

c Tick bite fever

A 47-year-old Free State woman presented to a private hospital with a two-day history of progressively worsening flu-like symptoms and fever. She lived on a smallholding, and had regular contact with animals. On admission she was noted to be pyrexial with a temperature of 38.8°C, and to have a fine papular rash that began on her chest, and spread to the rest of the body but not on the palms and soles. She had no evidence of tick bites, nor an eschar, nor lymphadenitis. There was no neck stiffness nor signs suggestive of meningitis. Blood tests revealed a haemoglobin of 11 g/dl, platelets of 45 x 10⁹/l. Both ALT and AST results were above 200 IU/l. She became delirious and hypotensive, and was admitted to an intensive care unit (ICU) for inotropic support. In ICU she was treated initially with levofloxacin 400 mg twice daily. Blood cultures were negative. Blood was submitted to the NICD Centre for Emerging and Zoonotic Diseases (CEZD). Tests for viral haemorrhagic fever, including Crimean-Congo haemorrhagic fever (CCHF) were negative. Rickettsial PCR was however positive. Doxycycline 100 mg twice daily was added with good response.

African tick bite fever in South Africa is thought to be mainly caused by *Rickettsia africae*, and transmitted by the African Bont or *Amblyomma* ticks (such as *A. hebraeum* and *A. variegatum*) (Figure 1) that feed on a variety of wild and domestic animals. *Rickettsia conorii*, the causative agent of Mediterranean spotted fever, also occurs in South Africa, but is thought to have a limited distribution in urban and peri-urban areas and is associated with *Rhipicephalus sanguines* ticks. Most cases of tick bite fever are mild and patients respond well to antibiotic treatment with doxycycline. Diagnosis is often made on clinical grounds on the basis of the presence of an eschar in a patient with an acute febrile illness. Serological testing is only useful after the first week of illness. PCR for *Rickettsia* on a swab from the eschar would seem to be a useful

and sensitive test for confirmation. Severe cases of tick bite fever are more unusual, but formal surveillance data is not available to support the assumption. In 2014, the NICD reported four fatal tick bite fever cases diagnosed in patients with suspected CCHF. Also notable in the case reported here, is the absence of an eschar. In a case series of 10 severe rickettsial infections diagnosed by the CEZD between 2012-14, seven of eight with a comprehensive history presented with an eschar. It is important to consider that eschars may be undetected and tick bites behind the hairline for example may be difficult to find.

Reference: Kemp, A., Msimang, V., Weyer, J., Paweska, J. Crimean-Congo haemorrhagic fever and tick bite fever in South Africa, 2012-2014. Communicable Diseases Surveillance Bulletin 2014:12 (3); 60-65.



Figure 1. *Amblyomma hebraeum* also known as the African 'Bont Tick', an example of a tick known to transmit *Rickettsia africae*, responsible for African tick bite fever (Photograph courtesy of Professor Bob Swanepoel)

Source: Centre for Emerging and Zoonotic Diseases, Division of Public Health Surveillance and Response, NICD-NHLS