

Meningococemia: rare but life-threatening

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DESCRIPTION

A previously healthy 5-month old girl, presented at the emergency department with high fever (40°C), vomiting and nasal congestion. She had no abnormalities on physical exam and was discharged home with diagnosis of a probable viral infection, after excluding urinary infection.

Ten hours later, the infant was readmitted with purpuric lesions and prostration (figure 1), rapidly presenting with labial cyanosis, capillary refill of 6 s, tachycardia, hypotension and anuria (cold shock). The patient was empirically treated with ceftriaxone and vancomycin, started inotropic and ventilator support, having been transferred to a hospital with a paediatric intensive care unit with a refractory shock, purpuric rash and disseminated intravascular coagulation (figure 2).

Blood workout revealed leucopenia (2.600/mm³) with neutropenia (2.00/mm³), C reactive protein 89 mg/L, urea nitrogen 30 mg/dL, creatinine 0.8 mg/dL and a metabolic acidosis (pH 7.176, pCO₂ 29.3 mm Hg, HCO₃ 10.6 mmol/L, lactates 5 mmol/L). Volume expansion and transfusion of multiple blood components were needed and inotropic support was adjusted to epinephrine, norepinephrine and milrinone. In the first 24 hours, she presented with renal insufficiency with anasarca and continuous venovenous haemodilfiltration (CVVH) was initiated.

The child progressively started to improve, maintaining CVVH for 7 days, and ventilatory and inotropic support for 10 days. Thoracic and abdominal cutaneous haemorrhagic lesions improved, but haemorrhagic lesions of the extremities evolved to necrosis with need of hands and feet amputation. *Neisseria meningitidis* serogroup B was isolated on blood cultures. Currently, at the age of 7 months, the infant is still in the surgery ward for skin grafting. She



Figure 2 Purpura fulminans with necrosis of extremities.

has an unremarkable neurological exam, with normal cerebral MRI.

N. meningitidis is a Gram-negative bacteria that can be highly pathogenic in humans, the only host. Since 2008, the European incidence rate of meningococcal disease is 0.68/100 000, with the highest cases among children younger than 5 years.¹ Concerning invasive disease, serogroup B is the most common, followed by serogroup C. In these cases, early antibiotics, aggressive initial shock approach and precocious referral to intensive care are potential factors with impact on reducing its mortality.^{2,3}

The Portuguese immunisation programme only covers the serogroup C but vaccine for serogroup B (MenB), although expensive, is available for purchase.

Learning points

- ▶ Meningococcal infection, although rare, has high mortality and severe morbidity in children, heightening the importance of preventing this invasive disease.
- ▶ Nowadays serogroup B is the main meningococcal disease-causing agent, so immunisation with the MenB conjugate vaccine should be recommended and included in national infant immunisation programmes.
- ▶ Early and correct intervention with antibiotics and supportive care can be life-saving in fulminant meningococcaemia.

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Figure 1 Petechiae and purpuric lesions only on the thoracoabdominal region.



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