Left main mycotic aneurysm causing myocardial infarction

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Mycotic coronary aneurysms are rare, and simultaneous involvement of the left main, left anterior descending and circumflex arteries has never been described. In the present case, multislice computed tomography was an invaluable tool to adequately delineate the aneurysm from the surrounding structures and to plan cardiac surgery accordingly.

Key Words: Left main; Multislice computed tomography; Mycotic aneurysm; Myocardial infarction

CASE PRESENTATION

A 62-year-old man was referred to hospital for non-ST elevation myocardial infarction. He had a history of chronic lymphoid leukemia and suffered *Streptococcus pneumoniae* septic arthritis of his right knee two months before admission. Shortly after this septic episode, the patient experienced new-onset chest discomfort on exertion and with postural changes. Effusive pericarditis was diagnosed and required

Un anévrisme mycotique de l'artère coronaire gauche responsable d'un infarctus du myocarde

Les anévrismes coronaires mycotiques sont rares, et auparavant, on n'a jamais décrit l'atteinte simultanée de l'artère coronaire gauche, de l'artère interventriculaire antérieure et de l'artère circonflexe. Dans le présent cas, une tomographie multicoupe a constitué un outil inestimable pour bien circonscrire l'anévrisme des structures avoisinantes et planifier la chirurgie cardiaque en conséquence.

percutaneous drainage followed by a surgical pericardial window. Bacterial cultures were negative. The patient experienced progressively worsening chest pain and eventually sustained a non-ST elevation myocardial infarction. Coronary angiography revealed a giant aneurysm of the left coronary artery (Figures 1 and 2) and three-vessel disease.

To precisely define the morphology of the coronary aneurysm, multislice computed tomography was performed. The images nicely

Figure 1) Left coronary angiogram in the right cranial oblique view. The mycotic aneurysm (thick arrows) appeared during dye injection before the left circumflex artery (Cx) or the left anterior descending artery. LM Left main artery. This figure was reproduced with permission from reference 5 (Copyright Elsevier 2010)

Figure 2) Left coronary angiogram in the lateral view showing the mycotic aneurysm (thick arrows) during dye injection. Thrombolysis in Myocardial Infarction (TIMI) flow 0-1 is observed in the left anterior descending artery (LAD). Cx Circumflex artery

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Figure 3) Computed tomography. **Left panel** Sagittal view showing the mycotic aneurysm (thick arrow) protruding from the left main artery (LM) and its proximity to the pulmonary artery (PA). **Middle panel** Axial view showing the mycotic aneurysm (thick arrow) protruding from the LM and the calcium in both the left anterior descending artery (LAD) and the circumflex artery (Cx). **Right panel** Volume-rendered reconstruction showing the mycotic aneurysm (thick arrow) arising from the LM (thin arrow) and involving both the LAD and the Cx. Ao Aorta; LV Left ventricle

depicted the origin of the aneurysm protruding from the left main artery, and its relationship with the left anterior descending (LAD), left circumflex and main pulmonary arteries (Figure 3). Cardiac surgery was performed by transecting the pulmonary artery to expose the aneurysm, which was isolated. Three coronary artery bypass grafts were also completed. Perioperative Gram stains were negative. Because of fever and a systemic inflammatory state, antibiotics were empirically started despite negative blood cultures. The patient fully recovered and was discharged one week following the procedure.

DISCUSSION

Coronary artery aneurysms may be congenital or acquired. Mycotic coronary aneurysms (MCAs) are a rare cause of acquired aneurysms, usually associated with endocarditis or septicemia. Several pathophysiological mechanisms may explain the origin of MCA. Embolic occlusion of the artery wall vasa vasorum resulting in vessel wall infarction, direct infiltration of the arterial wall and arterial injury from immune complex deposition may all damage the different layers of the vessel wall, and cause rapid dilation and aneurysm formation.

Since 1970, relatively few cases of MCA have been described in the medical literature. Most cases (1-3) involved the LAD or right coronary artery. Only one case (4) reported involvement of the left main coronary artery. To our knowledge, the current article describes the first reported case of simultaneous involvement of the left main, LAD and left circumflex arteries. In the present immunocompromized patient, the MCA most likely developed secondary to *S pneumoniae* septicemia. Myocardial infarction was probably the result of external compression of

neighbouring coronary arteries, embolization of thrombotic material and/or possible coronary steal. Coronary angioplasty and covered stent implantation has recently been suggested as a method to exclude MCA (3). However, urgent surgical treatment is usually preferred due to a potentially increased risk of stent thrombosis, distal embolization and vessel rupture (4).

DISCLOSURES: None of the authors have relationships with the industry, and all of them were involved in all stages of the writing, revision and submission of this case report.

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