Giant coronary artery aneurysms (CAAs) are defined by an aneurysmal sac diameter of >20 mm. They occur secondary to atherosclerotic disease, vasculitis, or post-percutaneous intervention.\(^1,2\) They have a prevalence of 0.02% in patients undergoing angiography.\(^3\) We present a case of multivessel giant CAAs demonstrated during angiography for myocardial infarction (MI).

### CASE 1

An 88-year-old man presented to hospital with flank pain on a background of atrial fibrillation for which he was taking apixaban. Clinical assessment demonstrated flank tenderness, with computed tomography (CT) imaging diagnosing a renal infarction. Following admission, he developed severe central chest pain, with electrocardiogram demonstrating an anteroseptal ST-segment elevation MI. He underwent coronary angiography, which revealed distal left anterior descending occlusion, consistent with a cardioembolic infarct. Giant CAAs affecting the proximal right coronary artery and left circumflex (LCX) were also demonstrated, with the exact size unable to be ascertained because of poor contrast filling (\(\text{Figures 1A and 1B, Videos 1A and 1B}\)).

He was commenced on intravenous heparin and subsequent warfarin for presumed thromboembolic MI and renal infarction. A CT cardiac chambers was performed, demonstrating the right CAA was 35 x 41 x 44 mm in size, and the LCX was 62 x 53 x 52 mm (\(\text{Figures 1C and 1D}\)). Prior imaging noted aneurysmal dilatation of the left heart border had been present in 2012, demonstrating chronicity of the LCX aneurysm (\(\text{Figure 1E}\)). Trans-thoracic echocardiography showed a large echo-free space abutting the left ventricle, with akinesis of the apical left ventricle (\(\text{Figure 1F}\)).
Investigations for vasculitis, including serological markers and a positron emission tomography scan, were negative for active inflammation. Because of his frailty, and the incidental nature of the giant CAA diagnoses, conservative management was implemented. The patient remained stable and was discharged.

**DISCUSSION**

We present a case of multivessel giant CAAs being incidentally found on coronary angiography in the setting of MI in a nonaneurysmal vascular territory.

As seen in Figure 1F, echocardiography may identify the presence of a giant CAA. Historically invasive coronary angiography was the most frequently used tool of assessment. As in this case, invasive coronary angiography may not adequately opacify a giant CAA. It also does not provide information regarding the vessel wall. CT coronary angiography has been increasingly used as an adjunct modality to obtain accurate measurement of the aneurysmal diameter and to assess for distal stenoses.

Consensus regarding optimal management of CAAs is hampered by a lack of prospective trials. When revascularization is required, surgery is recommended over percutaneous coronary intervention because of issues with accurate stent sizing and delivery. In our case, although the decision to treat conservatively was made on clinical grounds, the aneurysms had been present for at least a decade without event. Medical

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**FIGURE 1** Multimodal Imaging of Giant Coronary Artery Aneurysms

(A) Giant coronary artery aneurysm (CAA) affecting the proximal left circumflex (LCX) (arrows). (B) CAA affecting the proximal right coronary artery (RCA) (arrows). (C) Computed tomography (CT) cardiac chambers demonstrating giant CAA affecting the proximal LCX (arrows). (D) CT cardiac chambers demonstrating giant CAA affecting the proximal RCA (arrows). (E) Chest x-ray from 2012 demonstrating aneurysmal dilatation of the left heart border (arrows). (F) Transthoracic echocardiography apical 4-chamber view demonstrating aneurysmal dilatation of the proximal LCX (arrows).
therapy is typically antiplatelets, with anticoagulation of possible benefit, particularly for patients who present with an MI.2

In conclusion, giant CAAs are a rare manifestation of coronary artery disease that may be incidentally found during cardiac investigation and may be present for many years without event. Accurate assessment requires multimodal invasive and noninvasive imaging.

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APPENDIX For supplemental videos, please see the online version of this paper.