## Foreign tick smuggling rickettsia evades Australian border control

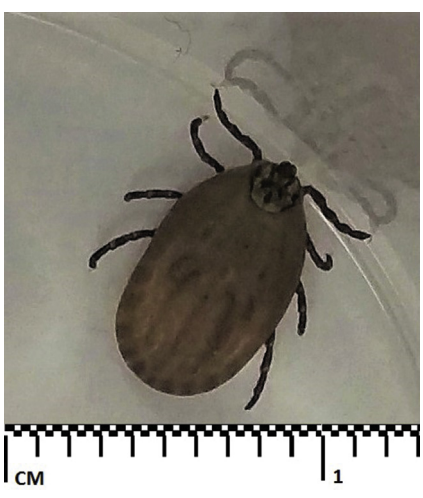
To the Editor: Tick-borne infectious diseases, including rickettsial infections, acquired in Australia or after international travel remain a diagnostic challenge.[1]

A 68-year-old man presented with umbilical pain 10 days after returning from a 2-month camping trip through the south-west of the United States (ie, Texas, New Mexico, Arizona, Colorado and Utah). On examination, a live tick was detected and removed from the patient's umbilicus (Box).

The umbilical pain resolved after tick removal. There was no development of fevers, constitutional symptoms, or rash to suggest a tick-borne illness. Laboratory investigations were unremarkable. He was educated about the signs and symptoms of tick-borne illnesses and prescribed a single dose of doxycycline 200 mg for prophylaxis due to his high risk exposure.

The tick was identified as *Dermacentor andersoni* (Rocky Mountain wood tick), which is endemic to North America and not known to occur in Australia.[2] *D. andersoni* adult ticks are principal vectors of *Rickettsia rickettsii* (the cause of Rocky Mountain spotted fever), and are associated with transmission of other pathogens to humans, including Colorado tick fever virus and *Francisella tularensis* (the cause of tularemia).[2,3] Although isolated from *D. andersoni* ticks, transmission of *Coxiella burnetii* (the cause of Q fever) is uncommon. *D. andersoni* is not known to transmit Lyme disease.[2]

*Dermacentor andersoni* removed from the patient's umbilicus




Analysis of the tick for rickettsial DNA was positive. No *Borrelia* DNA was detected. *Rickettsia* was isolated in cell culture and identified as *Rickettsia peacockii* based on sequencing of the *17kDa*, *OmpB*, *gltA* and *Sca4* genes. *R. peacockii* is a member of the spotted fever group of rickettsiae.[3,4] The presence of *R. peacockii* in ticks is correlated with reduced prevalence of *R. rickettsii*.[2,3] *R. peacockii* is closely related to *R. rickettsii*, and deletion or mutation of genes, possibly resulting in loss of virulence in *R. peacockii*, have been identified.[3] *R. peacockii* is not known to be a pathogen of humans or other animals.[3,4]

Rickettsial serology 10 weeks after the tick bite showed detectable antibodies (titre, 1/256), predominantly to the spotted fever group of *Rickettsia*, compatible with exposure to *R. peacockii* identified in the tick. Unfortunately, definitive seroconversion or a rising antibody titre was not able to be demonstrated as no earlier sera were available for parallel testing. Pre-existing antibodies from a distant rickettsial exposure from his tick-prone lifestyle (history of extensive international camping trips) cannot be excluded. The patient remains asymptomatic 9 months later and is still an avid traveller.

Tick-borne rickettsial infections in Australia include Queensland tick typhus (*Rickettsia australis*), Flinders Island spotted fever and Australian spotted fever (*Rickettsia honei*) and Q fever transmitted by ticks including *Ixodes* spp., *Amblyomma triguttatum* and *Bothriocroton hydrosauri*.[1]

With increasing international travel, recognition of tick-borne rickettsial diseases is becoming more important. *Dermacentor* ticks have been detected on livestock exported from North America into Europe.[5] This case shows the ability of human ectoparasites, and their potentially pathogenic bacteria, to bypass stringent Australian quarantine controls. Further studies of Australian and imported tick-borne infections are required to increase understanding of these emerging infectious diseases.

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References are available online at www.mja.com.au.

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