An unidentified mass protruding into the left main coronary artery

Myocardial infarction due to obstruction of the left main coronary

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Summary

We present a challenging case of myocardial infarction with partial intermittent obstruction of the left main coronary due to a mass of unknown origin in an otherwise healthy 34-year-old male.

Key words: acute myocardial infarction ; left main disease ; cardiac mass; fibroelastoma

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Case report

A 34-year-old current smoker male was transferred to our coronary catheter laboratory for suspected myocardial infarction (fig. 1). He received a loading dose of 250 mg of aspirin, 60 mg of prasugrel and 5000 IU of unfractionated heparin during prehospital care. Coronary angiography revealed a mass partially protruding into the left main coronary artery (LMCA) (fig. 2, movies 1–3).

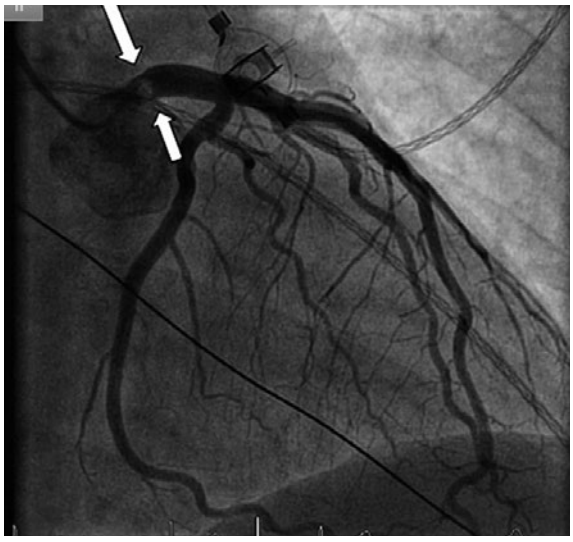


Figure 2: Coronary angiogram showing a mass protruding partially into the left main coronary artery (arrow), but otherwise normal coronary arteries.

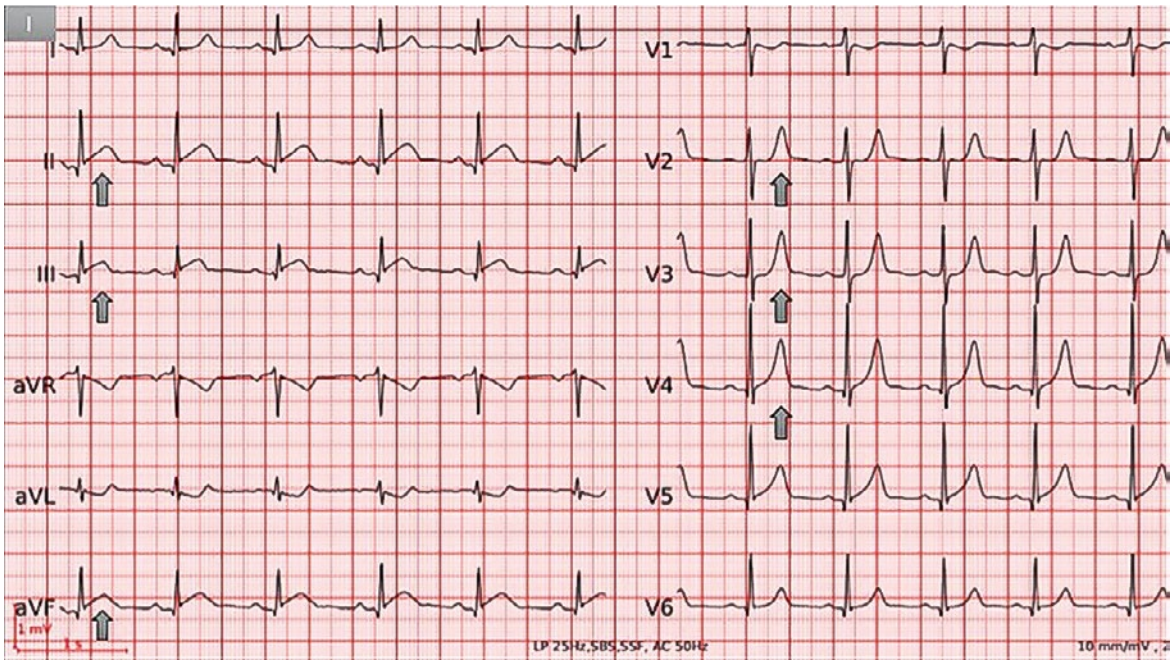


Figure 1: ECG at admission demonstrating normal sinus rhythm,normal axis,mild ST-segment elevation and PR depression in II, III and aVF, and peakedT waves in V2–V4.

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The coronary arteries were otherwise normal. Intravascular imaging was not performed because of the potential embolisation risk, and the patient was fully anticoagulated with heparin. Transthoracic and transoesophageal echocardiography (TTE and TEE) showed normal cavity dimensions, normal global and segmental systolic function, and normal valves. There was no intracardiac thrombus, no patent foramen ovale, nor any other shunts. A 3 × 3.5 mm mass was visualised in the LMCA (fig. 3A), and confirmed by coronary computed tomography (CT) (fig. 4A, B). The patient was clinically stable with no complaints, and the ECG was normal. The heart team strategy was to stop prasugrel, and proceed to surgical resection if the mass had remained unchanged after anticoagulation or in the event of relapsing chest pain or haemodynamic instability. Repeat CT on day 3 showed a persistent mass, which had disappeared on TEE and CT on day 5 (figs 3B and 4C) but with a new triangular infarction of the lower pole of the right kidney (fig. 4D). Continuous monitoring over 5 days revealed no atrial flutter or fibrillation. We hypothesised that the mass had embolised peripherally. Further workup revealed no hypercoagulable state. Anticoagulation therapy was stopped and replaced with aspirin. At 1- and 6-month follow-up, the patient was asymptomatic with no mass on repeat TEE.

Discussion

The mass protruding into the LMCA may have been a cardiac tumor, such as a papillary fibroelastoma (PFE). Whether the mass was an embolisation of a PFE from the aortic wall [1] or valve, or whether it originated from the LMCA is unclear as case reports have described PFEs in vascular lumens [2]. The main differential diagnosis remains a thrombus from either a ruptured plaque or from the left heart cavities. However, normal TEE (dimensions, function, left atrial appendage) and coronary arteries make this less likely. The systemic embolisation of the mass makes a tumour in the aortic valve region more probable than a thrombus, which would be expected to migrate down the coronary arteries. Intravascular imagery would have been very useful, but there have been cases of mass dislodgment during catheter manipulation leading to life-threatening events [3], which is why we opted for a conservative approach.

The management of myocardial infarction due to a

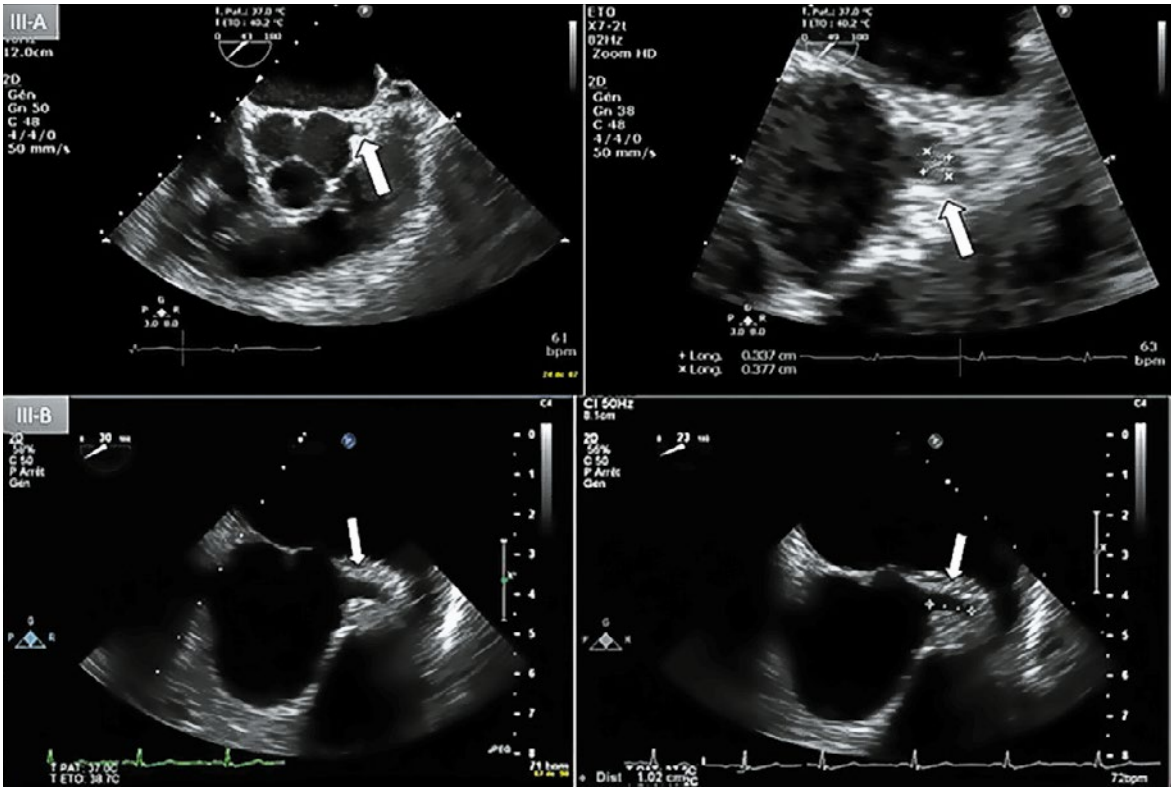


Figure 3: A: Day-1 transoesophageal echocardiography (TEE) with short axis view showing an Intracoronary mass (3 x 3.5 mm) protruding Into the lumen of the left main coronary artery (LMCA) (arrow). B: Day-5 repeat TEE, short axis view, absence of coronary mass in the proximal LMCA.

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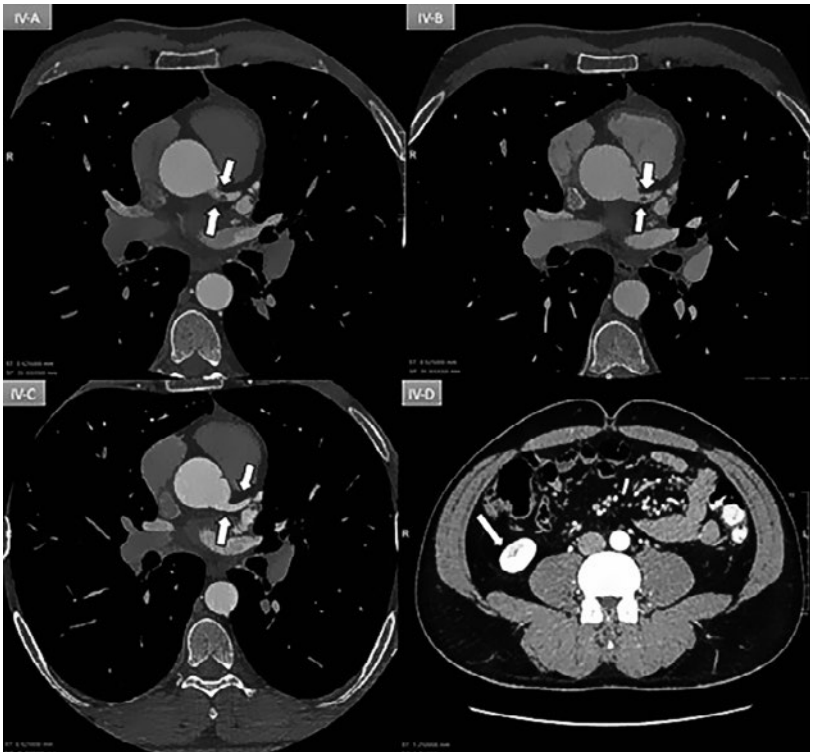


Figure 4: A: Day 1: Coronary ECG-gating CT scan showing an intracoronary mass (arrow) partially occluding (70%) the lumen of the left main coronary artery. B: Day 3: Persistence of mass. C: Day 5: Patent vessel without any mass (arrow). D: Day-5: New triangular infarction of the lower pole of the right kidney consistent with peripheral embolisation.

nonobstructive LMCA mass depends on the underlying cause. The evidence is limited to two small case series from which no firm conclusions can be drawn [4, 5]. Options include bypass surgery [6] or an initial conservative approach with anticoagulation. If PFE is suspected, patients should be anticoagulated to prevent further thrombotic embolisation, and early surgery should be considered [7, 8] unless systemic embolisation of the entire mass occurs, as described in this case. In haemodynamically stable patients, a "watch and wait" approach may be appropriate, with repeat TTE during follow up as PFE recurrence is frequent. Elective surgery should be offered if the mass persists despite anticoagulation therapy. Unstable patients with coronary obstruction require first-line surgery. Primary percutaneous coronary intervention may be appropriate in highly unstable patients, depending on cardiac surgery availability, bearing in mind the risk of mass dislodgment, and/or distal embolisation (9).

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References

1 Yerebakan C, Liebold A, Steinhoff G, Skrabal CA. Papillary fibroelastoma of the aortic wall with partial occlusion of the right coronary ostium. Ann Thorac Surg. 2009;87(6):1953–4.
2 Rolf T, Iglesias JF, Tozzi P, von Segesser LK. Acute myocardial infarction caused by coronary embolization of a papillary fibroelastoma of the thoracic ascending aorta. Interact CardioVasc Thorac Surg. 2010;11(5):676–7.
3 Gowda RM, Khan IA, Mehta NJ, Gowda MR, Gropen TI, Dogan OM, et al. Cardiac papillary fibroelastoma originating from pulmonary vein- a case report. Angiology. 2002;53(6):745–8.
4 Vander Salm TJ. Unusual primary tumors of the heart. Semin Thorac Cardiovasc Surg. 2000;12 (2): 89–100.
5 Gupta R, Rahman RA, Uretsky BF, Schwarz ER. Left main coronary artery thrombus: a case series with different outcomes. J Thromb Thrombolysis. 2005;19(2):125–31.
6 Klein AJ, Casserly IP, Messenger JC. Acute left main coronary arterial thrombosis - a case series. J Invasive Cardiol. 2008; 20 (8): E243–6.
7 Arora NP, Jourmaa M, Rosman H, Mehta R. Left main coronary artery thrombosis with acute myocardial infarction: a management dilemma. Am J Med Sci. 2017; 53(6):597–602
8 Boodhwani M, Veinot JP, Hendry PJ. Surgical approach to cardiac papillary fibroelastomas. Can J Cardiol. 2007;23:301–2.
9 Nguyen J, Sethi S, Ahmed H, Pradad A. Myocardial infarction secondary to inflammatory myofibroblastic tumor obstruction of the left main: treated with primary PCI. Res Cardiovasc Med. 2016; 5(3): e32619.

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