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Potential Competing Interests: The authors report no competing interests.

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mRNA COVID-19 Vaccine—Related Anaphylactoid Reaction and Coronary Thrombosis



To the Editor: The emergence of vaccines, with clear evidence of their efficacy, has been key to tackling the coronavirus disease 2019 (COVID-19) pandemic. However, as these vaccines are rolled out to larger numbers of patients, rare complications are inevitable, and clinicians should be aware of this possibility. We present a case of a young man who presented with an anaphylactoid reaction a day after having the Pfizer-BioNTech COVID-19 vaccine with thrombotic occlusion of his left anterior descending (LAD) artery.

Paramedics attended a 38-year-old man with a sudden onset widespread erythematous rash, dyspnea, and stridor 18 hours after receiving his first dose of the Pfizer-BioNTech COVID-19 vaccine. Past medical history was notable for asthma and eczema but no known allergies. He was treated with 500 µg of adrenaline intramuscularly with initial good response; however,

he developed severe central chest pain. Serial electrocardiograms revealed evolving ST-segment elevation — initially inferiorly and then anteriorly (Figure, A). He was therefore transferred to hospital and underwent urgent coronary angiography which surprisingly showed severe thrombotic stenosis of the proximal LAD with distal embolization (Figure, B). Optical coherence tomography confirmed significant LAD thrombus (Figure, C; white arrows) but no evidence of underlying atherosclerotic plaque rupture and normal smooth vessel wall segments (Figure, C; interrupted blue arrows). Multiple thrombus aspiration runs were undertaken, and the patient was started on a glycoprotein 2b/3a inhibitor with improvement of the angiographic appearances. Transthoracic echocardiography showed an apical left ventricular thrombus. Subsequent angiography 2 days later was reassuring with reduced thrombotic burden and no features suggestive of plaque rupture (Figure, D and E). Given the absence of coronary stenosis from an atherosclerotic plaque, a coronary stent was not deployed. The patient was managed medically with dual-antiplatelet therapy and a direct oral anticoagulant. On further questioning, he denied any insect bites or taking any drugs, and had been fasting for 12 hours. Interestingly, his mast cell tryptase was normal (10.7 ng/mL) and no cocaine metabolites were seen on urinalysis. The patient had an uneventful recovery and an EpiPen issued before discharge. The adverse event was reported to the Medicine and Healthcare products Regulatory Agency of the Department of Health and Social Care in the United Kingdom.

Importantly, the Pfizer-BioNTech COVID-19 vaccine has been shown to be safe and effective