Unusual cause of acute coronary syndrome: dynamic coronary compression by an aortic pseudoaneurysm

Nadia Bouabdallaoui1*, Paul Achouh2, Jonathan Lacaze-Gadonneix1, and Pierre Vladimir Ennezat3

1Department of Cardiology, Georges Pompidou European Hospital, Assistance Publique des Hôpitaux de Paris (AP-HP) and Paris-Descartes University, Paris, France; 2Department of Cardiovascular Surgery, Georges Pompidou European Hospital, Assistance Publique des Hôpitaux de Paris (AP-HP) and Paris-Descartes University, Paris, France; and 3Cardiology Department, Groupe Hospitalier Mutualiste de Grenoble, Grenoble, France

* Corresponding author. Tel: +33 156093732; Fax: +33 156093039, Email: nadia.bouabdallaoui@gmail.com

A 77-year-old man was admitted to our institution for acute coronary syndrome (ACS) with anterior ST depression on EKG and troponin rise. He had a history of aortic valve endocarditis 4 years earlier, treated with aortic valve replacement using a homograft. Close follow-up was arranged for a silent aortic pseudoaneurysm that developed early after surgery without evidence of recurrent infection. Two bare metal stents were implanted 6 months earlier in the setting of ACS. He was admitted for recurrent chest pain. Coronary angiogram showed a prolonged and critical systolic compression of the left anterior descending (LAD) artery (Panel 1; Supplementary data online, Video S1). Transthoracic (Panel 2; Supplementary data online, Video S2), transoesophageal (Supplementary data online, Videos S3–5) echocardiography, and computed tomography (CT, Panels 3–6; Supplementary data online, Videos S6 and S7) showed a nearly circumferential pseudo-aneurysm originating from the mitroaortic intervalvular fibrosa and compressing the left atrium and LAD. The patient underwent surgery. Operative findings were a disruption of the mitroaortic junction with a 4 cm large gap leading to a pseudoaneurysm arising from the posterior aortic root. The gap was closed using a pericardial patch (Panel 7). Tissue cultures were sterile. Pseudoaneurysm of the mitroaortic intervalvular fibrosa is a rare complication of aortic valve endocarditis. Extrinsic coronary compression by such structures has been reported. Although surgical repair is commonly recommended in these situations, conservative approach with tight follow-up may be indicated in asymptomatic cases with regard to the high-surgical risk. CT scan plays a key role for surgical decision-making.

Panel 1) Coronary angiography at admission showing a prolonged and critical systolic compression of the LAD artery (arrow) as a result of the systolic expansion of the aortic pseudoaneurysm.

(Panel 2–6) Two-dimensional and three-dimensional echocardiography, CT scan revealing consistent data: a circumferential pseudoaneurysm originating from the mitroaortic intervalvular fibrosa and compressing the left atrium and the LAD artery. Parasternal short- and long (Supplementary data online, Video S2)-axis view from two-dimensional echocardiography shows the formation developed at the level...
of the aortic root (Panel 2: arrows). The aortic bioprosthesis is normal with atrivial intraprosthetic regurgitation (Supplementary data online, Video S2). Transoesophageal echocardiography (TEE) at the midoesophageal level (Supplementary data online, Video S3: 45°; Supplementary data online, Video S4: 120°), and 3D TEE (Supplementary data online, Video S5) show the systolic expansion of the pseudoaneurysm. On CT scan, pseudoaneurysm height is 63 mm in systole and 47 mm in diastole.

Panel 6 is a zoom view on LAD displaying the mechanism of compression of LAD artery (white arrow) by the pseudoaneurysm (black arrow).

(Panel 7) Intraoperative view operative findings display a disruption of the mitroaortic junction with a 4 cm large gap.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.