Rare Case of Giant Non-Thrombosed Coronary Artery Aneurysm at the Left Anterior Descending Coronary Artery

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Giant coronary artery aneurysms (gCAA) >5 cm are very rare (0.02%). An 80-year-old woman with chest pain on effort presented to her private clinic and was admitted to hospital for chest X-ray. There was no elevation of serum creatine kinase or troponin T. Thoracic echocardiogram showed a 68×71-mm large cystic mass containing low echoes adjacent to the left ventricle. Contrast-enhanced multi-slice computed tomography showed a 7-cm non-thrombosed gCCA located near the mid-portion of the left anterior descending coronary artery (LAD), and right coronary artery fistula draining into the pulmonary artery (Figure A, B). The aneurysm originated from the LAD and appeared to be compressing the LAD. Coronary angiography showed a giant coronary artery aneurysm originating from a branch of the LAD, with a fistulous connection to the pulmonary artery (Figure C), with a fistulous connection to the pulmonary artery (white arrows). The aneurysm was incised longitudinally, and no thrombus was observed (white arrows).
artery, and a right coronary artery fistula draining into the pulmonary artery. The Qp/Qs ratio was 1.0. The chest pain may have been mainly caused by LAD compression by the gCAA, and steal syndrome by the fistula in part, but physiological study was not performed. To avoid rupture and manage the ischemia, the patient underwent surgery, during which a 7-cm gCAA was located in the lateral wall of the left ventricle, with a feeding vessel originating from the LAD and an outflow vessel draining into the pulmonary artery, and no thrombus in the aneurysm (Figure D). After cardiopulmonary bypass was established, we ligated the proximal and distal part of the gCAA and resected the gCAA, and coronary artery graft bypass graft surgery was not performed. The patient recovered well after the surgery. The patient had no chest pain, and computed tomography showed no LAD compression. On pathology, the aneurysm had an intact vessel wall (intima, media and adventitia) and focal calcification caused by atherosclerosis.

gCAA most commonly develop secondary to atherosclerotic coronary artery disease; other causes include congenital conditions, Kawasaki disease (KD), Takayasu disease, iatrogenic processes, and connective tissue disorders.1,3,4 The majority of gCAA involve the right coronary artery, gCAA >5 cm located in the LAD are extremely rare.1,2,4 This patient did not have any past history of KD or coronary risk factors, but there was a coronary artery fistula from the right coronary artery draining into the pulmonary artery. Therefore, aneurysmal dilatation could have occurred as a result of high blood flow from a high-pressure aorta to a low-pressure pulmonary artery due to the fistula, which might have been congenital in origin.3

Most gCAA have thrombus formation in aneurysms, and distal embolism of thrombus can result in fatal myocardial infarction, but no thrombus was observed in the present case. The reason for the lack of thrombus in this case may be that the high blood flow in the aneurysm because of the high pressure gradient between the aorta and pulmonary artery prevented formation of thrombus. In conclusion, we encountered a rare case of 7-cm non-thrombosed gCAA with a fistulous connection to the pulmonary artery from the LAD, which was treated successfully by surgery.

Disclosures
The authors declare no conflict of interest.

References