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CARDIOVASCULAR FLASHLIGHT
Coronary heart disease

Acute coronary artery occlusion masquerading as vaccine-induced myocarditis

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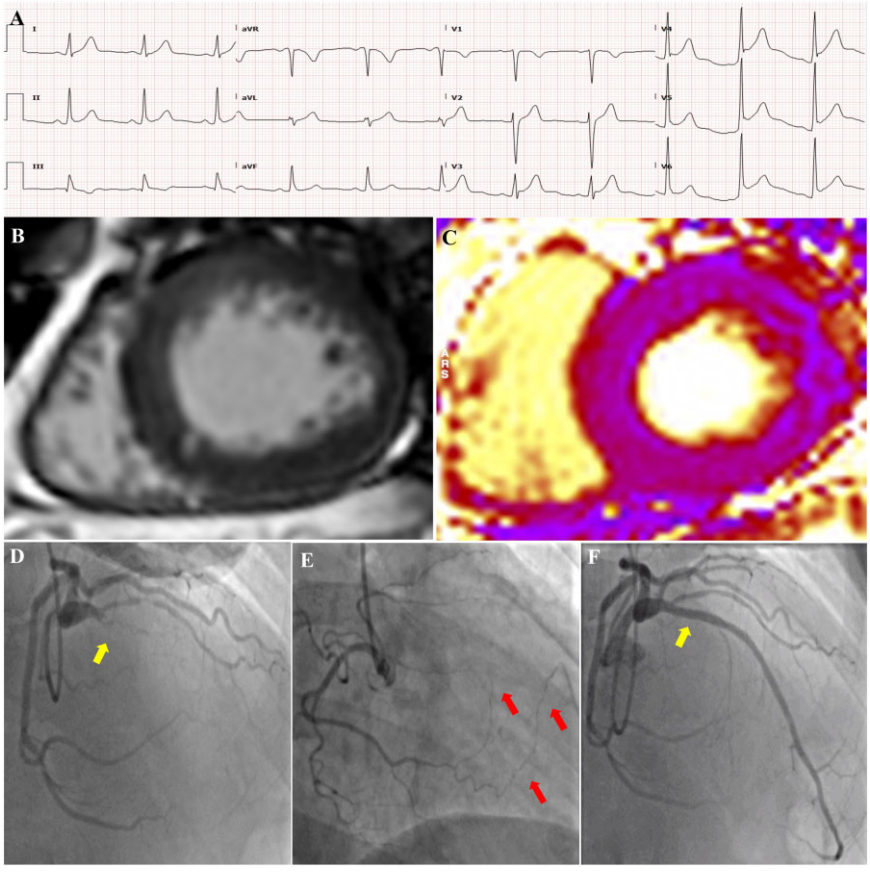

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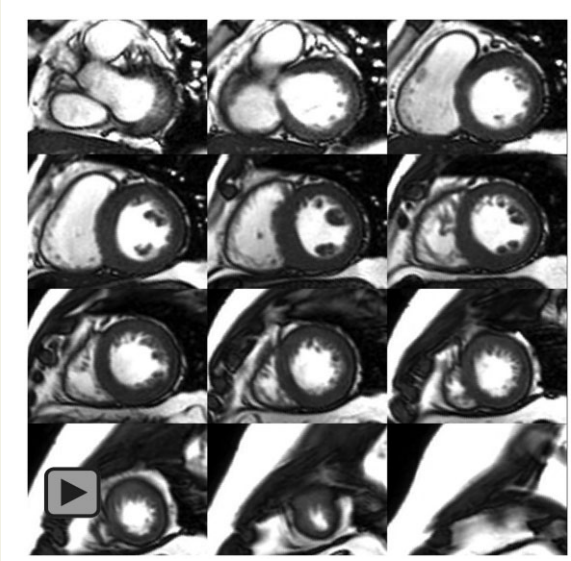
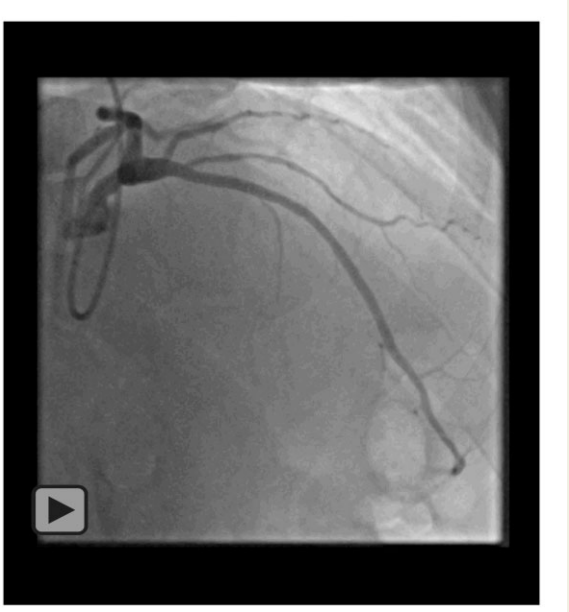


Video 1 Cardiovascular magnetic resonance short-axis steady state free precession cine stack showing good left ventricular function with no regional wall motion abnormalities or pericardial effusion.

Video 2 Coronary angiogram of the right coronary circulation providing collateral vessels to the occluded left anterior descending artery.

A 39-year-old South Asian male presented following three episodes of central chest pain which radiated down his right arm. The pain was provoked by diminishing levels of activity, pleuritic, and eased by sitting forward. He had no medical history and he had never smoked or used recreational drugs. He had received his second coronavirus disease-19 vaccine dose (Pfizer-BioNTech BNT162b2) 8 days earlier.



Video 3 Coronary angiogram of the left coronary circulation showing restored left anterior descending artery flow following stent deployment.

On examination, he was hypertensive (198/121 mmHg). Electrocardiograms showed global saddle-shaped ST-elevation and PR-segment depression suggestive of pericarditis (*Panel A*). Plasma concentrations of high-sensitivity troponin T (316 ng/L, normal <14 ng/L), total cholesterol (5.7 mmol/L), triglycerides, and HbA1c (43 mmol/mol, normal 20–41 mmol/mol) were elevated. Transthoracic echocardiography showed normal left ventricular systolic function and no regional wall motion abnormalities or pericardial effusion.

Differential diagnoses of an acute coronary syndrome (ACS) or post-vaccine myopericarditis were considered. Cardiovascular magnetic resonance (CMR) imaging, apart from showing mild left ventricular hypertrophy, did not show any evidence of either myocardial infarction or myocarditis (*Panels B* and *C*, *Video 1*). Subsequent coronary angiography revealed a proximally occluded left anterior descending artery (LAD) (*Panel D*) with collaterals from the right coronary artery (*Panel E*, *Video 2*). The LAD was opened successfully by percutaneous coronary intervention which involved the deployment of one stent (*Panel F*, *Video 3*). The diagnosis was felt to be an acute coronary obstruction, from underlying coronary artery disease, with associated post-infarct pericarditis. The presence of mature collateral circulation suggested significant underlying chronic atherosclerosis and explained the absence of infarction seen on CMR.

Although myopericarditis has been reported as a rare complication following mRNA severe acute respiratory syndrome coronavirus 2 vaccination, detailed history-taking (suggesting a mixture of ischaemic and pericardial pain) and multimodality imaging led to the correct diagnosis of an ACS thus avoiding unrealized opportunities for revascularization and secondary prevention.

(*Panel A*) A 12-lead electrocardiogram showing saddle-shaped ST-elevation and PR-segment depression suggestive of pericarditis. (*Panel B*) CMR short-axis slice with no evidence of late gadolinium enhancement. (*Panel C*) CMR short-axis T2 myocardial map with no focal oedema. (*Panel D*) Coronary angiogram of the left coronary circulation showing proximal LAD occlusion (yellow arrow). (*Panel E*) Coronary angiogram of the right coronary circulation providing collateral (red arrows) vessels to the occluded LAD. (*Panel F*) Coronary angiogram of the left coronary circulation showing restored LAD flow following stent deployment (yellow arrow indicating the previous site of occlusion).

Consent: The authors confirm that written consent for submission and publication of this case report including images and associated text has been obtained from the patient in line with COPE guidance.

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