A Febrile Illness with Generalized Papular Rash Involving the Palms and Soles
(See pages 704 for the Photo Quiz)

Figure 1. Photographs of papular rash visible on the patient’s feet and legs at transfer to our medical center

Diagnosis: *Rickettsia honei* infection.

A provisional diagnosis of rickettsial illness was made at transfer of the patient to our medical center, and oral doxycycline administered at an initial dose of 200 mg followed by 100 mg twice per day for 1 week was prescribed. Rapid plasma reagin tests and blood cultures had negative results. Results of serial rickettsial serological testing demonstrated a striking increase in antibody titer to *R. honei* (table 1). Rickettsial PCR and culture performed at the Australian Rickettsial Reference Laboratory (Geelong, Australia) on a blood specimen collected at day 14 of illness (before specific treatment was initiated) had negative results.

A number of new spotted fever group rickettsiae have been identified in the past 3 decades. Infection due to *R. honei* in Australia was first described among residents of Flinders Island in Bass Strait (separating mainland Australia from Tasmania) 15 years ago [1], but in the last 3 years, this infection has also been recognized in southern mainland Australia [2, 3]. The evidence suggests that the principal vector of *R. honei* infection is the parasitic tick *Aponomma hydrosauri*, which has a variety of reptile hosts, including members of the skink (*Scincidae*) family (of which “blue-tongue lizards” are a member) [4]. The clinical illness is generally characteristic, with fever, myalgias, headaches, and rash. The rash may vary in nature, and the palms and soles are variably involved (figure 1). Eschars and regional lymphadenopathy are inconsistently found. Definitive
Table 1. Sequential serological test results for *Rickettsia honei*.

<table>
<thead>
<tr>
<th>Days since illness onset</th>
<th>R. honei spotted fever group antibody titer</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>1:128</td>
</tr>
<tr>
<td>22</td>
<td>1:256</td>
</tr>
<tr>
<td>37</td>
<td>1:512</td>
</tr>
<tr>
<td>53</td>
<td>1:8192</td>
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diagnosis (i.e., serological diagnosis) takes time, and treatment is, therefore, generally initiated on the basis of clinical suspicion. Serological testing is the most reliable and widely available diagnostic modality, but it is usually of little clinical use at the time of illness, because it takes 2–4 weeks to demonstrate a diagnostic 4-fold increase in titer. Interestingly, despite the impressive increase in antibody concentrations in this case, PCR and culture results remained negative. Spotted fever group illness due to *R. honei* is self-limited, the patient had been unwell for 12 days prior to transfer, and it seems likely that the rickettsiae had been cleared from the blood stream at that stage as a result of the patient’s own immune response. It is, therefore, debatable whether doxycycline treatment made any difference with respect to the course of the illness. However, given the safety profile of this antibiotic, there seemed to be no contraindication to therapy.

We cannot say whether the recognition of these cases in South Australia represents a change in the ecology of rickettsiae or is simply the recognition of an existing endemic infection. However, it is probable that the infection occurs in a wider region of Australia than has been generally recognized to date, and therefore, practitioners need to maintain a high index of suspicion for rickettsial illness when confronted with individuals manifesting a characteristic syndrome of fever, myalgia, headache, and rash who live in or have recently traveled through the southern regions of Australia.

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**References**