

Cardiac CTA – Cardiac Mass (Cardiac CTA Structure and Morphology)

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In accordance with the ALARA principle, TRA policies and protocols promote the utilization of radiation dose reduction techniques for all CT examinations. For scanner/protocol combinations that allow for the use of automated exposure control and/or iterative reconstruction algorithms while maintaining diagnostic image quality, those techniques can be employed when appropriate. For examinations that require manual or fixed mA/kV settings as a result of individual patient or scanner/protocol specific factors, technologists are empowered and encouraged to adjust mA, kV or other scan parameters based on patient size (including such variables as height, weight, body mass index and/or lateral width) with the goals of reducing radiation dose and maintaining diagnostic image quality.

If any patient at a TRA outpatient facility requires CT re-imaging, obtain radiologist advice prior to proceeding with the exam.

Indication: Cardiac mass or thrombus

For Cardiac mass exams, call cardiac radiologist before exam.

Breathing Instructions:

- Perform a practice run with the patient to ensure understanding
 - To be done while patient is lying on the CT table after hooking up EKG leads PRIOR to acquiring images
 - Choose cardiac package breathing instructions

Patient Position:

- Supine: Cardiac breathing (Hyperventilation) or Breath in and hold, Feet down with arms above head
- Female patients: Attempt breast displacement by moving breasts laterally and superiorly which may be secured in some cases with the CT binder strap.

Medications:

- NO nitro or beta blockers

Scan Range (CC Z-AXIS):

Mass: Discuss with Radiologist, can typically use same coverage as coronary CTA - Carina through base of heart, center on both frontal (for superior border) and lateral (for inferior border) scouts/topograms

IV Contrast:

- Ideally, IV should be in right antecubital (AC) fossa; left AC is 2nd choice
- Injection rate does not need to be as high as a coronary CTA; 4cc/sec can be default

Acquisitions:

THREE acquisitions total typically = Non-contrast, Arterial, and Delay

1. Non-contrast

- Helical acquisition

2. Arterial

- Contrast bolus (NEED TO CALL RADIOLOGIST TO GET INSTRUCTIONS AS LOCATION OF MASS DETERMINES CONTRAST TECHNIQUE):
 - For most left heart masses: Trigger delay with HU threshold of 100HU in the ascending aorta; 70cc contrast followed by 40cc of 70% contrast / 30% saline mixture and saline chaser at 4cc/sec
 - For most right heart masses, same trigger delay but use 40cc contrast followed by 70cc of 50% contrast / 50% saline mixture and saline chaser at 4cc/sec
- ECG Gating:
 - **Dose modulated Retro (same as coronary CTA):** Max mA window 200-440ms, ramp down to 20% outside of max window

3. Delay

- Timing
 - Approximately 70 sec after contrast injection, or 40 seconds after arterial acquisition completed
- Coverage:
 - Same coverage as arterial acquisition
- ECG Gating:
 - **Dose modulated Retro:** Max mA window 200-440ms, ramp down to 20% outside of max window

Series and Reformats (ALL RECONS NEED TO GO TO VIA & TRA PACS):

1. Non-contrast:

- Axial 2mm mm ST kernel "NonCon", Full FOV, don't need to cone

2. Arterial:

- CTA: Axial 0.75 mm slice thickness "Best systole" (I31 or I41 kernel; coned to heart for cardiac mass, coned to LVAD for LVAD)
- "Function": Axial 2mm slice thickness (FOV around heart) – 0- 90% in Increments of 10%
- Chest / Full FOV (soft tissue/standard kernel, full FOV)
 1. Axial 2 mm slice thickness (I30 kernel) "AxFull"
 2. Coronal: 2 x 2mm slice thickness "Coronal"
 3. Sagittal: 2 x 2mm slice thickness "Sag"
 4. Axial 10 x 2 MIPS (soft tissue/standard kernel, full FOV) "MIPS"

3. Delay:

- CTA: Axial 0.75 mm slice thickness "Delay" (I31 or I41 kernel; FOV around heart)