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.

Premedication 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 42 pts.

<table>
<thead>
<tr>
<th>Artery</th>
<th>Evaluation</th>
<th>Stenosis</th>
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<tbody>
<tr>
<td>Entire coronary tree</td>
<td>32 (76%)</td>
<td></td>
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<tr>
<td>Left main coronary artery (LMA)</td>
<td>42 (100%)</td>
<td></td>
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<tr>
<td>Left anterior descending artery (LAD)</td>
<td>40 (95%), 5 (12%) significant obstructive lesion</td>
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</tr>
<tr>
<td>Left circumflex artery (LCX)</td>
<td>40 (95%), 2 (5%) significant obstructive lesion</td>
<td></td>
</tr>
<tr>
<td>Right coronary artery (RCA)</td>
<td>36 (86%), 3 (8%) significant obstructive lesion</td>
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</tbody>
</table>

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.