

EMERGENCY CASEBOOK

Rickettsia: an unusual cause of sepsis in the emergency department

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Mediterranean spotted fever (caused by *Rickettsia conorii*) is one of the tick-borne rickettsioses. It is prevalent in southern Europe, Africa and central Asia and may also be seen in travellers returning from these areas. It presents with various non-specific symptoms, including fever, maculopapular rash, headache, myalgia or diarrhoea and vomiting. A visible eschar at the site of the tick bite is characteristic but not present in all cases. There is no test that reliably confirms the disease in its early stages and diagnosis is often made on clinical grounds. Delay in diagnosis and in providing correct antibiotic treatment increases the mortality rate of this condition. Emergency clinicians should be aware of the possible diagnosis in travellers returning from endemic areas in order to start the correct treatment as early as possible and minimise subsequent complications and mortality.

We present the case of a 56-year-old woman who presented to the accident and emergency department with a 48-h history of diarrhoea, headache and arthralgia after a holiday in Turkey. On arrival, she had hypotension, tachycardia and fever, and showed signs of meningism, with stiffness in the neck and positive Kernig's sign. She also had subconjunctival haemorrhages, a purpuric rash and positive Hess' sign in both arms.

The rest of the history showed that the patient had been completely well until 48 h before admission. Her only medical history was an evacuation of an intracerebral haemorrhage 32 years previously. She was on no regular drugs and had no allergies.

Treatment was started with intravenous fluids and cefotaxime. Samples of blood, stool and urine were sent for culture. Initial blood results showed leucocytosis and thrombocytopenia, with a white cell count of $23.8 \times 10^9/l$ (neutrophils $22.6 \times 10^9/l$) and a platelet count of $57 \times 10^9/l$. C reactive protein concentration was raised at 328 mg/l (normal range <10 mg/l) and renal function was impaired, with a urea concentration of 15.3 mmol/l and creatinine of 357 mmol/l.

The patient was admitted to the intensive care unit with established multiorgan failure. She required treatment for septic shock, renal failure, respiratory failure and disseminated intravascular coagulation. At this stage, her white cell count had increased to $64.7 \times 10^9/l$ and C reactive protein was 422 mg/l. The antibiotic regimen was changed to intravenous cefotaxime, meropenem and metronidazole.

A thorough examination showed a previously unnoticed ulcerated area on her second toe, but no other abnormalities. All blood, stool and urine cultures were negative, as were tests for *Escherichia Coli* 0157 antibodies and meningococcal polymerase chain reaction.

After 8 days in the intensive care unit and 7 days on a general medical ward, the patient was discharged home with a course of oral antibiotics, but still no definite diagnosis for

the septic event. Eight weeks after discharge, serological results were received which showed immunoglobulin M against the *Rickettsia* spotted-fever group, consistent with a recent spotted-fever infection.

DISCUSSION

This patient had many of the features typical of Mediterranean spotted fever, including headache, rash, conjunctival suffusion, renal impairment and thrombocytopenia. Most important, however, was the ulcerated area on her toe, which represented the characteristic black eschar (*tache noire*) from the tick bite that spreads the infection.

Mediterranean spotted fever is a tick-borne rickettsial infection caused by *Rickettsia conorii*. It is endemic in parts of Africa, the Middle East and Mediterranean Europe and is the most common imported rickettsial infection seen in the UK.

Infection usually presents with mild to moderately severe flu-like illness typically accompanied by a cutaneous rash and an inoculation eschar at the site of the tick bite, but potentially life-threatening disease with disseminated vasculitis is occasionally seen.¹ Although the illness is usually self-limiting, fatal cases have been reported in the literature.^{2,3}

There is no reliable test to diagnose the infection in its early stages and the diagnosis is usually clinical; diagnosis is made on the basis of clinical features, which are generally non-specific and easily confused with other conditions such as bacterial meningitis.

This case illustrates the importance of taking a careful travel history and performing a thorough clinical examination. Although *Rickettsia* remains an uncommon cause of sepsis in the UK, it is important to consider it and other tropical infections in the differential diagnosis of a case such as this, especially as people are now travelling to endemic areas more frequently.



Figure 1 Characteristic black eschar seen in Mediterranean spotted fever.

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REFERENCES

- 1 **Jensenius M**, Fournier PE, Raoult D. Tick-borne rickettsioses in international travellers. *Int J Infect Dis* 2004;**8**:139–46.
- 2 **Amaro M**, Bacellar F, Franca A. Report of eight cases of fatal and severe Mediterranean spotted fever in Portugal. *Ann NY Acad Sci* 2003;**990**:331–43.
- 3 **Dzelalija B**, Petrovec M, Gaspovar S, *et al.* The first fatal case of Mediterranean spotted fever in Croatia. *Acta Med Croatica* 2000;**54**:195–7.