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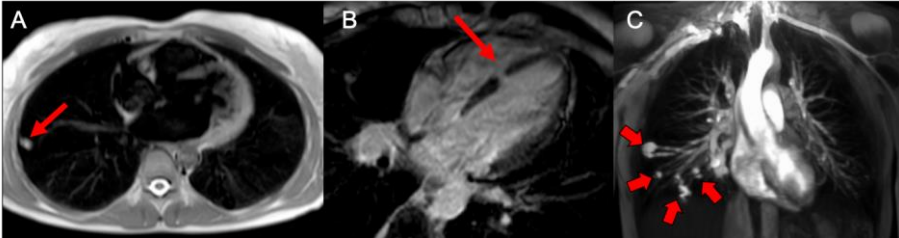
1 **Pulmonary arteriovenous malformations and embolic myocardial infarction identified with**
2 **Cardiovascular magnetic resonance.**

3
4 A 42 year old female developed central chest pain radiating to the left shoulder. 12 lead ECG
5 demonstrated no ischaemia and the serum troponin was raised at 28 (normal < 13ng/L), which peaked
6 to 140 and fell to 67. Dual antiplatelet therapy with aspirin and clopidogrel was commenced for a
7 presumed acute coronary syndrome. Transthoracic echocardiography demonstrated preserved
8 biventricular function and mild mitral regurgitation. Invasive coronary angiography demonstrated
9 unobstructed coronary arteries and no coronary atheroma. A cardiovascular magnetic resonance
10 (CMR) scan was arranged to investigate aetiology of the clinical presentation.

11 Initial low resolution CMR images demonstrated two hyperintense rounded subpleural solid nodules in
12 the right lung (Panel A). Two, three and four chamber cine imaging confirmed good biventricular
13 function. Short axis cine imaging demonstrated a subtle regional motion wall abnormality (RMWA) in
14 the mid septal wall, which was not clearly evident on transthoracic echocardiography, and corresponded
15 to an area of focal transmural myocardial enhancement on late gadolinium enhancement (LGE) imaging
16 (Panel B). To further investigate the clinical presentation and right lung mass, 4D angiography was
17 acquired during intravenous administration of 0.1mmol/kg of gadobutrol (Gadovist, Bayer, Germany).
18 Multiple pulmonary arteriovenous malformations (AVM) were identified, with afferent (feeding) and
19 efferent (draining) vessels which enhanced almost simultaneously (Panel C). In the context of
20 unobstructed coronary arteries, mid septal RMWA, corresponding LGE and pulmonary AVMs, these
21 findings were in keeping with a paradoxical embolic myocardial infarction. Antiplatelet therapy was
22 stopped, and anticoagulation with warfarin was commenced. [Clinical follow-up confirmed preserved](#)
23 [biventricular function on echocardiography.](#)

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24 **Figure**



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26

27 Panel A: Initial scout images demonstrates a subpleural hyperintense rounded solid nodule in the right
28 lung (red arrow). Panel B: Late gadolinium enhancement imaging demonstrated a focal area of
29 transmural myocardial enhancement indicating myocardial infarction (arrowed). Panel C: Maximum
30 intensity projections (MIP) images of the dynamic 4D angiography images. Multiple nodules and
31 serpiginous masses are present which indicate pulmonary arteriovenous malformations (red arrows).

32

33 **Supplementary data (videos)**

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35 **Video 1.** Parasternal long axis cine on transthoracic echocardiography.

36 **Video 2.** 4 Chamber apical view on transthoracic echocardiography. Good biventricular function is
37 seen, with no regional motion wall abnormality.

38 **Video 3.** Unobstructed right coronary artery on invasive coronary angiography.

39 **Video 4.** Unobstructed left circumflex artery on invasive coronary angiography.

40 **Video 5.** Unobstructed left anterior descending artery on invasive coronary angiography.

41 **Video 6.** Four, two and three chamber cine images with CMR. No clear regional motion wall abnormality
42 is seen.

43 **Video 7.** Short axis cine at the mid left ventricle: There is subtle hypokinesia of the mid ventricular
44 septum.

45

46

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49 and the Guy's and St Thomas' NHS Hospital Cardiovascular MRI Service for their cooperation and
50 assistance during the imaging and administration processes.

51

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63

64 **Conflict of Interest**

65 No conflicts of interest.

66

67 **Ethics approval and consent to participate**

68 Inform consent was obtained from the patient.

69

70 **Consent for publication**

71 Consent for publication was obtained from the patient.