



# Land Leech Bite Associated *Rickettsia japonica* Infection in an Elderly Woman in Zhejiang, China

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The patient was a farmer living in Yuanma Village, Yuyao City, Ningbo, a mountainous region in eastern China. She reported a long-term habit of digging bamboo in the surrounding mountains and described the activity as involving walking through dense undergrowth and leaf litter, where land leeches are commonly encountered. She specifically recalled being bitten by a land leech on her left ankle approximately 3 days before symptom onset (Figure 1). She denied any history of tick bites, either recently or in the past. She had no pets and reported no known sick contacts. Her only outdoor activity during the two weeks prior to illness onset was bamboo digging in the mountains near her village. On August 16, 2025, upon admission, she was alert and oriented, with a fever exceeding 38 °C and a non-pruritic, painless rash extending from the ankle to the thighs, limbs, palms, and soles. A single lesion was observed at the site of the leech bite, which developed into an eschar 5 days before admission and bled when the leech was removed. Physical examination revealed a regular heart rhythm, clear breath sounds, and no hepatosplenomegaly or lymphadenopathy. Before hospital admission, the patient reported receiving no specific medical treatment for her symptoms. She also denied taking antipyretics, antibiotics, or traditional Chinese medicines before presentation. Laboratory findings demonstrated thrombocytopenia (platelet count,  $90 \times 10^9/L$ ), elevated liver enzyme levels (aspartate aminotransferase, 98 IU/L; aspartate aminotransferase, 49 IU/L), elevated lactate dehydrogenase levels (540 IU/L), and elevated C-reactive protein levels (95.47 mg/L). Whole-blood polymerase chain reaction testing was positive for spotted fever group rickettsiae. Sanger sequencing of the *gltA* gene confirmed *Rickettsia japonica* (*R. japonica*) with 100% nucleotide identity to the reference strain LC786371.1. Phylogenetic analysis clustered the isolate with *R. japonica* reference strains (Figure 2). The patient was treated with oral minocycline (200 mg/day for 1 day), followed by intravenous omadacycline (100 mg/day for 8 days) and intravenous meprednisone (40 mg/day for 3 days). She showed clinical improvement and was discharged on day 9.

Japanese spotted fever (JSF) is an emerging tick-borne zoonotic disease caused by *R. japonica*, a member of the spotted fever group rickettsiae.<sup>1,2</sup> Initially identified in Japan in 1984, the disease has subsequently been reported in several other Asian countries, including South Korea, Thailand, and the Philippines. In China, recognition of JSF has increased over the past two decades, with confirmed cases predominantly reported in southern and eastern provinces such as Anhui, Hubei, Fujian, and Zhejiang.<sup>2</sup>



**FIG. 1.** In Ningbo, China, a patient was infected with *Rickettsia japonica* following a land leech bite, resulting in an erythematous macular rash on the limbs (images were not retained). The eschar from a mountain leech bite on the lower leg displays an atypical appearance, characterized by a well-defined erythematous border and no scab.



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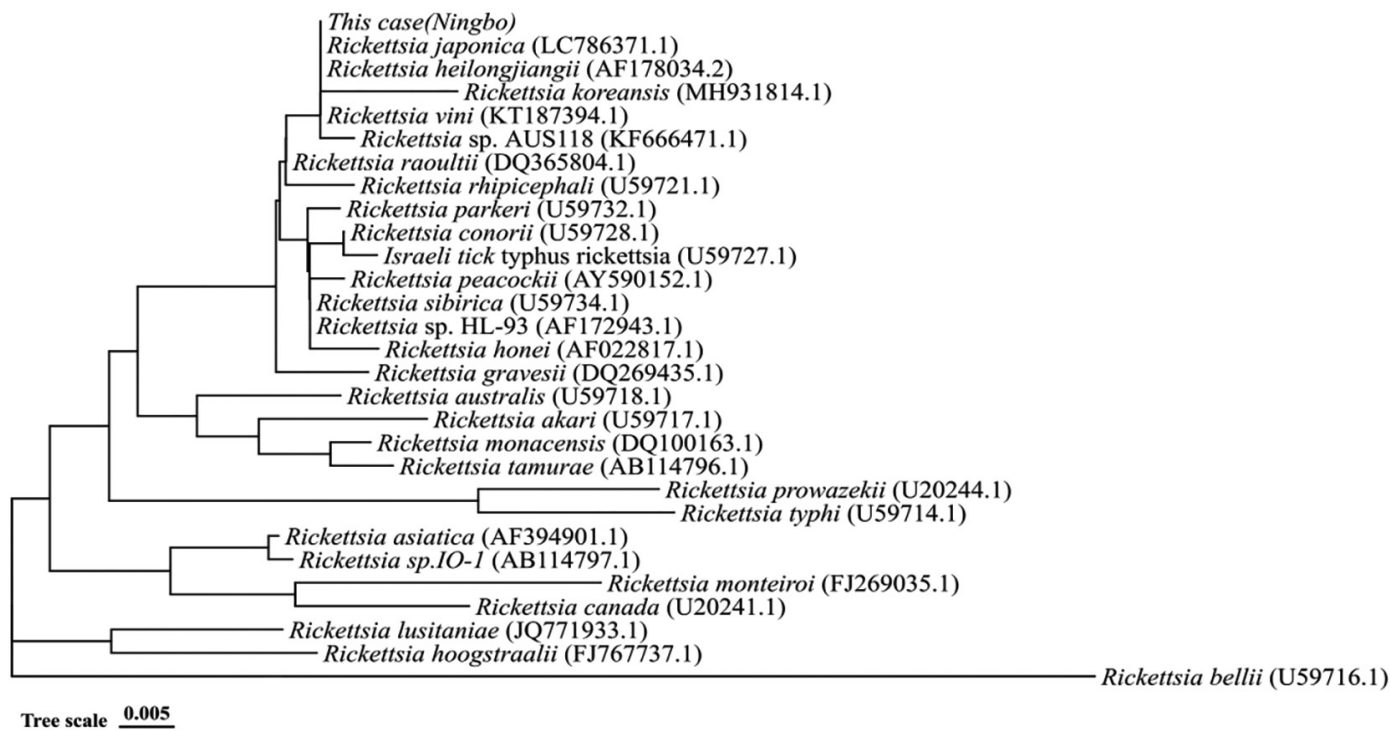
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**FIG. 2.** Neighbor-joining phylogenetic tree based on *gItA* gene sequences (1,000 bootstrap replicates). The isolate from the present case clusters with *Rickettsia japonica* reference strains, distinct from other spotted fever group rickettsiae.

Ticks of the genera *Haemaphysalis* and *Ixodes* are recognized as the primary vectors of *R. japonica*, and patients typically report a history of tick exposure before symptom onset. To the best of our knowledge, this case represents the first documented *R. japonica* infection in mainland China potentially associated with a land leech bite in the absence of tick exposure, supporting the hypothesis that land leeches may serve as vectors for spotted fever group rickettsiae. A similar case has previously been reported in Japan.<sup>3</sup> Biological plausibility is supported by evidence that leeches can harbor rickettsiae<sup>4,5</sup> and that hirudin-induced bleeding may facilitate pathogen entry.<sup>6</sup> In China, JSF cases are primarily reported in southern and eastern provinces,<sup>2</sup> and leech species diversity is high in forested regions overlapping with JSF-endemic areas.<sup>7</sup> Clinicians practicing in endemic regions should consider leech exposure in patients presenting with fever, rash, and eschar, even in the absence of a history of tick bites.

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**Ethics Committee Approval:** Ethics approval for this study was obtained from the Ethics Review Committee of Ningbo Center for Disease Control and Prevention (approval number: 202609; date: February 25, 2026).

**Informed Consent:** Written informed consent was obtained from the patient for the publication of this case report and accompanying images.

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