

Combined therapy with excimer laser coronary atherectomy and intracoronary thrombolysis for the management of massive thrombi in coronary aneurysms of post-Kawasaki disease myocardial infarction

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A 39-year-old woman, 9-month postpartum and with a history of Kawasaki disease (KD), presented with persistent chest pain. Electrocardiography revealed ST-segment elevation in the inferior leads, while emergency coronary angiography revealed a completely occluded proximal right coronary artery (RCA) and calcified giant aneurysms (Figure 1A). Thromboaspiration and balloon angioplasty were ineffective due to the massive thrombus; subsequent excimer laser coronary atherectomy (ELCA), performed using a 2.0 mm concentric catheter (60 mJ/mm²; 40 Hz), effectively vaporised the thrombus and improved the coronary flow (Figure 1B–D). An antithrombotic therapy was initiated; this included a preoperative dual antiplatelet therapy (comprising aspirin and prasgrel) and a postoperative continuous infusion of unfractionated heparin. However, the patient developed recurrent chest pain 3 h later. Coronary angiography revealed re-occlusion of the mid-RCA, where the ELCA catheter had not reached due to the heavily calcified nodule (Figure 1E). Balloon angioplasty and thrombolysis with an intracoronary urokinase infusion (120 000 units for 10 min) achieved optimal results; the final ‘thrombolysis in myocardial infarction’ flow grade was 3 (Figure 1F–G, see supplementary material online, Video S1). The patient postoperatively received antithrombotic therapy,

consisting of warfarin and aspirin (100 mg daily). Ten days later, follow-up coronary magnetic resonance angiography confirmed no residual thrombus in the RCA (Figure 1H). After 1 month of the antithrombotic regimen, aspirin was discontinued; subsequent anticoagulation was continued with warfarin alone to prevent coronary aneurysm-related thrombotic events. Thereafter, no cardiovascular events occurred for 5 years.

The treatment of acute myocardial infarction (AMI) in patients with KD is challenging. Excimer laser coronary atherectomy is useful for thrombotic lesions due to its antiplatelet-aggregation and thrombus-vaporization effects.¹ Intracoronary thrombolytic therapies, such as pulse infusion thrombolysis and the ‘marinade technique’, are also effective against massive thrombi.^{2,3} Stent implantation is the standard option for AMI management; however, it is unsuitable for coronary aneurysms due to an increased risk of acute occlusion secondary to stent-strut malapposition to the vessel wall. This case highlighted that a combined therapy with ELCA and intracoronary thrombolysis was effective against acute massive thrombotic occlusion in KD-related coronary aneurysms. Early multidisciplinary interventions are warranted for successfully managing intractable thrombotic situations.

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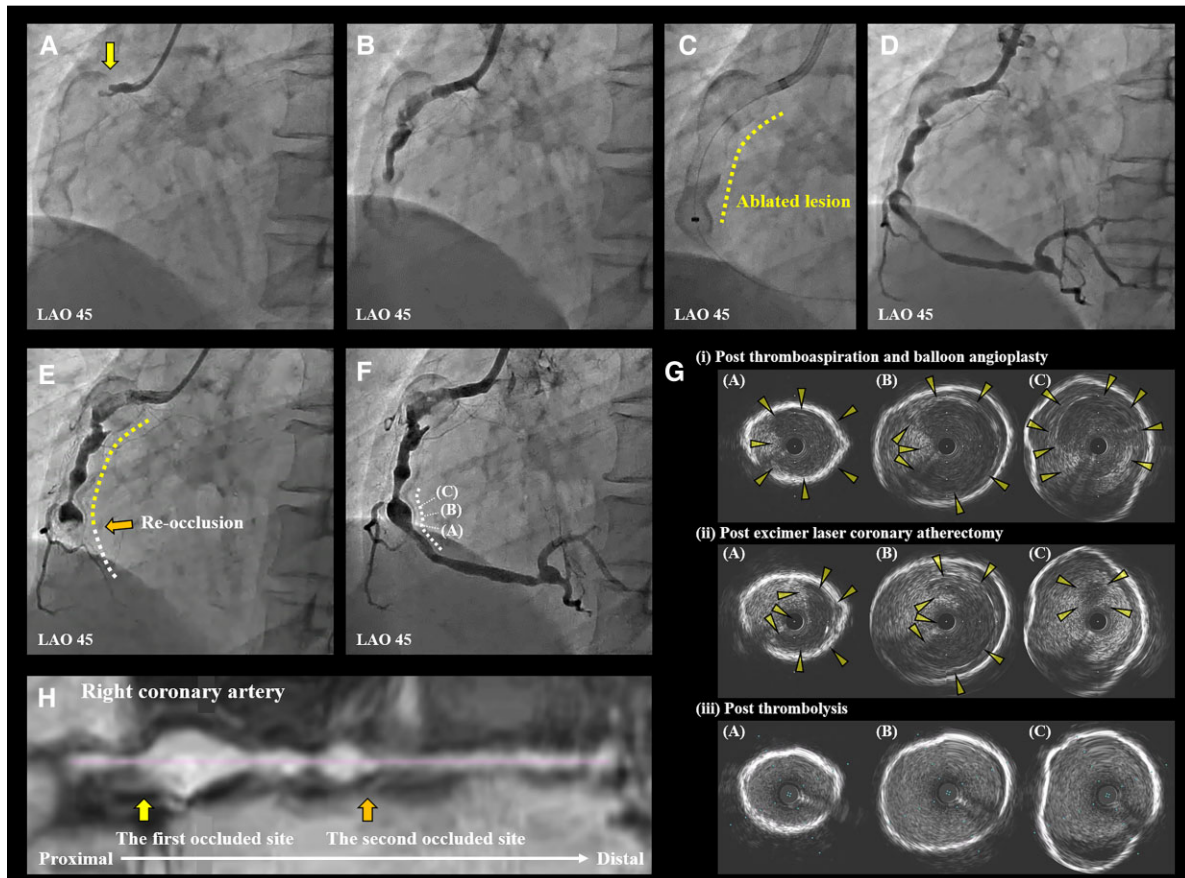


Figure 1 Coronary angiography images taken (A) during the initial examination (yellow arrow indicates the occluded lesion), (B) after thromboaspiration and balloon angioplasty, (C) during excimer laser coronary atherectomy, (D) after excimer laser coronary atherectomy, (E) after re-occlusion, and (F) after intracoronary thrombolysis. Yellow-dotted and white-dotted lines indicate lesions treated by percutaneous coronary intervention with and without excimer laser coronary atherectomy, respectively. (G) Intravascular ultrasound imaging performed after each procedure: (i) thromboaspiration and balloon angioplasty, (ii) excimer laser coronary atherectomy, and (iii) intracoronary thrombolysis (arrowheads indicate the thrombus). (H) Coronary magnetic resonance angiography reveals that the massive thrombus in the right coronary artery disappeared.

Supplementary material

Supplementary material is available at *European Heart Journal—Case Reports* online.

Consent: The authors confirm that written informed consent for the publication of this case report was obtained from the patient, in line with the Committee on Publication Ethics guidelines.

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Data availability

The data underlying this article are available in the article and in its online [supplementary material](#).

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