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**CARDIOVASCULAR FLASHLIGHT**
*Heart failure*

# Febrile illness, systemic inflammation, and cardiac dysfunction in a patient with serologic positivity to SARS-CoV-2

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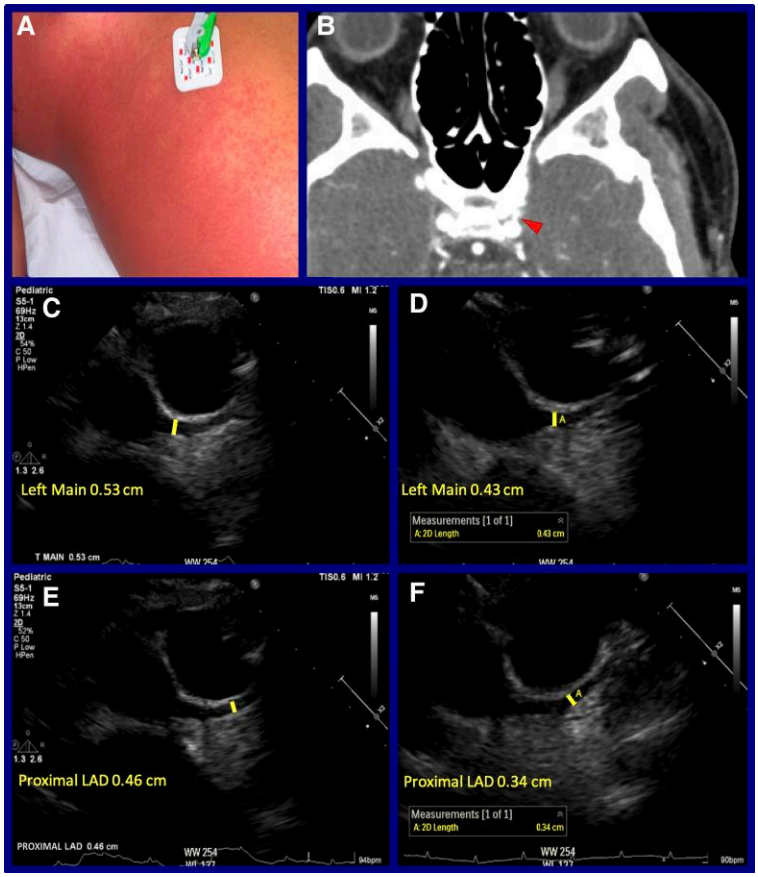


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# Description

A previously healthy, 25-year-old gentleman presented for 3 days of fever, headache, nausea/vomiting, and rash following travel.

Vitals notable for: temperature 39.2°C, heart rate 128 b.p.m., blood pressure 130/80 mmHg. Examination revealed cervical lymphadenopathy and a pruritic, macular truncal rash (*Panel A:* truncal rash). Platelet count 139 (150–450k/μL), absolute lymphocyte count 0.9 (1.1–3.5 k/μL), creatinine 1.1 (0.7–1.3 mg/dL), alanine transaminase 39 (9–67 U/L), albumin 3.9 (3.5–5.0 g/dL), erythrocyte sedimentation rate >130 (0–5 mm/h), C-reactive protein 220 (0–15 mg/L), ferritin 3815 (26–209 ng/mL), D-dimer 732 (<243 ng/mL DDU), procalcitonin 2.87 (<0.50 ng/mL), and interleukin-6 171.5 (2.5–7 pg/mL). Comprehensive autoimmune, oncologic, and infectious work-up were unrevealing (see Supplementary material online, *Table S1*), aside from a positive SARS-CoV-2 anti-N IgG/IgM (indicating recent exposure). The patient denied known SARS-CoV-2 infection and received the Janssen Ad26.CoV2.S vaccine.

Hospitalization was complicated by persistent fever ($T_{max}$40.7°C), tachycardia, hypotension, and supplemental oxygen requirement. Left-sided facial droop occurred with hypotension; computed tomography angiogram showed a 1.5 mm left internal carotid artery aneurysm (*Panel B*, red arrow tip).

On hospital day 2, strawberry tongue, injected conjunctiva, and faint rash of palms and soles appeared, meeting full Kawasaki Disease (KD) criteria.[1] Cardiac evaluation was pursued: electrocardiogram was unremarkable; BNP 1788 (0–33.3 pg/mL); troponin peak 2.6 (<0.033 ng/mL); and transthoracic echocardiogram (TTE) showed left ventricular ejection fraction (LVEF) 35% with global hypokinesis (see Supplementary material online, *Reduced EF* video) and small aneurysms of left main and proximal left anterior descending (LAD) coronary arteries (*Panel C:* left main aneurysm, *Panel E:* LAD aneurysm).

Criteria were also met for MIS-A,[2] which exists with KD on the spectrum of inflammatory diseases associated with SARS-CoV-2 infection[3] (see Supplementary material online, *Table S2*). Given this differential, the patient was treated with intravenous immunoglobulin (1 g/kg/dose for two doses), medium-dose aspirin (800 mg four times per day), methylprednisolone (1–2 mg/kg/day), and lisinopril with dramatic improvement and sustained normothermia. He was discharged on hospital day 10 on lisinopril, low-dose aspirin, and a prednisone taper.

One week post-treatment, outpatient TTE demonstrated resolution of coronary artery aneurysms and LVEF recovery (*Panel D:* resolved left main aneurysm, *Panel F:* resolved LAD aneurysm). At 6-week follow-up, lisinopril and aspirin were discontinued given normal TTE. At 6-month follow-up, TTE remained stable.

# Supplementary material

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

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

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