A 68-year-old gentleman with prior uncomplicated coronary bypass grafting (CABG) presented with worsening symptoms of angina and was accordingly referred for urgent coronary computed tomography angiography (CTA).

Coronary CTA showed a dilated left mainstem (LMS) artery measuring 9 mm at the ostium that filled a large aneurysm (51 mm × 52 mm × 49 mm) (Figure 1A). The wall of the aneurysm was partly calcified and contained thrombus (Figure 1B). The contrast-filled lumen measured 25 mm, with the neck of the aneurysm measuring <4 mm in diameter.

The left anterior descending (LAD) artery was attached to the anterosuperior aspect of the aneurysm and was obstructed at its origin while the left internal mammary graft to the LAD was patent (Figure 1C). The left circumflex (LCx) artery was dominant and obstructed in its mid-segment; the proximal segment filled from the aneurysm and the distal segment filled retrogradely from a patent graft (Figure 1D).

LMS aneurysms are uncommon (<0.0001% of all coronary angiograms performed). In Western countries, atherosclerotic aneurysms account for up to 50% of all coronary aneurysms, followed by congenital (17%) and infectious causes (10%); in Japan, Kawasaki disease represents the most common cause. Atherosclerotic aneurysms are usually multiple and involve more than one coronary artery compared with traumatic, congenital, or dissecting aneurysms which are mainly solitary. When present, the right coronary artery (RCA) is usually the most common site of coronary aneurysm formation, followed by the LAD and LCx arteries. LMS involvement is rare and usually associated with significant multivessel disease. Coronary artery aneurysms develop in up to 15–25% of children with untreated Kawasaki’s disease, usually within a few months of the acute illness. However, with successful treatment, these regress in ~50% of patients within 2 years. The LMS is usually involved in 12% of cases, the RCA in 3% of cases, and both vessels in 8% of cases. Other less common causes of coronary artery aneurysms include inflammatory disorders (e.g. Takayasu arteritis, rheumatoid arthritis, polyarteritis nodosa), infectious causes (mycotic aneurysms), catheter-based interventions, and cocaine use. There is variability regarding the optimal treatment strategy for these patients with continuation of medical therapy, coronary artery bypass grafting, covered stent insertion, and surgical aneurysm isolation all having been reported depending on symptoms, aneurysm size, the presence or absence of thrombus, and aetiology. In the current case, medical treatment was the preferred modality owing to the patient’s numerous co-morbidities and an adequate control of his symptoms with medication alone.

This report first demonstrates an unusual case of a giant LMS aneurysm that developed in a patient post-CABG. Secondly, it illustrates the strengths of coronary CTA by clearly defining the anatomical extent, the presence of intrinsic thrombus, and also the calcium burden of a coronary aneurysm to guide management.