ABSTRACT
Thrombus distribution is known part of atrial arrhythmias. We here report a clinical example using cardiac 256-multidetector row computed tomography (256 MDCT) for examination to assess for small intracoronary thrombotic structures in proximal parts of vessels with either big size (> 2,5 mm diameter) and/or existing bare metal stents on a 70 years old male individual. He was suffering a non-ST elevated myocardial infarction due to intracoronary thrombus in bare metal stents in the proximal left artery descending (LAD) in regard to occult atrial fibrillation. Philips 256 iCT documented the small amount of rest thrombus after abciximab pre treatment before discharge of the patient under acetylsalicylacid (100mg) and phenprocoumon (for 6 months). Summarised, this example proposes and underlines further use of cardiac MDCT for patients with acute chest pain to improve prognostic outcome by reduction of complications. Additionally, even 3 years after bare metal stent implantation in big vessels, here proximal LAD, we are mainly demonstrating the need of continuous antithrombotic acetylsalicylacid treatment to avoid in-stent thrombosis.

CASE REPORT
Cardiac Computed Tomography for Detecting Intracoronary Thrombotic Structures in Proximal LAD Bare Metal Stents

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LEARNING OBJECTIVE
Further use of Cardiac CT is the detection of intraluminal thrombotic material in coronary stents.

CASE REPORT
A 70 years old male patient in good health conditions with known coronary artery disease and existing three bare-metal stents (Cobalt-Chromium “Multi-Link Vision Bare-Metal Coronary Stent System, 3.0×12mm, Abbott, Wiesbaden, Germany) in the proximal and mid part of the left anterior descendents artery (LAD) implanted 3 years ago, was presented to the Department for Cardiology with acute chest pain for 2 hours following chemically a Non-ST-Elevated Myocardial Infarction (NSTEMI).

In the past, a common drug treatment was established with 100 mg acetylsalicylacid per day, 2.5 mg bisoprolol per day, 10 mg ramipril per day, 20 mg simvastatin per day and for 4 weeks clopidogrel 7 5mg per day after bare-metal stent-implantation. The 100 mg acetylsalicylacid treatment was discontinued due to an elective surgery on the right carotid artery interna 2 weeks before hospital presentation in regard to severely stenosis.

Actually, the Troponin I level raised to 1.5 ng/mL (normal < 0.05ng/
mL) and the ECG demonstrated a paroxysmal atrial fibrillation turning in normal ventricular frequency (to this date unknown). Immediately, an invasive coronary angiography was performed and the coronary status was assessed revealing a remarkable structure in the proximal two stents of the LAD suspected to an intracoronary thrombus while normal perfusion was determined in all stents and the rest of the vessel (TIMI 3), see figure 1 (pre, marked through white arrows).

Due to an intraluminal reduction of only 30% Diameter Stenosis in both proximal LAD stents, abciximab adjusted to the body weight was given intravenously for 12h and a second look was assessed using Philips iCT Cardiac 256-MDCT while the patient spontaneously converted into normal sinus rhythm (Figure 2). Retrospective gating to 75% RR interval was performed (heart rate 65 beats per minute) and only a small rest thrombus in the proximal LAD stent surrounded by non- and calcified plaques as well as the struts of the both “Vision” stent systems (only 0.0032” thick) were observed (see bold white arrow, figure 2). The complete vessel demonstrated further almost inconspicuous perfusion. Caused through additional unspecific symptoms of the patient, we performed a second invasive coronary angiography with complete normal perfusion in all LAD stents (proximal and mid) and ruled out further intravascular thrombotic materials, see figure 1 (post).

The patient got discharged 2 days later set on Phenprocoumon for 6 months due to stable sinus rhythm improved by beta-receptor inhibition (metoprolol 95 mg per day) added to 100 mg acetylsalicylacid per day.

**DISCUSSION**

While thrombus distribution is known part of atrial arrhythmias[1-4], this example reveals cardiac 256-multidetector row computed tomography (256 MDCT) as clinical examination to explore small intracoronary thrombotic structures in proximal parts of vessels with either big size (> 2,5 mm diameter) and/or existing bare metal stents[5].

The thrombotic structure in the LAD stents is caused through the discontinuing of 100 mg per day acetylsalicylacid treatment. The obviously distribution of the thrombotic material in the vessel is focusing mainly in the stent regions which excludes coronary embolisms through atrial arrhythmias as reason for the intraluminal thrombus.

We support a further use of cardiac CT detecting intraluminal thrombotic material following (1) coronary calcium scoring[6], (2) coronary plaque formations[7-9], (3) coronary artery disease[10,11], (4) left ventricular function (mass, regional wall motions, ejection fraction)[12,13], (5) right ventricular function[14], (6) valve function (aortic valve)[15], and (7) the detection of the culprit lesion in myocardial infarction[16-18].

Infusion of abciximab as antithrombotic treatment regimen is part of the drug management in acute coronary symptoms[19-22]. Here, partial success for thrombus lysis was assessed detected through cardiac 256-MDCT while even complete thrombus abolishment was assumed using conventional invasive coronary angiography (see figure 1, lower panel.).

*Figure 1 Invasive Coronary Angiography. Demonstrated here are slides from the invasive coronary angiography determining the intracoronary thrombotic structure in the two bare metal stents (Multi Link Vision Coronary Stent System, 3.0x12mm, Abbott, Wiesbaden, German) in the proximal left anterior descendent artery (LAD) as marked with white arrows. The upper panel (pre) shows the coronary status of the LAD in different ankles (LAO90°, RAO35°, LAO40°) as well as of the circumflex artery right after administration of the patient in the Department for Cardiology 2 hours after begin of symptoms (acute chest pain). The lower panel is demonstrating the coronary status after intravenous support of abciximab for 12 hours (post) in same angiographic ankles.*
This example proposes and underlines further use of cardiac MDCT for patients with acute chest pain to improve prognostic outcome by reduction of complications. Additionally, even 3 years after bare metal stent implantation in big vessels, here proximal LAD, we are mainly demonstrating the need of continuous antithrombotic acetylsalicylic acid treatment to avoid in-stent thrombosis.

CONFLICT OF INTERESTS

There are no conflicts of interest with regard to the present study.

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