

# EVALUATION OF CORONARY ARTERIES WITH ECG GATED 64-MULTISLICE COMPUTED TOMOGRAPHY (MSCT) IN PATIENTS WITH SUSPECTED AORTIC DISSECTION STANFORD TYPE A

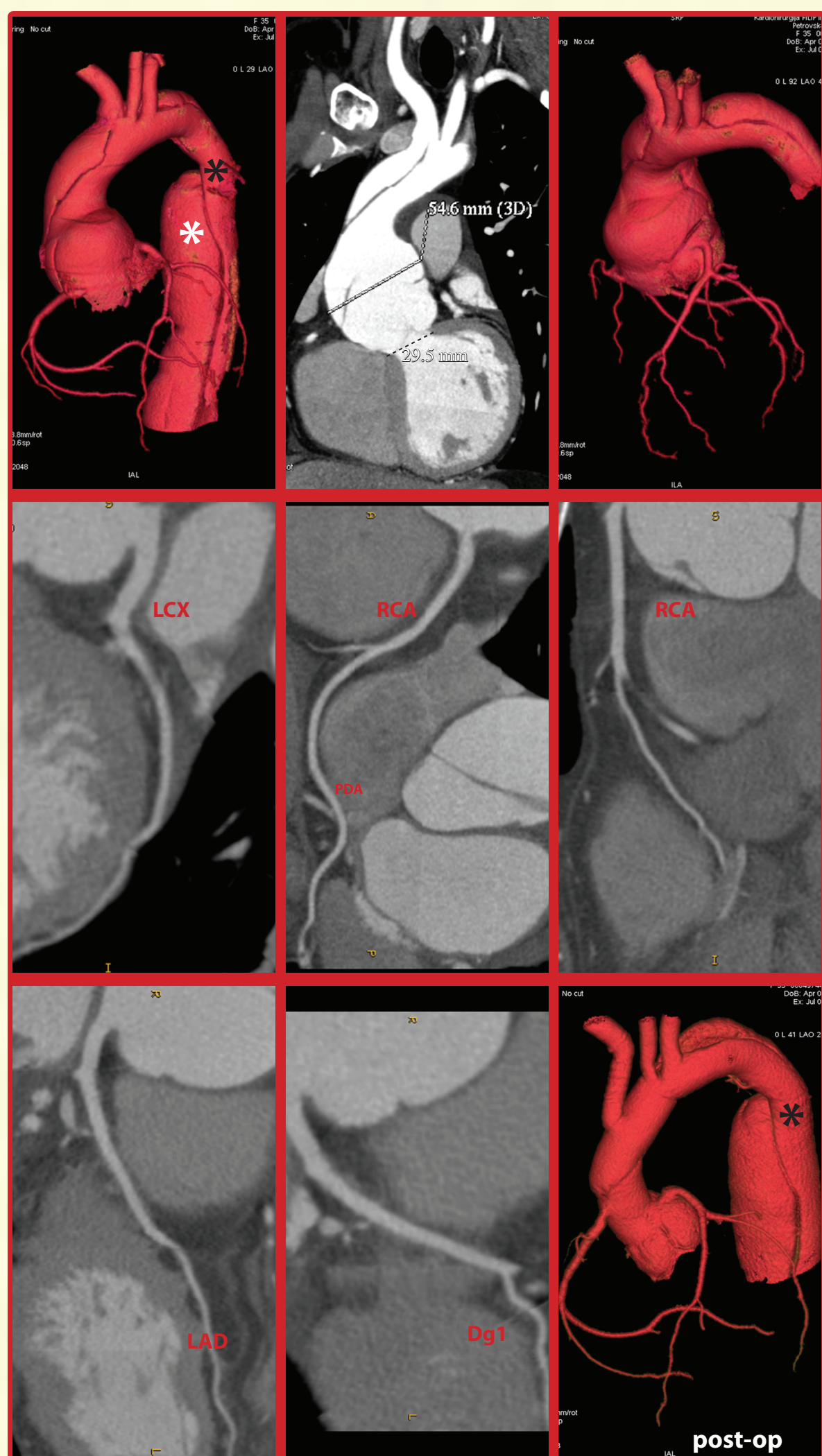
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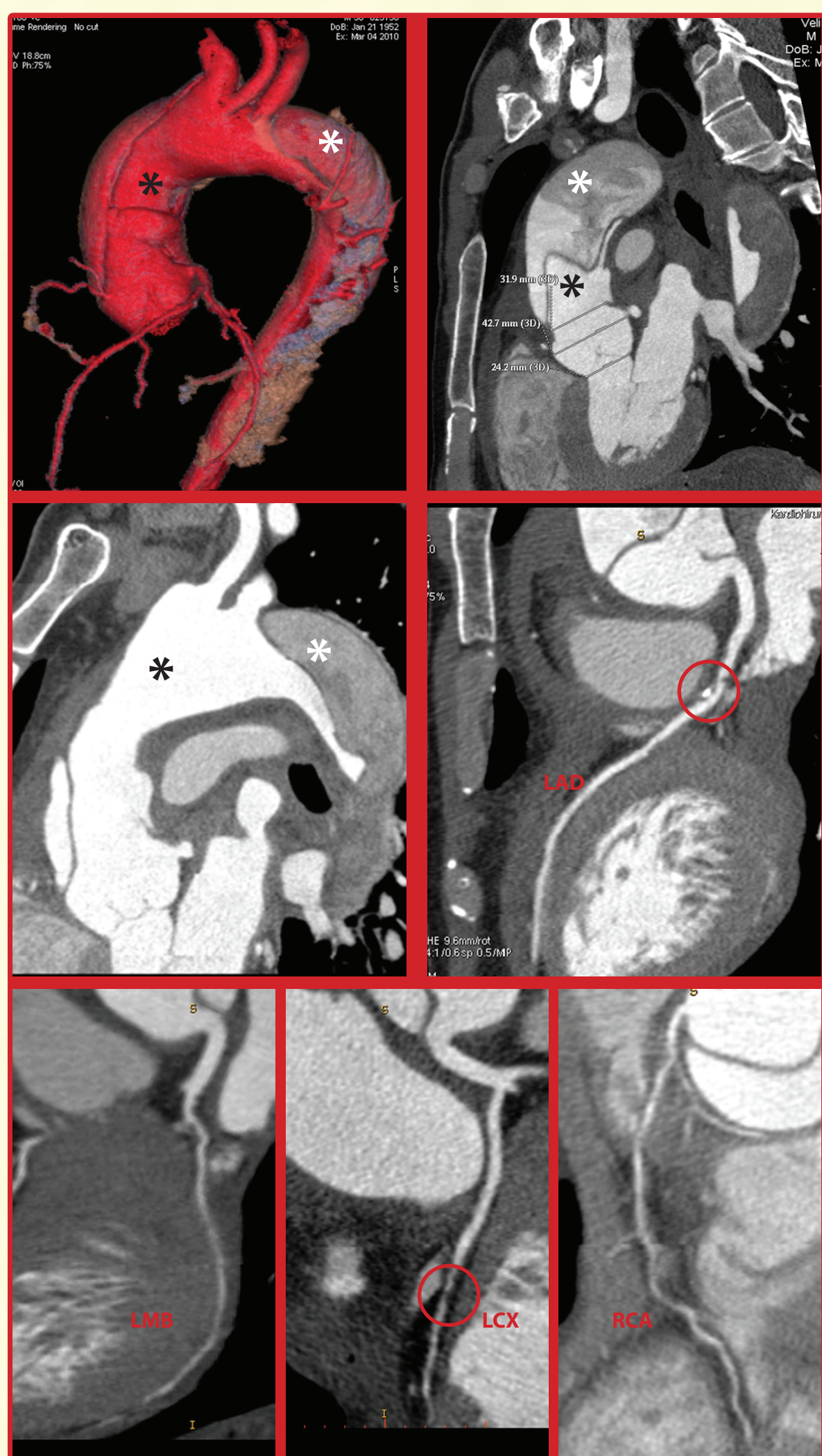
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**Figure 1.** Stanford type A aortic dissection. (false lumen ✕, true lumen \*)  
Optimal evaluation of entire coronary arteries tree.



**Figure 2.** Stanford type A aortic dissection. (false lumen ✕, true lumen \*)  
Optimal evaluation of coronary arteries except RCA. LAD and LCX with significant stenosis. ○

## Purpose:

The purpose of our study is to show the value of ECG gated 64-MDCT as a non - invasive and reliable method for simultaneous assessment of coronary arteries as part of the aortic root evaluation.

## Methods and Materials:

From April 2009 until December 2009 we performed 52 ECG –gated, 64 MSCT examinations to confirm a diagnosis of suspected aorta ascendens dissection and help preoperative treatment planning.

A transthoracic (TTE) and/or transesophageal (TEE) echocardiography was initially performed in all patients.

Patients (pts) with arrhythmia and non-stable haemodynamic conditions were excluded.

All MSCT scans were performed according to the current cardiac standard protocol at our institution with retrospectively ECG gated technique using GE 64 VCT light speed with 0,625mm slice for thoracic aorta. Continuing scanning for abdominal aorta 1,2mm slice (standard protocol for abdominal aorta) was done with a single contrast application.

An initial non-contrast medium enhanced scans was performed to permit identification of intramural haematoma

Premedicaton with i.v. betaBlocker (propranolol) was administrated in all with heart rate > 70 bpm.

The post-processing of the diagnostic series was performed on GE working station 4.3.

In all pts with severe calcifications where we were sure that we will not have optimal visualization of the coronary tree than for thoracic aorta we use ECG gated cardiac protocol with 1,2mm slice thickness to lower the radiation dose and still avoid respiratory motion artifacts of the aortic root.

## Results:

Ten (19 %) out of 52 pts were excluded from the study because of high heart rate, severe calcifications or/and disability for breath holding.

Dissection Stanford type A was confirmed in 36 (86%) out of 42 (80%) pts. Without dissection were 6 pts (14%).

Table 1. Successful evaluation of coronary arteries out of 42pts.

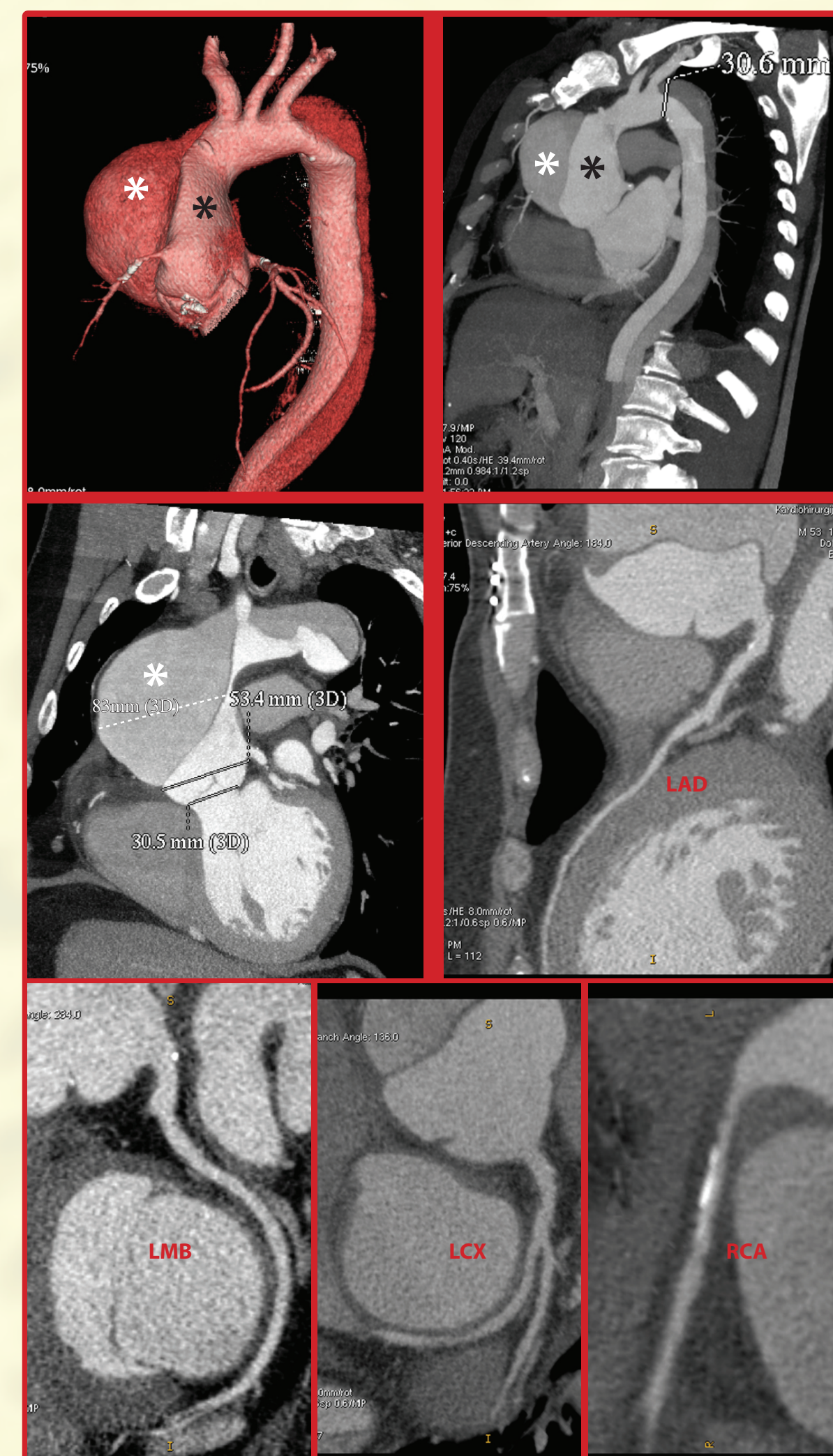
Entire coronary tree	32 (76%)
Left main coronary artery (LMA)	42 (100%)
Left anterior descending artery (LAD)	40 (95%), 5 (12%) significant obstructive lesion
Left circumflex artery (LCX)	40 (95%), 2 (5%) significant obstructive lesion
Right coronary artery (RCA)	36 (86%) 3 (8%) significant obstructive lesion

The most common reason for unsatisfactory visualization of coronaries was change of heart rate or not possible breath holding.

## Conclusion:

We emphasize the incremental value of this non invasive examination that can confirm a diagnosis of suspected aortic dissection Stanford type A; helping the planning of surgical treatment and successfully evaluate the coronary arteries at the same time.

Still, heart rate and breath holding seems to be crucial factors that determine the reliability of coronary arteries evaluation.



**Figure 3.** Stanford type A aortic dissection with aortic aneurysm of the aortic root and ascending aorta. (false lumen ✕, true lumen \*)  
Optimal evaluation of entire coronary tree



**Figure 4.** Stanford type A aortic dissection. (false lumen ✕, true lumen \*)  
Difficult evaluation of entire coronary arteries tree, specially RCA. LAD and LCX with significant stenosis. ○