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DOI: https://doi.org/10.1093/eurheartj/eht519

Posted at the Zurich Open Repository and Archive, University of Zurich
ZORA URL: https://doi.org/10.5167/uzh-92276
Accepted Version

Originally published at:
DOI: https://doi.org/10.1093/eurheartj/eht519
Cardiovascular Flashlight

Excluding a Giant Coronary Aneurysm by Implantation of a Covered Stent

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Text word count: 267

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A 61-year old gentleman underwent coronary CT angiography (CCTA) for atypical chest pain, which revealed partially ectatic, diffusely diseased coronary arteries and a giant, eccentric and partially thrombosed aneurysm in the proximal segment of the right coronary artery (RCA) (size: 7x5.5x6cm; Panel A and B, arrows). On invasive angiography, the true size of the aneurysm was underestimated due to extensive thrombosis (Panel B, E, asterisk marking perfused part). The perfused aneurysm was connected to the RCA through a thin neck (Panel B, arrowhead), resembling a pseudoaneurysm rather than a true aneurysm. Myocardial perfusion SPECT revealed a nontransmural inferior scar without reversible ischemia (Panel D: Hybrid SPECT/CT, black arrows).

Exclusion of the RCA aneurysm was performed by placement of a 4.8x26mm covered stent (Graftmaster RX, Abbott Vascular, Illinois, USA). Distal diameter mismatch was corrected by post-dilatation with an oversized balloon-catheter (Avion Plus 6.0/20mm, Medtronic Invatec, Frauenfeld, Switzerland) (Panel F). Repeat CCTA four months later showed a fully excluded aneurysm without further extravasation of contrast (Panel C). Triple therapy with aspirin, clopidogrel and phenprocoumon was started for 3 months, followed by clopidogrel and phenprocoumon for another 9 months.

Coronary artery aneurysms, particularly of such giant dimensions, are rare findings on coronary angiograms and may be associated with extensive atherosclerosis or a history of vascular inflammatory disease (e.g. Kawasaki syndrome). Spontaneous ruptures of coronary aneurysms are exceedingly rare. However, due to the paucity of data, there is no evidence for the best treatment of such a giant aneurysm. In this particular case, the decision to exclude the aneurysm with a covered stent was taken to avoid rupture and distal embolization.