Scrub typhus meningitis: a clue so near

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DESCRIPTION

A 45-year-old woman from Cuddalore district, South India, came to the emergency medicine department with a history of fever, headache, myalgia and vomiting of 17 days duration, dizziness, generalised limb weakness of 3 days duration that had her confined to bed. She had been treated in another hospital with intravenous ceftriaxone for 3 days following which her fever intensity had reduced. She was dehydrated at admission, had oral herpes labialis, low-grade fever (99.8 F), mild weakness (4/5 lower limbs and left upper limb, 5/5 right upper limb), depressed deep tendon reflexes, bilateral flexor plantar reflex, neck stiffness and positive Kernig's sign. The rest of the systemic examination was normal. We considered a meningitic illness with lower motor neuron quadriparesis, probably a radiculoneuropathy, which was improving. Investigations revealed haemoglobin 98 g/L (12–14), total leucocyte count $12.6 \times 10^9/L$ ($4-10 \times 10^9$), platelets $350 \times 10^9/L$ ($150-450 \times 10^9$), blood sugar 137 mg/dL (141–200), creatinine 0.9 mg/dL (0.8–1.2), sodium 135 mEq/L (135–145), potassium 3.2 mEq/L (3.5–5.0), chloride 96 mEq/L (95–110), total bilirubin 1.2 mg/dL, aspartate transaminase –78 U/L (<40), alanine transaminase 54 U/L (<35) and alkaline phosphatase 112 U/L (<125). Cerebrospinal fluid (day 2) showed 20 cells (<5), with 12 neutrophils and 8 lymphocytes, sugar 68 mg/dL, protein 81 mg/dL (<40) and was negative for acid-fast bacilli, India ink staining and GeneXpert for tuberculosis. A partially treated meningitis or a tuberculous meningitis was considered; ceftriaxone was continued and antitubercular therapy was planned. A CT (day 1)

Patient's perspective

(Daughter) The doctors gave a diagnosis of partially treated brain fever, but my mother did not recover completely with intravenous injections. Though I noticed the scab on her back while changing her clothes during the early part of her illness, it never crossed my mind that it was the culprit all along. Thereafter the treatment was so easy, and my mother made rapid recovery.

Learning points

- ▶ In patients from endemic areas, acute febrile illness and meningeal signs should merit a thorough search for eschars.
- ▶ Long duty hours make physicians prone to errors of omission.

of the brain and MRI (day 6) with contrast were normal. There was no leptomeningeal enhancement. Though fever subsided, her nausea, vomiting, anorexia and headache persisted. Two days later, her febrile panel revealed Lepto IgM positivity, negative malarial antigen and negative PCR (in cerebrospinal fluid) for scrub typhus and herpes encephalitis (1 and 2). Only then the resident remembered that an eschar had been noticed at the site of lumbar puncture during the procedure ([figure 1A,B](#)). The resident's duty had been hectic, and documentation of the eschar was forgotten. Oral doxycycline 100 mg

Figure 1 (A) Eschar noticed at the site of lumbar puncture before the procedure. (B) Close-up view of the eschar.

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two times per day (due to unavailability of intravenous preparation) was then initiated, 3 days after which all her symptoms except nausea subsided. Despite her upper gastrointestinal symptoms, she tolerated doxycycline without vomiting the doses that were administered. Upper gastrointestinal endoscopy performed for her nausea was normal. She was managed with intravenous pantoprazole and metoclopramide. At discharge she was advised to complete a 14-day course of doxycycline along with omeprazole. The presence of eschar at the bite-site is a specific marker for the clinical diagnosis of scrub typhus (98.9%).¹ Also, the scrub PCR assay's sensitivity was 86.5% according to one study.² There are many case reports of serological dual positivity for scrub and leptospirosis, but most of them are due to a single infection with cross-reacting antibodies or a recent past infection of the other.² Both these infections differ in their management, although mild leptospirosis and scrub typhus can be managed with doxycycline alone. In our case, the test was suggestive of leptospirosis, but the eschar clinched the diagnosis, although late. She denied our request to return for a repeat scrub IgM

since she had gained new employment after her discharge from hospital and was unable to forgo her daily wages.

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