

# Myocarditis in fulminant meningococemia



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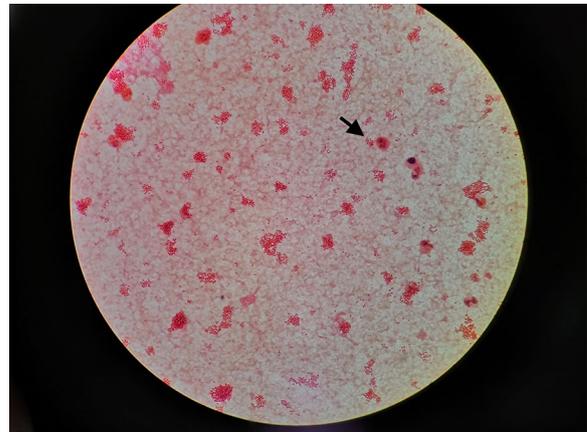
A 30-year-old female was admitted with acute onset headache, confusion and refractory hypotension. Purpura fulminans was observed on both legs (Fig. 1). Cerebrospinal fluid (CSF) opening pressure was 300 mmH<sub>2</sub>O, while CSF analysis was consistent with bacterial meningitis. Blood culture grew *Neisseria meningitidis* (Fig. 2). Intravenous ceftriaxone was given promptly. Serial troponin I assays revealed a peak level of 13.74 µg/L (0–0.056), and the electrocardiograms showed altered ST-T waves in leads V1–3. Hypotension was refractory to fluid administration. Transthoracic echocardiography illustrated diffuse hypokinesia with decreased left ventricular ejection fraction (LVEF) of 28% (Fig. 3 and video). Hemodynamic monitoring indicated a decreased cardiac index (2.5 L/min/m<sup>2</sup>). Norepinephrine (2.6 µg/kg/min) and milrinone

(0.8 µg/kg/min) were administered. Cardiac function significantly improved on day 9 (LVEF 72%), and she was discharged with full recovery on day 13.

The low cardiac index and LVEF in this patient with fulminant meningococemia suggest myocarditis or myocardial microthrombi rather than sepsis-associated myocardial dysfunction. Myocarditis in meningococcal disease has a poor prognosis and is probably underestimated. Beside prompt hemodynamic support, early appropriate antibiotic therapy may have contributed to the good outcome.

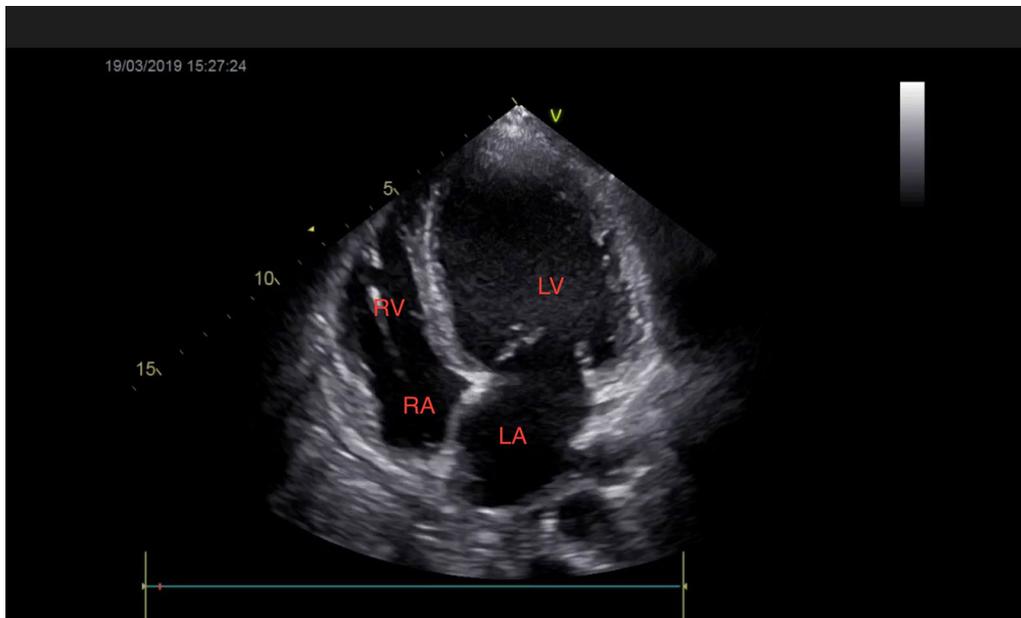


**Fig. 1** Purpura fulminans on bilateral legs



**Fig. 2** Blood culture grew *Neisseria meningitidis*

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**Fig. 3** Diffuse left ventricular hypokinesia

**Electronic supplementary material**

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**Compliance with ethical standards**

**Conflicts of interest**

There is no conflict of interest.

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