Scrub typhus: the clinical significance of the eschar

Takashi Akaike,[1] Kosuke Ishizuka ,[2] Naoto Tominaga,[3] Iori Motohashi[1]

[1]Division of General Internal Medicine, Department of Internal Medicine, Kawasaki Municipal Tama Hospital, Kawasaki, Kanagawa, Japan
[2]Department of General Medicine, Yokohama City University School of Medicine, Yokohama, Kanagawa, Japan
[3]Division of Nephrology and Hypertension, Department of Internal Medicine, Kawasaki Municipal Tama Hospital, Kawasaki, Kanagawa, Japan

Correspondence to
Dr Kosuke Ishizuka;
e103007c@yokohama-cu.ac.jp

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DESCRIPTION

A man in his 80s on chronic haemodialysis for end-stage kidney disease due to microscopic polyangiitis (MPA) presented with fever and chills since the morning. His medications included prednisolone (5 mg/day) and azathioprine (50 mg/day) for MPA. He had also engaged in leisure gardening. Physical examination showed a body temperature of 39.1°C, heart rate of 100 beats per minute, blood pressure of 118/65 mm Hg, and respiratory rate of 20 breaths per minute. Laboratory data exhibited the following: aspartate aminotransferase, 86 U/L (reference range: 13–30 U/L); alanine aminotransferase, 35 U/L (reference range: 10–42 U/L); C reactive protein, 8.03 mg/dL (reference range: 0.00–0.14 mg/dL); WBC, 3800/µL (neutrophils, 96.0%; lymphocytes, 2.5%; reference range: 4000–9000/µL); platelets, 42 000/µL (reference range: 1 58 000–3 48 000/µL); and myeloperoxidase antineutrophil cytoplasmic antibody; 1.1 IU/L (reference range <3.5 IU/L). Detailed physical examination revealed an eschar of 5 mm diameter on the medial side of the right lower leg (figure 1). PCR of an eschar biopsy specimen was positive for *Orientia tsutsugamushi*, and scrub typhus was diagnosed. His symptoms resolved after treatment with minocycline, 200 mg/day for 7 days.

Scrub typhus, a zoonotic disease also known as tsutsugamushi disease, is a rickettsiosis caused by *Orientia tsutsugamushi*, which is frequently reported in Asia and the Pacific Rim.[1] Although it varies by region, tsutsugamushi disease peaks in the fall and early winter.[2] The disease is transmitted by the bite of a tick larva, called chigger, and after an incubation period of 7–10 days, symptoms such as headache, myalgia and rash are observed besides fever and chills. While the accompanying symptoms other than fever and chills may be unremarkable, they are often fatal.[3] As seen in this case, an infiltrative erythema with a 5–15 mm long black eschar at the site of the infected chigger bite can be often found on physical examination. Approximately 80% of patients have an eschar, which is of high diagnostic value, but patients themselves do not often notice the presence of the eschar, which may be found in obscure sites such as the pubis, axilla or lower legs; therefore, careful physical examination is necessary.[4] For a definitive diagnosis, PCR of a serum or eschar sample is useful. If appropriate treatment, that is, tetracyclines or macrolides,[5] is not administered early, the incidence of severe complications such as disseminated intravascular coagulation generally becomes high,[4] although the outcome in immunocompromised patients such as those on dialysis and on immunosuppressants is not well understood. In conclusion, when fever develops after farming or gardening in late autumn in *Orientia tsutsugamushi*-rich regions, careful examination for a possible eschar is of significance for early diagnosis and treatment.

Figure 1 Detailed physical examination revealed an eschar of 5 mm diameter on the medial side of the right lower leg.

Learning points

- Scrub typhus is transmitted by the bite of a tick larva, called chigger, and after an incubation period of 7–10 days, symptoms such as headache, myalgia and rash are observed besides fever and chills. While the accompanying symptoms other than fever and chills may be unremarkable, they are often fatal.
- In scrub typhus, approximately 80% of patients have an eschar, which is of high diagnostic value, but patients themselves do not often notice the presence of the eschar, which may be found in obscure sites such as the pubis, axilla or lower legs; therefore, careful physical examination is necessary.
- When fever develops after farming or gardening in late autumn in *Orientia tsutsugamushi*-rich regions, careful examination for a possible eschar is of significance for early diagnosis and treatment.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

ORCID iD

Kosuke Ishizuka http://orcid.org/0000-0003-4313-6592

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