

# Insights from multimodality imaging in a case of giant true coronary aneurysm treated percutaneously with polytetrafluoroethylene covered stent

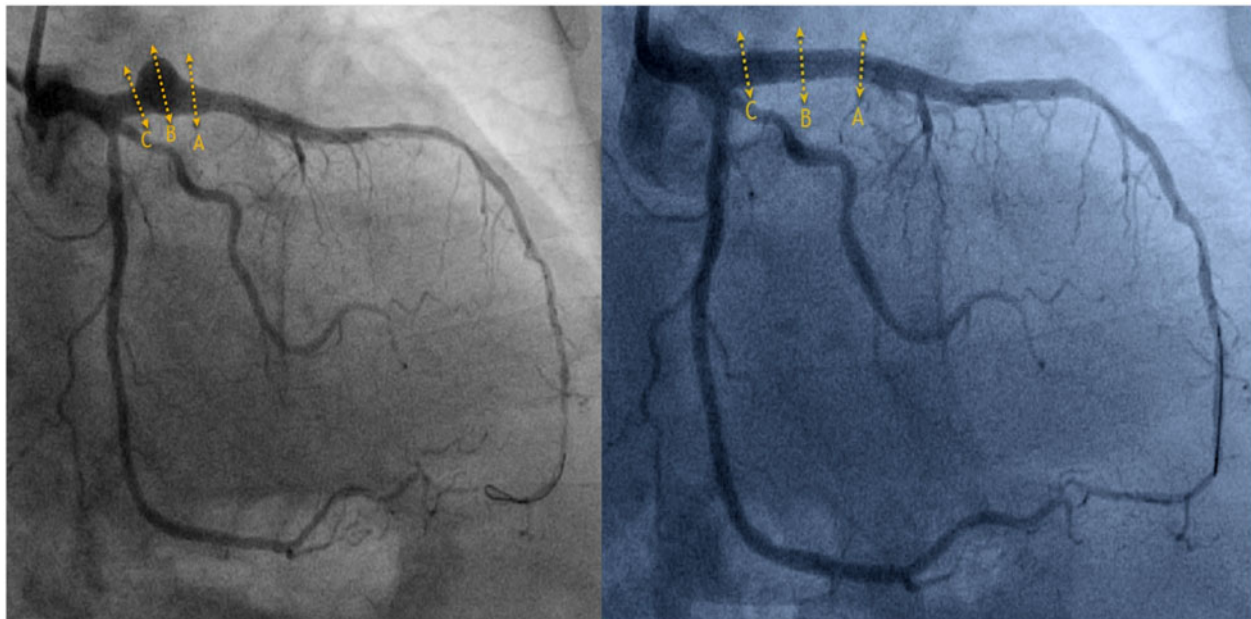
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A 60-year-old man, known case of old anterior wall myocardial infarction with history of stenting 5 years back, presented to emergency room with typical chest pain. His admission electrocardiogram showed QS pattern in leads V1–V6 and a global left ventricular

ejection fraction of 40% on 2D echocardiography. Qualitative troponin assessment was positive and he was managed as acute coronary syndrome (ACS) and kept on enoxaparin. Selective coronary angiogram (performed 2 days after the event) showed normal in-stent



**Figure 1** Coronary angiogram showing a large coronary aneurysm in proximal left anterior descending artery with normal in-stent flow in stent in mid left anterior descending artery prior to the procedure and complete disappearance of coronary aneurysm after coronary stent graft.

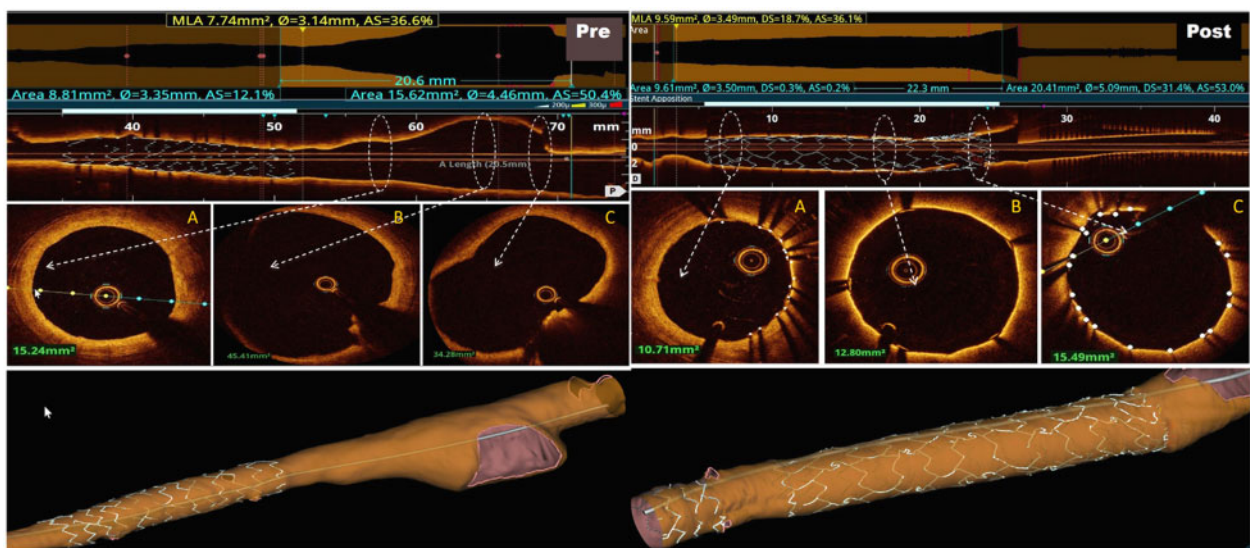
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**Figure 2** Optimal coherence tomography of left anterior descending artery showing well-deployed stent in mid left anterior descending artery and a large coronary aneurysm in proximal left anterior descending artery prior to the procedure and well apposed stent graft in proximal left anterior descending artery with no opacification of aneurysm after stent graft implantation.

flow in left anterior descending artery (LAD) ([Figure 1](#), [Supplementary material online, Video S1](#)) with a giant saccular coronary aneurysm in proximal LAD. Distal LAD had diffuse atheromatous plaque, as did proximal Left circumflex artery. The right coronary artery was normal. Computed tomography (CT) coronary angiography (performed 3 days after the event) ([Supplementary material online, Figure S1](#)) delineated the size and ruled out thrombus and calcification in this aneurysm. His pre-percutaneous coronary intervention optimal coherence tomography (OCT), performed after 5 days of the index event revealed all the three layers confirming it to be true aneurysm with no thrombus and calcification of size 40.41 mm<sup>2</sup> at its maximum diameter and a length of 8 mm ([Figure 2](#), [Supplementary material online, Video S2](#)). The plaque morphology showed a soft atheromatous plaque with thin wall. Optimal coherence tomography appearance was suggestive of a possible minor intimal disruption at 1–2 o'clock ([Figure 2](#), [Supplementary material online, Video S2](#)). This was anatomically situated at the base of the aneurysm and might be one of the mechanisms the artery wall is weakened to allow further enlargement of the aneurysm and occurrence of ACS. In view of his ACS, a stent graft (Abbott Graft master 3.5 × 17) was deployed at 20 atm across the aneurysm and post dilated with 4 × 9 mm non-compliant balloon. Graft master has a natural tendency to foreshorten, hence, a longer length was chosen. Subsequent angiogram ([Figure 1](#), [Supplementary material online, Video S3](#)) and OCT ([Figure 2](#), [Supplementary material online, Video S4](#)) confirmed complete exclusion and disappearance of the aneurysm with adequate expansion and apposition of stent graft. Optimal coherence tomography revealed complete collapse of the true aneurysm sac and well-apposed stent graft. Computed tomography coronary angiography ([Supplementary material online, Figure S1](#)) confirmed the same. Patient has been kept on dual antiplatelet therapy [aspirin (75 mg)

and clopidogrel (75 mg)]. His follow-up angiogram is planned at 6 months.

Reported incidence of coronary aneurysms is between 0.3% and 0.5%.<sup>1</sup> Most coronary aneurysms are silent and managed medically<sup>2</sup> but can cause ACS<sup>2</sup> by three mechanisms: *in situ* thrombus, distal embolization, or rupture. The present case of true coronary aneurysm<sup>2</sup> was managed with stent graft because of troponin positive ACS probably caused by distal embolization of thrombus. The present case of giant true aneurysm managed under OCT and CT coronary imaging has several interesting take home messages. Optimal coherence tomography clearly reveals anatomical structure of wall and helps in choosing the appropriate size and length of the coronary stent graft. Optimal coherence tomography also showed well-apposed stent graft with no leakage of blood into the aneurysm. Routine closure of coronary aneurysms with stent grafts when done with imaging guidance can provide important insights and guidance.

## Supplementary material

[Supplementary material](#) is available at *European Heart Journal - Case Reports* online.

**Consent:** The author/s confirm that written consent for submission and publication of this case report including image(s) and associated text has been obtained from the patient in line with COPE guidance.

**Conflict of interest:** none declared.

## References

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