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Note

Myopericarditis with preserved left ventricular function secondary to *Neisseria meningitidis*

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ABSTRACT

Cardiac involvement can occur following bacteremia secondary to *Neisseria meningitidis* (Garcia et al. *Rev Soc Bras Med Trop*. 1999;32(5):517–5122) and is likely underrecognized. However, meningococcal disease presenting as primary myopericarditis in immunocompetent adults is a relatively rare phenomenon. We discuss an unusual presentation of meningococcal disease and the investigation and treatment strategies implemented.

1. Introduction/Abstract

Cardiac involvement can occur following bacteremia secondary to *Neisseria meningitidis* (Garcia et al., 1999) and is likely underrecognized. However, meningococcal disease presenting as primary myopericarditis in immunocompetent adults is a relatively rare phenomenon. We discuss an unusual presentation of meningococcal disease, and the investigation and treatment strategies implemented.

2. Note

A 55-year-old woman with no significant medical history or regular medications presented to our emergency department with heavy central chest pain, associated with dyspnea and hypotension, which occurred following 24 hours of self-measured fever up to 39 °C, vomiting, and diarrhea and a 4-day prodrome of sore throat, myalgias, and lethargy. There was no photophobia, meningism, rash, neck stiffness, or arthralgia; no recent travel; or infectious contacts. At admission, her blood pressure was 72/38 mm Hg, heart rate was 96 bpm, and temperature was 35.9 °C. She had previously received the full schedule of childhood immunizations. She had a routine dental check and clean 10 days prior to presentation.

She was admitted to the intensive care unit and commenced on inotropic support due to hypotension refractory to initial fluid resuscitation. Electrocardiogram (ECG) at admission showed concave upward diffuse ST-segment elevation (leads II, III, aVF, V2–6) without reciprocal changes and with associated PR-interval depression, not consistent with a single coronary vessel territory (see Fig. 1). Initial troponin was 72 ng/L, white cell count was 4.34×10^9/L, and C-reactive protein was 346 mg/L. Therefore, the patient did not proceed to emergent cardiac catheterization given the multiterritory ECG changes, unusual clinical presentation, and lack of regional wall motion abnormalities on transthoracic echocardiogram. A provisional diagnosis of myopericarditis was made and she was commenced on empiric intravenous piperacillin–tazobactam combination 4.0 g/0.5 g three times a day and oseltamivir 75 mg twice a day. Gram-negative cocci were subsequently isolated from 2 separate sets of blood cultures, which were confirmed as *N. meningitidis* serotype W sensitive to ceftriaxone (MIC ≤0.008 mg/L). Antibiotics were changed to intravenous ceftriaxone 2 g twice a day and oseltamivir was ceased.

Troponin peaked on day 2 of admission at 30,555 ng/L, and transthoracic echocardiogram demonstrated normal systolic and diastolic left ventricular (LV) function with an ejection fraction (EF) of 66% and no valvular or pericardial pathology, but with reduced global longitudinal strain (−16%). Antinuclear antibodies, extractable nuclear antigen antibodies, hepatitis serology, HIV serology, cytomegalovirus serology, urine culture, and stool culture were negative. Screening bloods included Epstein–Barr virus (EBV) serology which demonstrated positive EBV IgM, positive EBV IgG, and positive Epstein-*Barr virus* nuclear antigen 1 (EBNA) IgG suggestive of recovery or reactivation but not acute primary infection (Klutts et al., 2009), with positive EBNA IgG not likely

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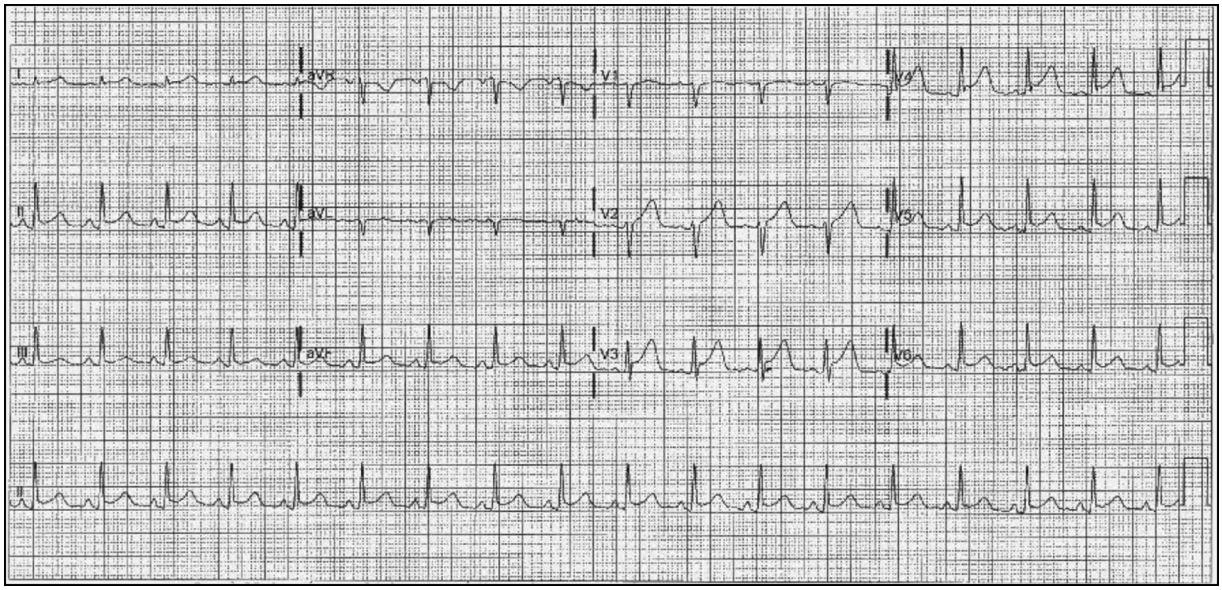

Fig. 1. Electrocardiogram at presentation demonstrating diffuse saddle-shaped ST elevation (across multiple coronary territories without reciprocal changes) with associated slight PR-interval depression consistent with myopericarditis rather than an acute coronary syndrome.

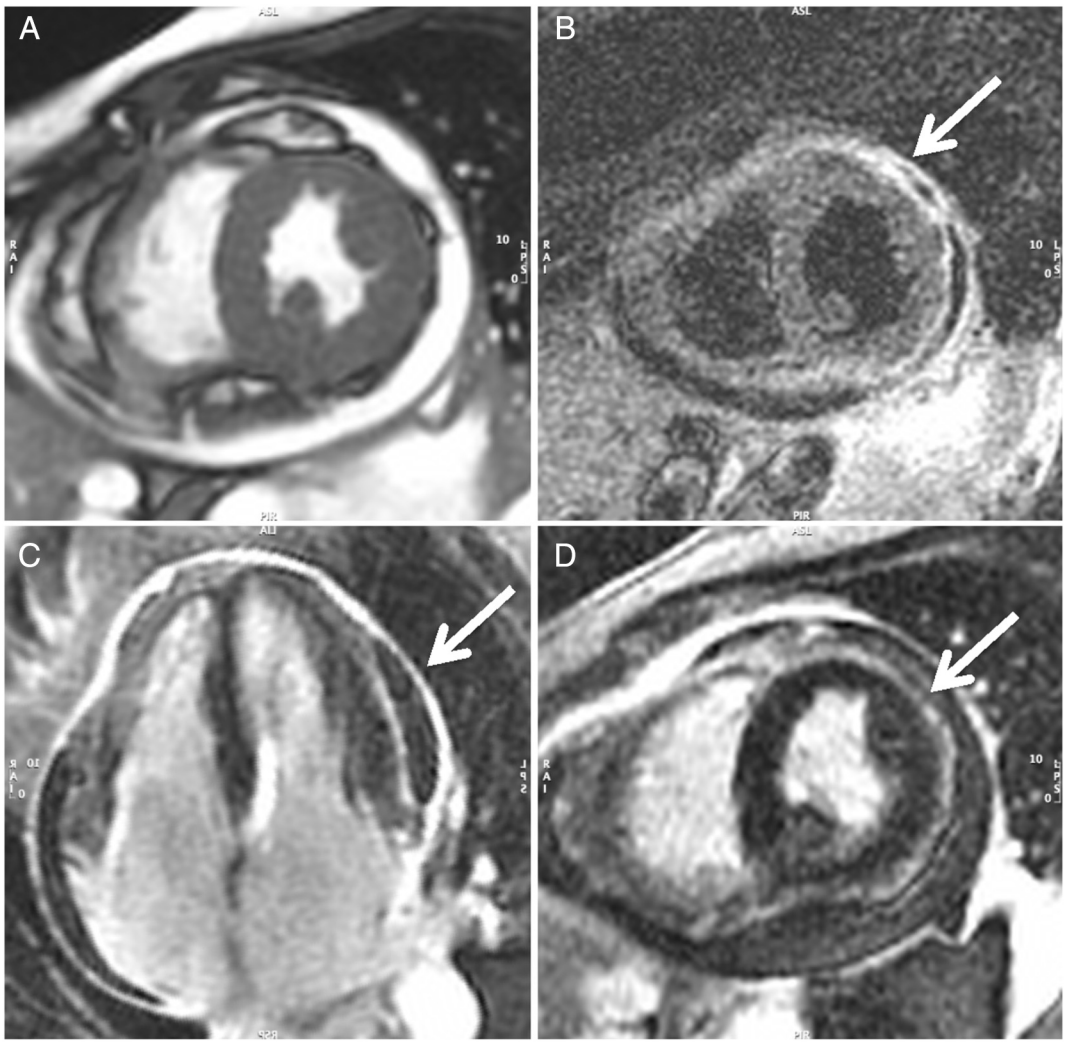

Fig. 2. Cardiac MRI images demonstrating a circumferential pericardial effusion with mild thickening of the pericardium in the mid short-axis view on steady-state free precession images (A). There is evidence of pericardial and probable subepicardial edema on T2-weighted short tau inversion recovery images (B). Late gadolinium enhancement imaging confirms enhancement of both pericardial layers with hazy subepicardial enhancement in the long-axis (C) and short-axis views (D), findings consistent with myopericarditis-related injury.

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