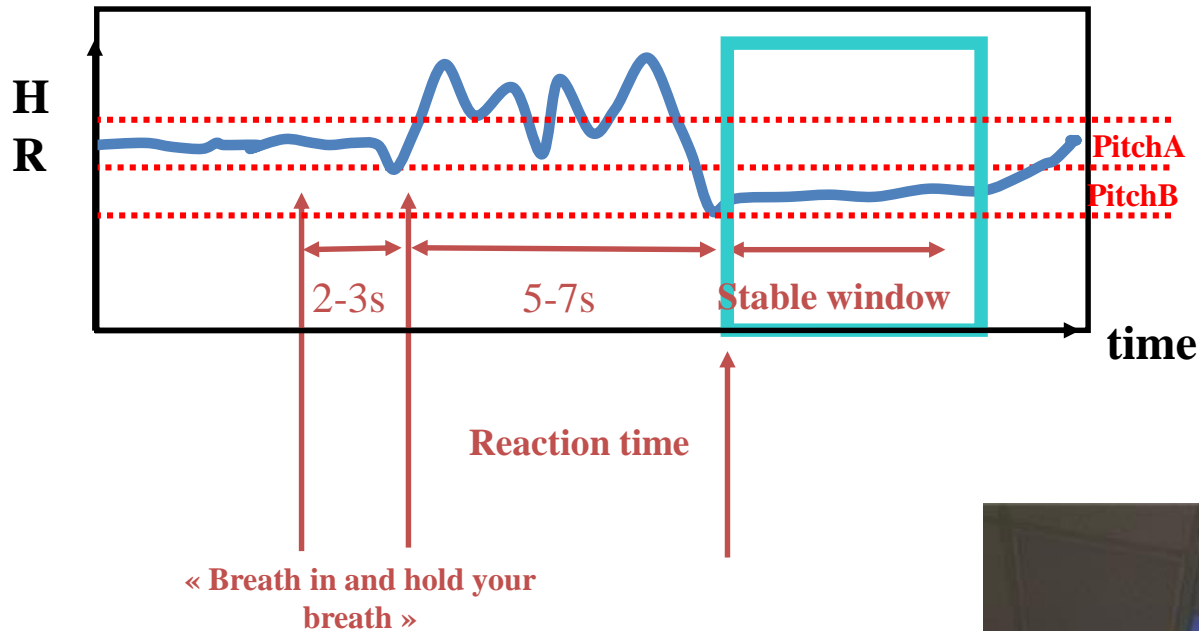# 64 ECG gated MSCT OF CORONARY ARTERIES AND ASCENDING AORTA

- High speed scanning (rot.time 0,35)
- High spatial and temporal resolution
- Thin slices - 0,625 mm,
- Visualization in all planes

  (*sagital, transversal, coronal*)

- Acquisition in diastolic phase

What more we need?

- An injector
- ECG gating
- 3D postprocesing

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H R

PitchA
PitchB

2-3s   5-7s   Stable window

time

Reaction time

« Breath in and hold your breath »

Patient position
Reference point: SN
IV in the right arm: *c*anila: 20G / 18G
(inj. rate = up to 5 ml/s)
ECG far from the injector, screen to face the acquisition console
- 3 Leads: (*on bone contact*)

- Patient preparation:
  - patient history, *ECG / HR / TA/ TT*
  - instructions for breath hold
- Regular heart rate <70 bpm
- Medical premedication (if it is necessary)

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Protocole:5.1 COEUR Segment 40-70 BPM   Exam:7951   Séries:1
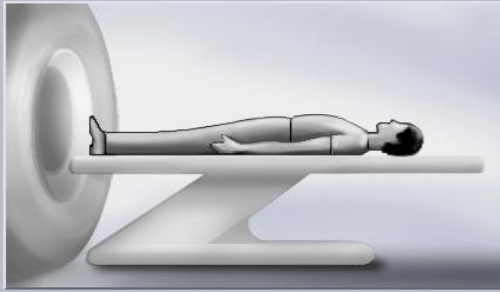
Descript. de Séries   SCOUT

Ajout Scout

Effacer Scout Choisi

Synchro. 53 BPM

Tracé ECG

Ant.   Suiv.

Numéro Scout	Type Acq.	Position Déb.	Position Fin	kV	mA	Plan Scout	Voix Lumières (sec.)
1	Scout	S60.00	I350.00	120	80	90	6 T
2	Scout	S60.00	I350.00	120	80	0	6 T

Fin Examen

Sélect. Nouveau Protocole

Séries Suiv.

Créer Nouv. Séries

Répét. Séries

1 de plus

Confirmer

Nouveau Patient   Programme Patients   Gestion de Protocole   Recon Rétro   Gestion Recon   Prep. Quotid.   Util. Scanner

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64 Cardiac MSCT SS Segment 45 – 70 BPM 0.625mm

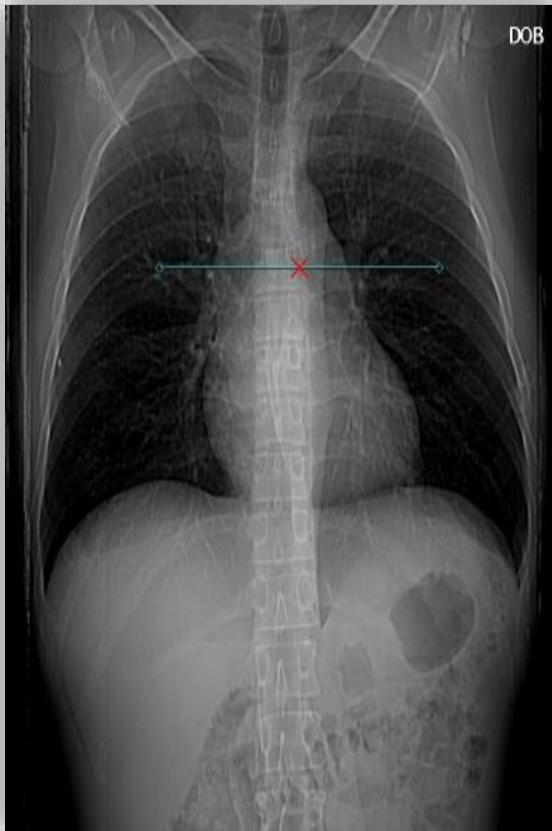| Scan Type	Scout
Num. Scout	2
Start Loc.	S 60.00
End Loc.	I 600.00
kV	120
mA	10
Scan Type	Cardiac
Rotation Time	0.35
Cardiac Mode	Snap Shot Segment (Helical)
Detector Coverage	40.0mm
Helical Thickness	0.625
Gantry Tilt	S 0.0
FOV	Cardiac Large
kV	120
mA	EKG Modulated mA
Total Exposure Time	12.6
Prep Group	Smart Prep
Interval	0.625
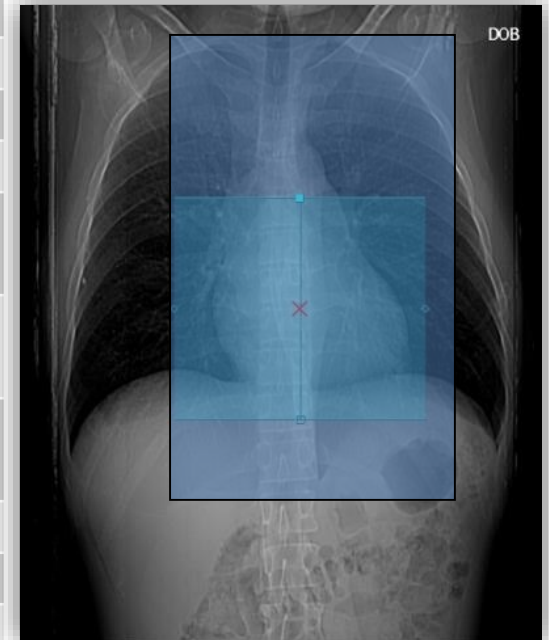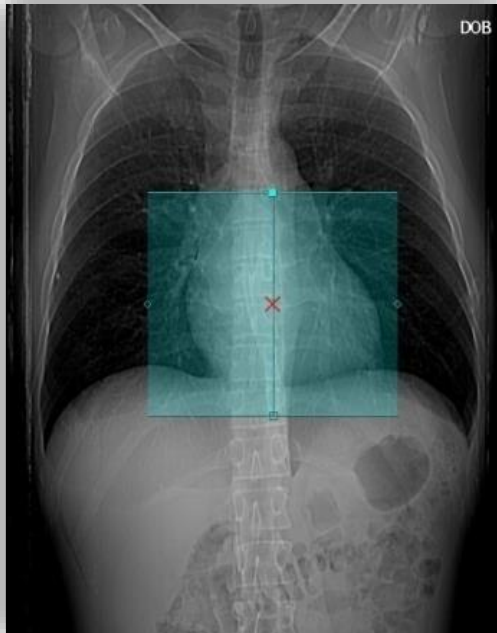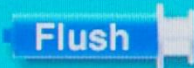
Cardiosurgery - Skopje
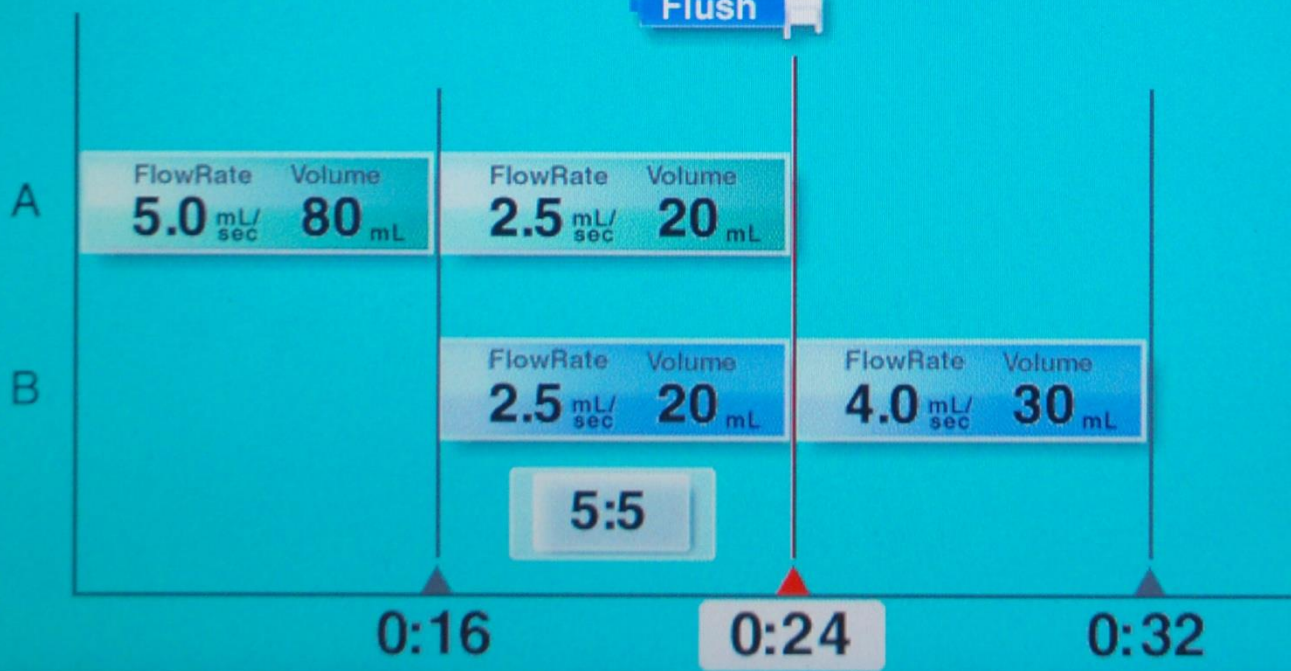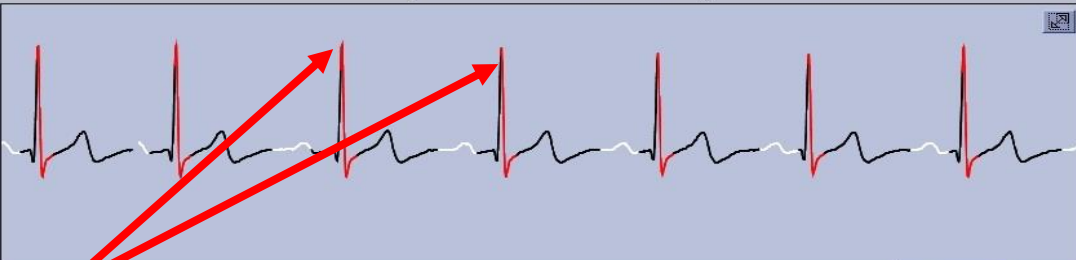
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Positioning the reference image on the Smart Prep

Producing timing graph
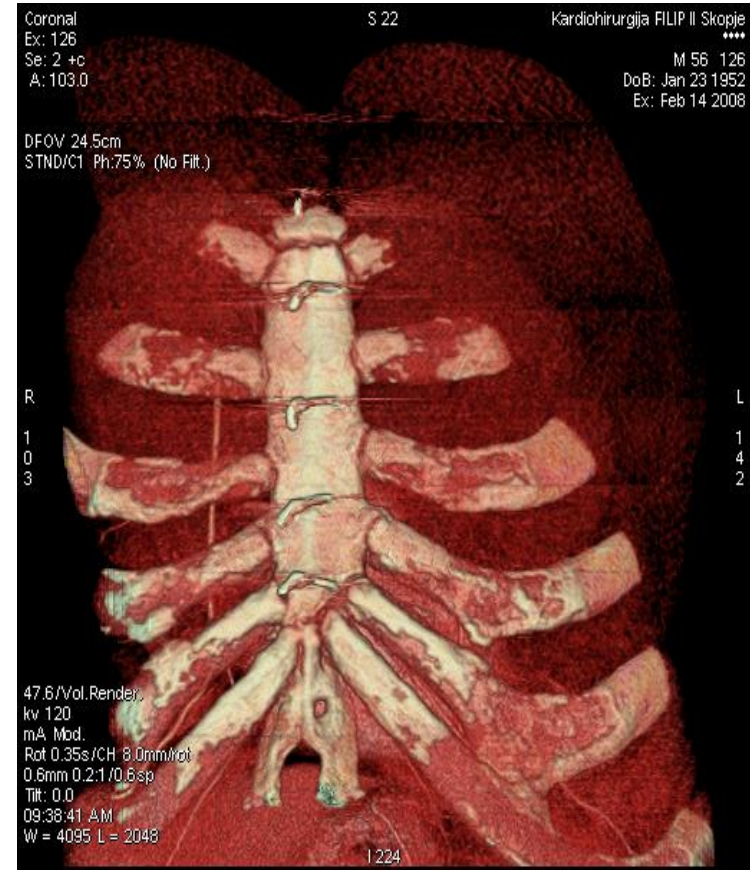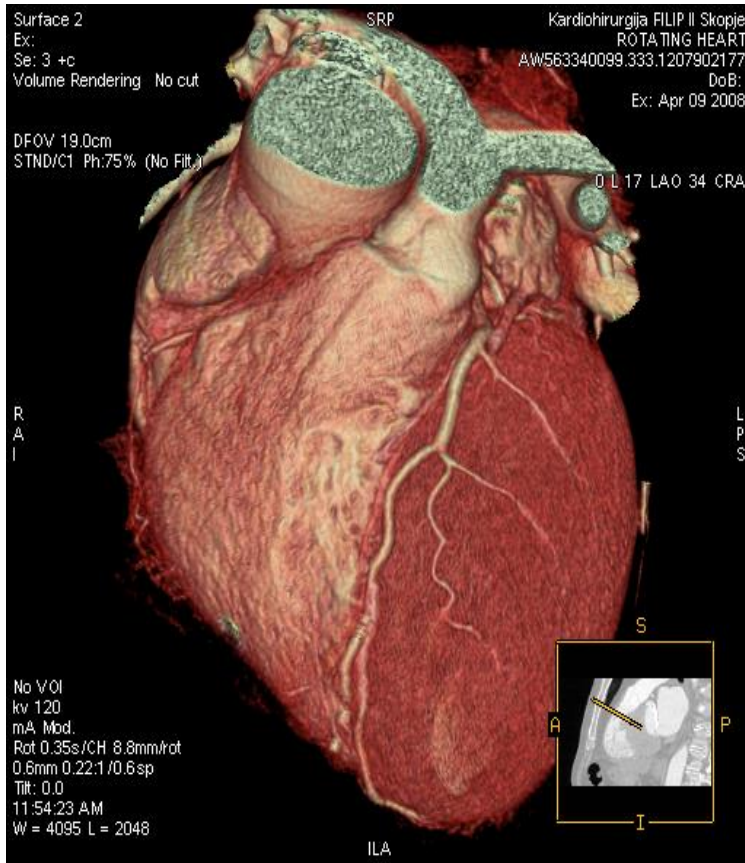
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64 ECG gated MSCT OF CORONARY ARTERIES AND ASCENDING AORTA
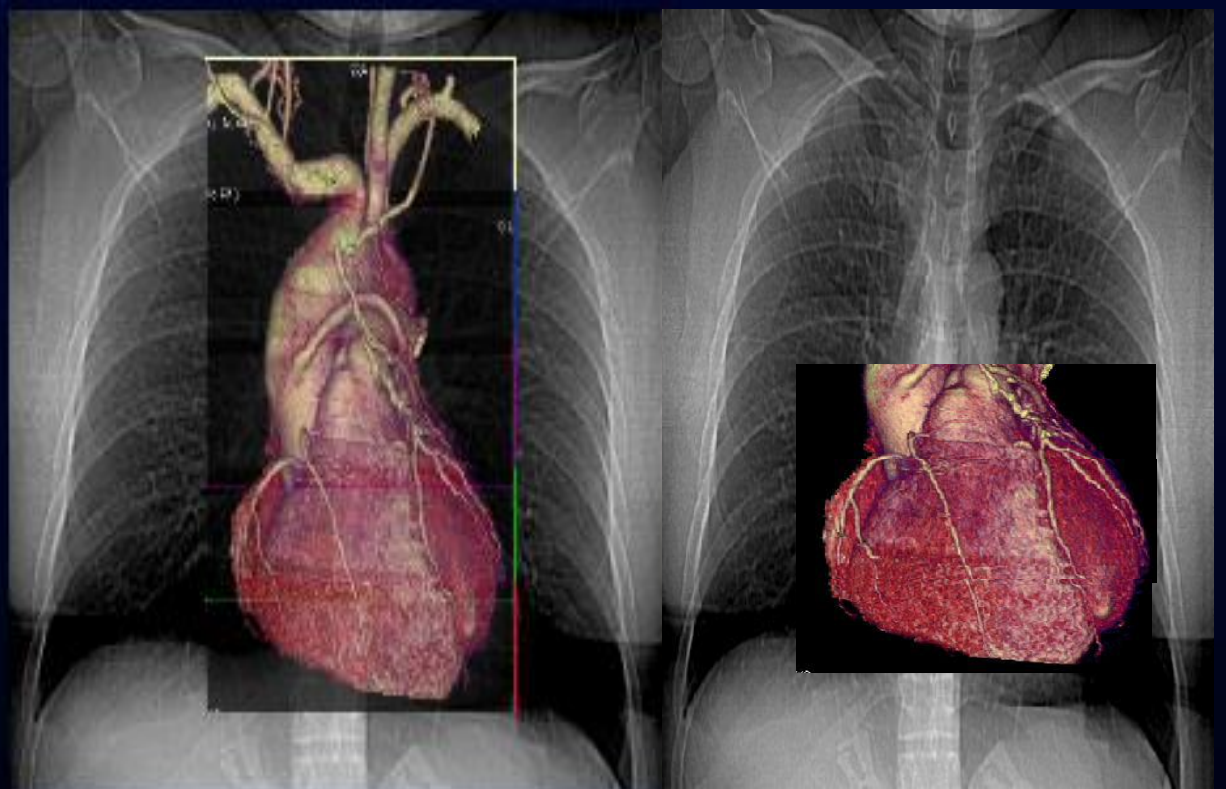
- **Limitations:**

    - Heart frequency above 65-70 bpm

    - arrhythmia

    - Uncooperative patient
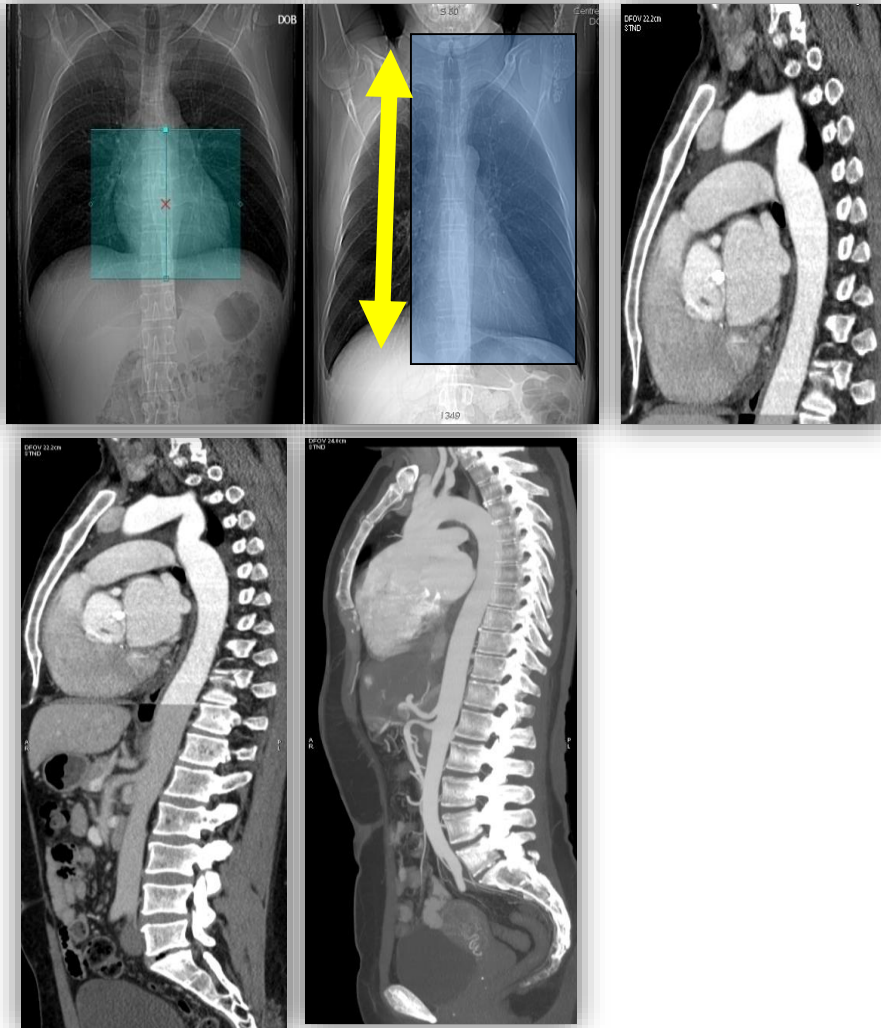   - Severe calcifications

    - obesity
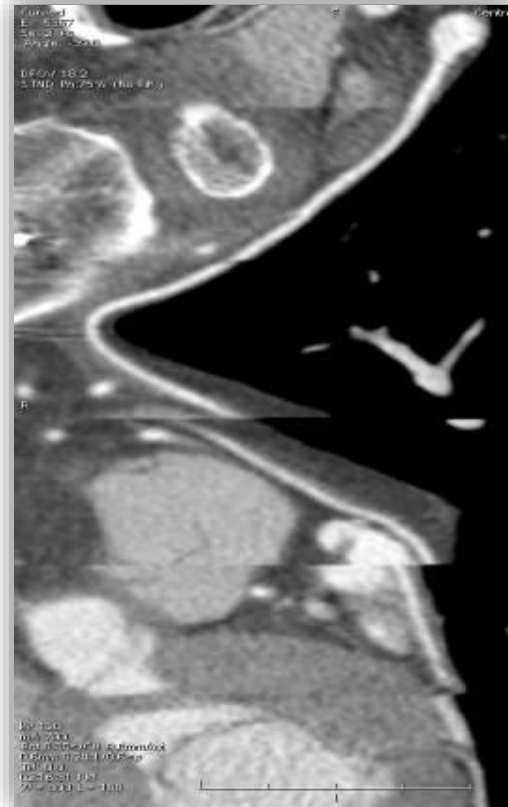
Pga: adaptive prospective gating

- Frequency 50-70 bpm

- Cooperative patient

- 70-80% reduction dose
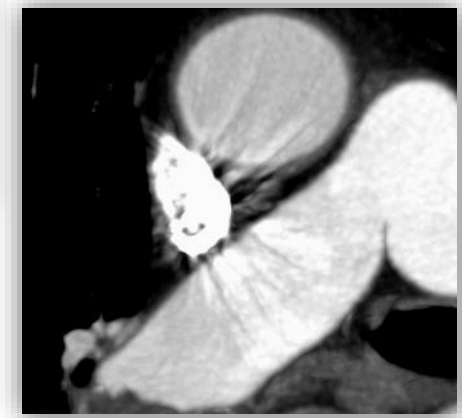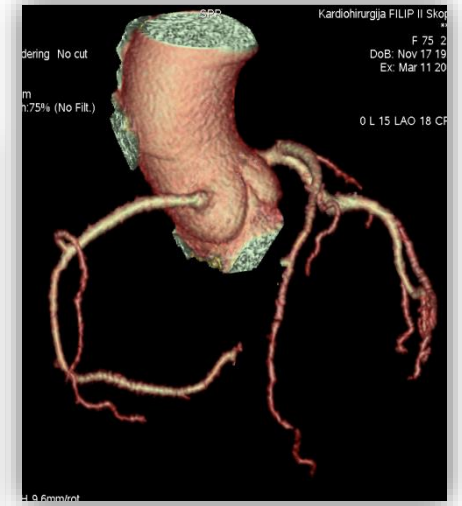
64 MSCT OF AORTA
WITH CARDIO PROTOCOL
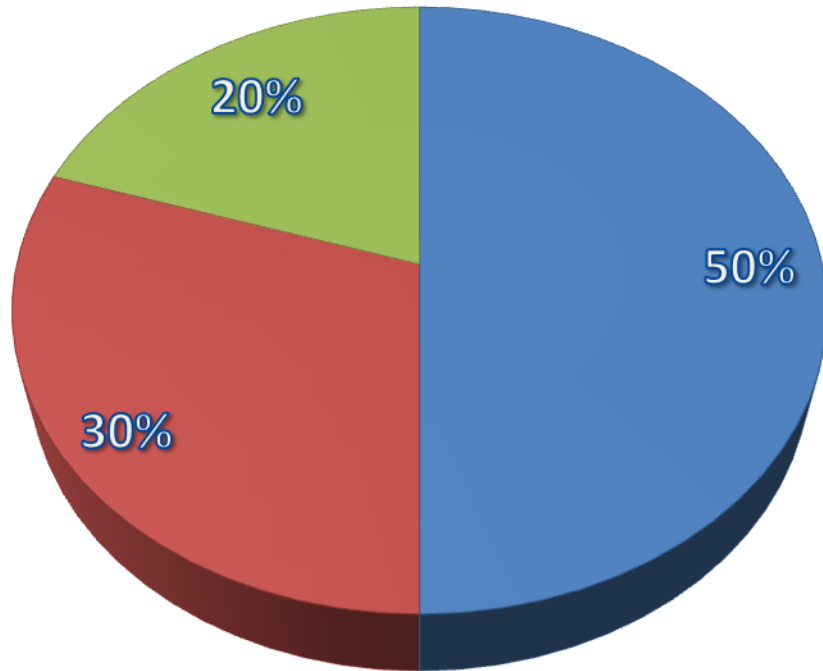

Retrospective ECG gating

Prospective ECG gating

Continuing scanning for abdominal aorta with a single contrast application

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Conclusion

The success of CT is due to:

- **50% well-prepared patient**

- **20% previous premedication**

- **30% experienced, educated radiological technologist**

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